The Influencer Effect on Tourism

Shifting Adventure Travel Behavior Towards More Sustainability through Instagram Influencers

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Abstract

In the past few years, Instagram and the influencer marketing model has offered a significant amount of attention and attraction to the adventure tourism industry, sourcing large crowds of tourists to many "Instagram-famous" locations. However, the growth and practices of the industry raise concerns about sustainability. The influencer marketing model on the Instagram platform is a new digital relationship between influencers and followers that deserves exploration in marketing academia. This thesis researched how sustainability education and marketing within the influencer-follower relationship could impact the adventure tourism industry. Our exploratory research phase provided an overview of influencer marketing, the adventure tourism industry, and sustainable consumer behavior theory (focusing on the White et al. (2019) SHIFT framework) to highlight the interplay between these three subjects. Through conversations with adventure tourism and Instagram industry stakeholders, we captured primary accounts of the impact Instagram and influencers have on Norway's adventure tourism market.

Our causal research experiment, among a diverse sample of 360 international respondents, tested Instagram content promoting sustainable travel from the voice of an influencer to see if it could change followers' travel behavioral intentions. We found that positive improvement to sustainable travel behavior intentions is indeed induced by Instagram influencer content, most successfully using a "tangibility" messaging approach, using "vivid imagery, analogies, and statistics to communicate to consumers" (White et al., 2019). This type of messaging should be implemented immediately by adventure tourism stakeholders on the Instagram platform to initiate the much-desired tourist education about sustainability behaviors.

Key words: Influencer marketing, influencers, followers, Instagram, adventure tourism, sustainable consumer behavior, sustainability.

Acknowledgments

This master's thesis is the culmination of our enrollment in the Marketing and Brand Management (MBM) track of the MSc in Economics and Business Administration program at the Norwegian School of Economics (NHH). The emerging trend of Instagram influencers and their effect on tourism trends must remain a focus for the industry to ensure the long-term sustainability of natural and cultural destinations. We felt encouraged and inspired to engage with these topics during the last year as the 2019 global landscape brought climate change, sustainability, and environmental conservation to the attention of the masses.

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List of Abbreviations

AIDA	Attention Interest Desire Action
ANOVA	Analysis of Variance
CL	Confidence Level
DNT	Den Norske Turistforening
DV	Dependent Variable
H	Hypothesis
IGTV	Instagram TV
IV	Independent Variable
MANOVA	Multivariate Analysis of Variance
RQ	Research Question
SHIFT	Social Influence, Habit, Individual Self, Feelings and Cognitions, Tangibility
Q	Question

1.   Introduction

1.1   Background

Norway is known for its picturesque landscape composed of beautiful fjords and mountains. As students new to the country in 2018, we were both eager to explore the famous rock formations such as Trolltunga and Preikestolen that were on our must-see lists. We "discovered" these places on Instagram by searching the Norway geotag and following many travel influencers. We did not turn to travel books like our parents' generation as we could find all the best sites in Norway on Instagram. A few weeks into our move to Norway, we spent a weekend adventuring to Trolltunga to hike and capture photos. After a 14-kilometer trek and a tedious 45-minute queue, we took the iconic photo on Trolltunga and posted it on Instagram resulting in many likes and comments especially from our fellow students in Bergen who all planned to visit this spot. Reflecting on this experience, we acknowledge that we waited so long to have one minute to capture the photo for social media without truly immersing ourselves in the view because so many others were waiting. At the end of the journey, all we had was the iconic photo just like the thousands of travelers who have been there before.

With previous hiking experience, we were aware of how to travel in the mountains and came prepared for the trek. Once on the mountain, we saw some experienced hikers but were shocked by the number of travelers who were unequipped for the long hike. Thinking back to our Instagram research, all the posts simply showed the beauty of Trolltunga without any information about the hike itself. We are part of a growing generation planning their trips through Instagram, so this lack of information is a big problem. Furthermore, we found ourselves as a part of the problem, since we followed Instagram recommendations which funneled us to hyper-popular locations. During our trips in Norway to other Instagram-famous spots, we have continuously seen the impact of mass tourism in the mountains, overrunning small Norwegian communities during the peak summer season. While our tourism behaviors might not have had significant ecological impact on their own, they were part of a mass that does have an effect. This thesis is based on our reflection and desire to become a more mindful traveler and responsible Instagram user. Our research takes a stance against the adventuring mob that is hurting the environment while "doing it for the gram."

The story above is not unique. Social media and Instagram are having a significant effect on changing travel behaviors. Chris Burkard, a famous outdoor photographer with 3.5 million followers on Instagram states, "Now you're less than 10 clicks away from seeing an image on Instagram to purchasing a ticket to go there." (Miller, 2017). Often recognized as one of the first travel influencers on Instagram, Burkard is now one of the thousands providing a curated stream of visual content showcasing adventurous places to visit around the world. June 2019, John Oliver's, "Last Week Tonight" broadcast an episode covering the crowds on Everest during the May 2019, climbing season (Pennolino, 2019). Oliver shared that some of the cause for increased crowds and fatalities was due to inexperienced climbers being allowed to get on the mountain and capture their Instagram-worthy accomplishment (ibid.). While researchers have dug into the psychological effects and mental health issues surrounding the use of social media and Instagram, its effect on natural environments and tourism locations deserves equal attention.

Tucked away in the Peruvian Andes, Rainbow Mountain is also seeing much popularity and ecological destruction since Instagram helped put it on the map (Magra & Zarate, 2018). Scientists speculate that climate change is to blame for the once snow-covered mountain melting to reveal unique mineral deposits that create a rainbow appearance often edited and enhanced in pictures online (ibid.). Its proximity to Cuzco, the home-base for travelers visiting Machu Picchu, is making the mountain accessible to thousands of tourists (ibid.). And while the influx of travelers provides the local community with a new source of tourism income, a lack of infrastructure and no limits on guiding groups is leaving a serious impact. The popularity of Rainbow Mountain has caused a new paved parking lot to appear for tour busses, unmaintained trails, and significant ecological destruction to a once untouched alpine environment (ibid.).

In Norway's 2017 roadmap "Towards Sustainable Travel and Tourism in Norway" the national tourism authority highlights that "marketing and rapid increasing information flow through the internet and social media make it more difficult to control tourism traffic…[creating] near fragile tourism icons that are vulnerable to mass tourism" (Molstad, 2017; p. 9). Norway's Trolltunga acts as a cautionary tale of an Instagram-famous natural landscape that saw a huge influx of travelers after the popularity of the location grew on Instagram (Maclean, 2017). The nearest town, Odda, saw an influx of travelers up from 800 in 2010 to 88,000 by 2018 (Trolltunga AS, 2019). The trip to Trolltunga requires six hours of

hiking, which can be quite strenuous for inexperienced travelers. Open access creates overuse, littering, safety concerns, and seemingly disrespect to a natural landscape that was virtually unknown to most travelers before Instagram (Kim, 2016).

Norway has been a first mover in promoting sustainable tourism, first outlining sustainability goals in 2007 and developing a full national sustainable tourism standard by 2013 which was later adopted internationally by the Global Sustainable Tourism Council (Pearson, 2019). With a national goal of becoming carbon-neutral by 2030, sustainability in the tourism sector is a necessity with much room for improvement (ibid.). Niche examples of carbon-neutral hospitality and bike journeys are becoming more popular, but a paradox in the Norwegian tourism industry still exists. Carbon-intensive, cruise ship travelers grew from 100,000 to 800,000 in the last 25 years, tourism shops are selling imported souvenirs in the masses, and summer dominates as the most popular season (ibid.). As a part of the sustainable tourism roadmap's vision, there's a call for "…a more effective use of digital media to help spread tourism to more destinations across more time periods." (Molstad, 2017; p. 14).

One phenomenon that has accounted for the popularity of tourism icons is Instagram influencers. The term *influencer,* as defined in this thesis, refers to anyone who makes a career on social media channels by building their own brand with a follower count (Barton, 2018). A *follower* is an audience member of an influencer who chooses to subscribe to the influencer's content and joins a digital community composed of other followers and brands who engage with the influencer's content (ibid.). Influencers build a large following on Instagram and use their Instagram content feed as a curated, customized marketing channel (Barton, 2018; Hennessy, 2018). Influencer marketing on the platform started in 2015 with companies collaborating with celebrities to advertise their products (Mechem, 2018). Influencers are more powerful than celebrities because they are considered more credible and are trusted as a friend or family member (Djafarova & Rushworth, 2017).

In the travel industry, there are many influencers with vastly different content feeds and marketing strategies. While many influencers follow similar content rules such as high-quality photos, geotagging, hashtag use, and engagement tactics, the purpose of their curated feed might differ (Barton, 2018; Hennessy, 2018). We are most interested in the adventure tourism industry, so the Adventure Travel Trade Association (2018) defines *adventure tourism* as combining nature, physical activity, and cultural experience (Viren et al., 2017). Within this market, adventure tourism influencers portray and popularize visiting natural landscapes

through hiking or other active adventure sports, supplying endless amounts of content and recommendations like the Trolltunga and Rainbow Mountain examples above. With a few dedicated searches, one can discover another sub-sector of travel influencers that promote messages about sustainability and sustainable consumption. These influencers share ideas with zero-waste advocates, vegans, and bike-tourers. Common themes in their content include alternative transportation, changing consumer behaviors, and education about reducing ecological impact.

1.2   Research Questions

Current research on Instagram influencers' impact on followers' behavior does not specifically address the niche of sustainable adventure travel. Research on the underlying values and purpose of adventure tourism has strong links to sustainability (Buckley, 2012; Molstad, 2017; Oriade & Evans, 2011; Swarebrooke et al., 2003; Weaver, 2006; Wood, 2002), however, research does not establish how tourists interact with or share sustainable values on a digital platform. Furthermore, in considering how to cultivate a shift towards more sustainable behavior in the industry, it is unclear how tourists are best motivated through influencer marketing. This thesis aims to fill the identified research gap above, providing new insight to travel Instagram influencers and adventure tourism stakeholders on how to best initiate more sustainable travel behaviors in the industry. We investigate how the unique relationship between an influencer and follower can be used to positively inspire more sustainable adventure travel behaviors formulated in the following research question (RQ).

RQ1: Can influencer marketing on the Instagram platform be used as an educational tool to promote sustainable travel behaviors in the adventure tourism industry?

Consequently, another aspect to consider is if influencer marketing can be a useful tool for shaping sustainability changes in the industry, how can messaging techniques be applied most effectively? In accordance to White et al. (2019) SHIFT framework of psychological factors that influence sustainable behavioral change in consumers, we investigate if specific factors can be communicated by influencers to generate sustainable adventure travel intentions among their followers. We consider two types of messaging styles 1) social influence content, where an influencer "makes the sustainability behavior more socially desirable and encourages consumers to make public and meaningful commitments" and 2) tangibility content, where an influencer "uses tangibility interventions such as vivid imagery, analogies, statistics, to

communicate to consumers" (White et al., 2019, p. 73-74). These styles are identified as most relevant to the influencer marketing model and Instagram platform, leading us to an additional research question of:

RQ2: Can influencers use a social influence or tangibility messaging strategy to produce a change in their followers' travel behavior intentions, and if so, which type of content causes a higher likelihood of sustainable intentions?

Through these research questions, we aim to identify the impact that sustainability education in the context of influencer marketing could have on the adventure tourism industry. If content and messaging can have a positive impact on travel behavior intentions, this could inform how adventure tourism industry players like tourism agencies, municipalities, non-profits, and influencers can create a positive sustainability change using the Instagram platform.

1.3   Structure

Over seven months from May – November 2019, we investigated the three core concepts central to our research questions above: Instagram and influencer marketing, adventure tourism, and sustainable consumer behavior. As chapter 1 provides a high-level view of the problem and subsequent research questions, we discuss the theoretical background of the three core topics in chapter 2. This theoretical research informs our assumptions and research methodology. Our sustainability behavior of interest is fostering greater respect for the ecological locations that tourists visit through care of trails, responsible waste management, reducing car traffic and minimizing overcrowding. We arrived at these sustainable behavior interventions after our literature review and consulting many industry players in the Norwegian adventure tourism market, which we find representative of many locations struggling with the same issues.

Chapter 3 introduces our research methodology, which is grounded in the SHIFT framework, developed by White et al. (2019). The SHIFT framework outlines five psychological factors that impact sustainability behavior change and provides a methodology for researchers to employ their framework (ibid.). Our research uses two SHIFT psychological factors, s*ocial influence,* and *tangibility*, in marketing messages as our hypothesized independent variables that could generate a positive effect on travel behavior intentions. We first deploy a qualitative methodology to better understand the sustainability changes that need to occur in the industry

and validate our hypotheses among adventure tourism stakeholders. We then pursue a second quantitative phase where we test an influencer's Instagram content in an online survey to test our marketing strategies and see if they have any effect on travel behavior intentions.

Chapter 4 overviews our results and analysis of all data types collected in our research and chapter 5 discusses our findings from these two research phases. Chapter 6 summarizes our known limits of our research and proposes potential further research extensions. Chapter 7 offers a general conclusion with theoretical and managerial implications.

2.   Theoretical Background

2.1   Influencer Marketing

2.1.1 The Roots of Influencer Marketing

Influencer marketing is a new marketing channel important for companies wanting to reach a specific target group since traditional marketing campaigns based on mass media advertising are considered as less effective in today's customizable marketing environment (Kirby & Marsden, 2006). When purchasing goods and services, consumers rely on personal recommendations and reviews by friends and other consumers, otherwise called *word-of-mouth communication* (Lis & Korchmar, 2012). Kirby & Marsden (2006) define word-of-mouth marketing as the "promotion of a company or its products and services through an initiative conceived and designed to get people talking positively about it" (p. 18). Influencing is not a new phenomenon. According to Buttle (1998), the influencer who uses word-of-mouth communication dates back to the 1980s to the introduction of the term *marketing maven,* an individual "who enjoys advising friends of new products/services and places to shop" (Brown & Fiorella, 2013, p. 20).

The traditional influencer indirectly helped companies in building their brand by freely talking about it without compensation. This brand communication model follows the two-step flow of communication presented by Lazarsfeld and Katz in 1940, which showcases the relation between mass media, opinion leaders and opinion followers (Schach, 2018; Katz et al., 1955). In their study, during the presidential elections in the United States of America in 1940, they discover two groups: *opinion leaders* and *opinion followers*. Opinion leaders are not necessarily famous personalities but any individual who shares their position freely, acting as

an influencer. Opinion followers are people who do not have a strong opinion or are flooded by information and therefore have difficulty forming an opinion (Ahrens & Dressler, 2011). This model explains that the information flows from mass media to opinion leaders, who then communicate this information to the opinion followers. The first flow is the interpretation from the opinion leader and the second step is the transmission of this opinion to the community. Therefore, opinion leaders are working as a mediator between the brand and the consumer.

The way brands communicate with their potential customers has developed over the years. However, the interplay between relevant information and influence through recommendations has always been the core of it. With the rise of the internet and a continuous increase in social media usage, brands now have another channel to communicate directly with their consumers (Brown & Fiorella, 2013) No longer is it enough to have a social media channel and passively communicate with the customers. Social media allows consumers to write reviews and at the same time allows the brand to interact and maintain a closer relationship with its consumers (Ternès & Towers, 2014).

Interpersonal relationships between a brand and its customers, using the power of bloggers and influencers, create transparency and authenticity for the brand (Brown & Fiorella, 2013; Uzunoğlu & Kip, 2014). Digital influencer marketing thus has opened a new model for companies to communicate their brand (ibid.). In this model, influencers share their experiences, opinion, and feelings about a company through social media channels. These authentic communications affect their followers since messages come from an influencer's voice instead of company (ibid.). Today, it has become essential for companies to work with influencers not only on their social media channels but also on other collaborative campaigns. Influencer content gives the company more authenticity and trustworthiness because influencers are often seen as a close friend by their followers, which is why this strategy has been highly successful in the recent years (Nirschl & Steinberg, 2018). Furthermore, influencer marketing has been cited as offering increased traffic to a company's digital channels and the development of loyal fans (Statista, 2019a).

2.1.2 Today's Influencer Marketing

Influencing, or word-of-mouth marketing, is not a new phenomenon, but one that has always been a force behind consumer habits (Hennessy, 2018). However, the market's high demand

for influencers has caused a shift in marketing strategies from the traditional forms of media towards social media channels (Barton, 2018). Influencer marketing uses the wide publicity of an influencer to impact the perception of a product, service, brand, and the reputation of a company (ibid.). These reviews, in the end, sway their follower's purchasing behavior (ibid.). However, an influencer differs from a celebrity as they need to employ marketing techniques in order to engage their followers, whereas celebrities benefit from their already existing publicity through their main career (Hennessy, 2018).

Influencers' personal brand building relies on the use of a social media platform, most commonly Facebook, Twitter, YouTube and Instagram (Hennessy, 2018). A survey conducted by Influencer Marketing Hub in 2019, shows that "Instagram is the fastest growing social network in 2019" despite Facebook still having the largest user base with 2.3 billion monthly active users in 2018 (Statista, 2019b), while Instagram had one billion monthly active users in 2018 (Statista, 2019c). In January 2019, the leading social media platform used by marketers worldwide is 94% Facebook and with 73% Instagram (Statista, 2019d). However, Instagram is mostly used by the younger generation with 75% of users being aged between 18 and 24 years old (Perrin & Anderson, 2019), while Facebook has a decrease in its young user base (Anderson & Jiang, 2018). In addition, Instagram is the platform where most influencer marketing campaigns take place (Hennessey, 2018). Most of the socially branded content is on Instagram where the engagement with brands reaches ten times higher than on Facebook (Elliot, 2015). For the above-mentioned reasons, this thesis will focus only on Instagram as the social media platform of interest.

Instagram launched its app on October 6, 2010, as a photo-sharing mobile platform; however, a lower-functionality desktop version exists (Instagram Press, n.d.; Barton, 2018). The company was bought by Facebook on April 9, 2012, for $1 billion (Weber, 2012). Instagram has become a launchpad for many people who want to build a brand and a business, allowing users to become "their own creative director and CEO" (Barton, 2018). Advertising for selected brands was introduced in October 2013 but open advertising for everyone was only released in September 2015 (Instagram Press, n.d.; Boorstin, 2015). The global Instagram influencer market size is expected to grow from $1.3 billion in 2018 to $2.3 billion in 2020 (Statista, 2019e), as the number of brand-sponsored influencer posts on Instagram in 2018 with 3.7 million posts is also expected to double in 2020 (Statista, 2019f). This growth is attributed to the idea that brands do not want to spend money on advertisements that might be

passed over by the audience, and instead rely on an influencer's more trustworthy voice through the creation of a brand-sponsored post (Hennessy, 2018).

There are three types of influencers categorized by the number of their followers. *Micro-influencers* have between 10,000 to 100,000 followers, *macro-influencers* have 100,000 to 1 million followers and *mega-influencers* have over 1 million followers (Tegtmeier, 2017). Companies prefer to work with influencers from one of these categories, however the bigger the influencer's audience, the higher the compensation they can demand (Mackay, 2018). Still, the compensation patterns in the industry are not transparent. Influencer earnings are also based on other commercial conditions of their contract, such as marketing techniques including swipe up links to a company's website, Instagram stories, or creating a post with a caption (ibid.). When working with brands, most influencers aim to keep a balance between non-commercialized and sponsored posts. The common practice is to have 70% non-commercialized posts and 30% sponsored ones, identified with a hashtag like #ad or #sponsored (Hennessy, 2018). If an influencer's account only consists of sponsored posts, followers will often lose interest and trust, since it would appear as if the influencer only creates content based on compensation.

2.1.3 Instagram Terminology & Capabilities

To demonstrate how influencers use the platform, we will now explain the key characteristics and capabilities of Instagram. Every user is identified by a *handle*, an account username that starts with an "@" (Barton, 2018). An account can be either private or public. While all accounts are discoverable by the handle, only the content of public accounts can be seen by anyone (ibid.). Private accounts need to accept each follower's request (ibid.). As we research influencers, we will focus on public accounts; however, some private account influencers do exist. A public account can be turned into a business account that allows the owner to access insights such as demographics of their followers, or when their followers are most active (ibid.).

Like every digital social network, Instagram's network is based on users following each other's accounts. Newly uploaded content will appear on a user's *feed*, the home screen that pops up when opening the app (Barton, 2018). A *post* is uploaded content that can be a photo or video described with a short caption in the influencer's voice (ibid.). Influencer's posts that on average attract the most *engagement* (likes and comments) are photos of themselves and

photos of their surroundings (Hennessy, 2018). Previously, Instagram ordered content chronologically based on when it was posted; however, this was replaced in June 2016 with an algorithmic approach that arranges posts based on users' engagement behaviors (Lua, 2018). This change to the feed structure was introduced to prevent users from missing posts from the accounts they interact with most and increases the users' likelihood of engagement on the app (Perez, 2016).

The Instagram *grid* is a row of three photos that appear on a user's account. The aesthetic of the grid is especially important for influencers who are establishing a business because this row is the first impression that followers and companies see (Barton, 2018). Users can *like* posts on Instagram by double-tapping the post or by tapping the heart icon under the post (ibid.). The *number of likes* is one of the core metrics to measure the performance of a post and follower engagement (ibid.). Besides liking a post, users can also *comment* on posts, demonstrating an even higher level of engagement (ibid.). The *engagement rate* is the sum of likes and comments divided by the number of followers at the time of a post (Hennessy, 2018). A high engagement rate is an important performance benchmark for an influencer and is compensated more generously than follower count alone (ibid.). The goal of an influencer should be to exceed a 3% engagement rate (ibid.).

Instagram also allows other forms of messaging between users, such as private, direct messaging (Barton, 2018). In August 2016, Instagram released a new feature, called *Instagram Stories* (Constine, 2016). Users can now upload photos and videos to their profiles which will automatically disappear after 24 hours (Perez, 2016). Many features in the stories allow for more interactivity between an influencer and their followers, such as polls, swipe up links, or questions. Old stories can be saved and compiled into permanent *story highlights* that appear on a user's profile (Barton, 2018). Similar to the stories, Instagram allows users to live broadcast videos to their followers in real-time which can also be saved for users to watch later (ibid.). In June 2018, the latest feature was released called *Instagram TV*, or *IGTV* (Instagram Press, 2018). IGTV allows users to upload longer videos outside their photo feed (ibid.). Figure 1 shows the interface of an Instagram profile highlighting the main functions discussed in this section.
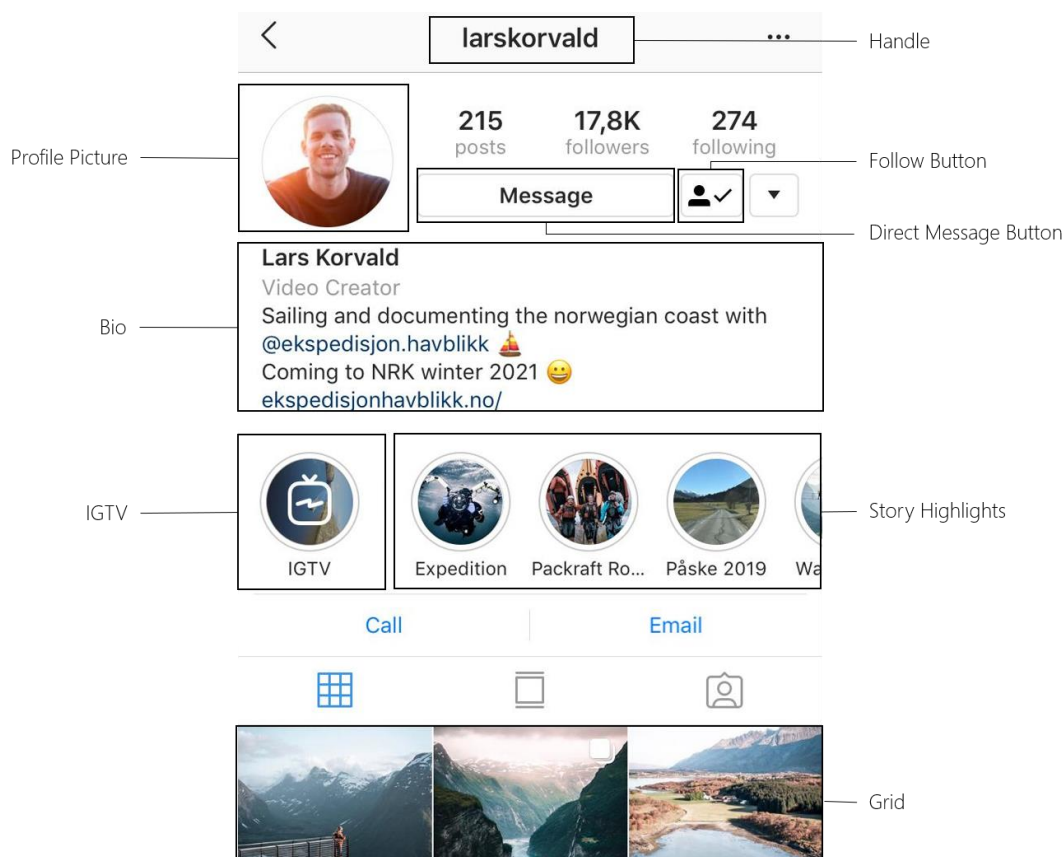
Figure 1: Instagram Profile Interface (Source: @LarsKorvald Instagram)

2.2 Influencer-Follower Relationship

Given that the relationship between Instagram influencers and their followers has emerged and evolved greatly over the last few years, the elements behind the relationship have not been thoroughly analyzed from an academic standpoint. This section aims at using consumer behavior, communication, psychology, advertising, and traditional marketing theory to explain the phenomena affecting the influencer-follower relationship. Our literature review yields four pillar areas that affect the relationship: the *psychological core of the individual*, *the evaluation process*, *external social factors*, and *commercial intention behind the content*. These factors affect both the consumer and the influencer – therefore, this section will outline relevant theory and discuss implications on both parties.

2.2.1 Psychological Core of the Individual

Joseph Sirgy (1982) states that a consumer's *self-concept* provides the mental conception of their being based on their thoughts and feelings formed when considering oneself as an object. A consumer's self-concept is also known to define their beliefs and values that inform their

behavior (ibid.). The choice to engage in social media, Instagram, and influencer content reflects a consumer's self-concept. Many consumers have a self-concept that exists external to any social media platform, whereas social media users are likely to display some essence of their self-concept through curating their accounts and content-streams. A consumer's self-concept might occur through following or interacting with influencers and content that aligns with their existing or desired self-concept. Joseph Sirgy (1986) defines this as *self-image congruence*, meaning consumers will purchase or choose products and brands with characteristics that match their own self-concept.

Self-image congruence exists in this influencer-follower relationship because influencers' content can be considered a product consumed on the Instagram platform. A curated influencer account consists of artifacts grounded in an influencer's personal brand: characterized by brand elements like voice, values, activities, and even sponsored product placements (Barton, 2018; Hennessy, 2018). Content in the form of photos, videos, and stories can be considered a consumable product with informational, entertaining, or aesthetic value (ibid.). As the number of influencers and active users on the platform grows (Lee et al., 2015), content becomes more readily available, meaning consumers can find search through various influencer 'products' to identify which most relates to their actual or desired self-concept. Influencers create brand equity, or the added value endowed by their personal brand to their Instagram content product (Farquhar, 1989). While many influencers advocate for externally branded products in sponsored posts, the sponsorship relationship relies on the influencer's personal brand equity that creates a differential effect on followers' responses to the marketing of the sponsored brand (Keller, 2002).

As a follower interacts with content on Instagram, their *psychological core* or inner psychological processes dictate how they allow the content to affect the behaviors within and outside the platform (Hoyer et al., 2013). The first element of the psychological core is *motivation*, defined as "an inner state of arousal that creates energy that can be directed to achieve a goal," or a general desire or willingness to do something (ibid., p.10). Motivation is the source of energy a consumer needs to enroll in Instagram, seek out influencer accounts and consume their content. Motivation results in high-effort behavior, where considerable effort and willingness to expend time and energy is needed (ibid.). It can also result in high-effort informational processing and decision making, where close attention, thought, attempts

to comprehend, and critical evaluation of relevant information occurs to help a follower achieve a goal (ibid.).

An example of this motivation in the influencer-follower relationship could be when Christina, a frequent traveler, is motivated to plan a trip to New Zealand and looks at influencers for both information (about where to stay) and inspiration (to travel with more public transit). The influencer Christina follows displays characteristics of her desired self-concept and Christina finds motivation in trying to engender the influencer's characteristics in her self-concept. Christina's high-effort behavior, cognitions, and decision-making are exemplified by spending more time consuming the influencer's content, imitating the influencer's behaviors at the destination, and self-reflection about her own personal barriers that might be affecting her reaching her goal.

Through these high-effort processes, the follower can fall subject to *motivated reasoning*, meaning they introduce bias by processing information so that a particular conclusion is reached (Hoyer et al., 2013). Motivated reasoning could be the source of Christina's false understanding of the progress she has made in traveling with public transit if consuming influencer content does not result in her changing her behavior outside Instagram. Motivated reasoning can also result in *cognitive dissonance*, the mental discomfort due to an inconsistency between cognitions and attitudes or behaviors (Cummings & Venkatesan, 1976).

Involvement is the outcome of motivation, referring to the psychological experience of the motivated consumer (Hoyer et al., 2013). *Enduring involvement* exists when a follower shows interest in an offering or activity over a long period of time, sometimes considered leisure involvement (ibid.). Christina's tendency to scroll through the influencer's stories every day to seek out new updates could be enduring involvement. *Situational* or *temporary involvement* occurs when there is temporary interest in an offering, activity, or decision because of situational circumstances (ibid.). While on her trip, if Christina wants to find a local bus and trail to go visit, she might turn to Instagram again, demonstrating temporary involvement in reaching her goal. *Cognitive involvement* is when a follower is thinking about and processing information related to her goal, for example, when Christina looks to expand her efforts by seeking out new influencers who can help her extend her original goal to use public transportation in new travel destinations. Finally, *affective involvement* occurs when a follower is willing to expend emotional energy in an activity (ibid.). Depending on the nature and length

of the influencer-follower relationship, Christina and others like her will often write to influencers to share the impact their content has had, whether through direct messaging or comments (Barton, 2018; Hennessy, 2018). This interactivity within the channel was found to increase social-capital bonding (Levy, 2015).

Motivation to reach a goal or outcome is driven by a follower's unique psychological make-up (Hoyer et al., 2013). Motivation towards a goal cannot exist unless the goal aligns with a follower's self-concept as this defines their beliefs, values and informs their behaviors (ibid.). *Personal relevance* must exist to ensure that something has a potentially large consequence, inciting the follower to spend effort on information processing (ibid.). Motivation is informed by a follower's *needs*, which are the tension caused by disequilibrium from an ideal or desired state (ibid.). Abraham Maslow (1943) defines the hierarchical nature of needs, with basic fundamental needs requiring fulfillment before more psychologically driven needs can be met. Other notable characteristics of needs are that they can be internally or externally aroused and they are dynamic meaning satisfaction remains only temporary (ibid.). While influencers cannot fulfill their consumers' basic physiological or safety needs, they have some impact on fulfilling social, functional, symbolic, hedonic, and cognition or stimulation needs. Needs and goals can also conflict, for example, an *approach-avoidance conflict* could occur when a follower wants to engage a behavior and wants to avoid it (Hoyer et al., 2013). As Christina consumes more influencer content, she could find herself dependent and scrolling through content when she wanted to avoid screen time. Alternatively, followers might face *avoidance-avoidance* or *approach-approach conflicts* meaning they must choose between two undesirable or desirable options that fulfill different needs (ibid.).

Besides motivation, a follower must have the *ability* to achieve the goal, meaning the resources needed to make an outcome happen (Hoyer et al., 2013). Resources could be financial, cognitive, emotional, physical, social and cultural. Many consumers like Christina find themselves with limiting, smaller budgets than the influencers who enjoy income from sponsorships and free products (Maheshwari, 2018). A follower also must have the *opportunity* to reach the goal, dependent on characteristics like time, complexity, repetition, control of information, and even distraction (ibid.). Christina might face limited opportunities to implement some behaviors she witnesses on Instagram if she works a full-time job and merely lacks the time that the influencers use to make a travel itinerary. Alternatively, a

consumer might not even be aware of influencers' presence on Instagram if they do not use the platform or a smartphone.

2.2.2 The Evaluation Process

Depending on how many accounts a user follows, there can be an excess of posts that require evaluation. One way to consider how an individual evaluates content is using consumer behavior's Dual-Process Theory characterized by *system 1* and *system 2 processing* (Hoyer et al., 2013). System 1 describes unconscious emotions leading to implicit responses, which are impulsive (ibid.). System 2 describes conscious thinking, leading to explicit responses which are reflective (ibid.). Just as in other consumer decisions like buying a product, a follower consumes content using heuristics and might act irrationally in a somewhat predictable way (ibid.). In the following section, we will look at two types of evaluations that are similar to system 1 and system 2 and discuss how they might occur on Instagram.

Following the attitude formation process defined by Hoyer et al. (2013), *attitudes* are based on *cognitions* (thoughts) and *affects* (feelings and emotions). When a consumer's elaboration of a message is low, it follows the low effort peripheral route processing which leads to simple beliefs and unconscious influences (ibid.). Consumers will have a mere exposure effect and only process the content passively, leading to weak attitudes (ibid.). Thus, their behavior stays as it was before exposure. If the mere objective is to sell a product, low motivation to think about the message is enough (ibid.). The person will superficially process the arguments presented and focuses on surface features. For an influencer advertising a beauty product, which requires a low effort action by the follower, content evaluated passively might suffice. This type of evaluation of content will only lead to a temporary change in the follower that will likely fade over time (ibid.).

When a message is highly elaborated by the consumer, the high effort central-route processing is activated (Hoyer et al., 2013). This route leads to direct or imagined experience cognitions and value-driven attitudes. The consumer processes information emotionally and has affective responses (ibid.). Thus, their behavior will strongly be affected by exposure to the message. If there is an intention to change long-term behavior, high motivation and ability are needed to think about the message (ibid.). This will turn to deep processing and the consumer focuses on the quality of the message arguments (ibid.). Hence, the outcome is a lasting change that is likely to resist fading and counterattacks (ibid.).

Together, these concepts form the basis of how an influencer might compose content. Ideally, content should entice an active evaluation process rather than a passive one. The higher the persuasion of the content, the more likely the person uses the high effort central route. These psychological factors and evaluation techniques dictate if the follower enters the influencer-follower relationship: engagement with influencers, evaluation of influencers, and behavioral effects from content consumption. Interactions between an influencer and a follower do not occur in vacuum, so we also consider external impacts on the relationship.

2.2.3 External Social Factors

External social factors also play a critical role in the influencer-follower relationship with impact coming from social capital on digital platforms like Instagram and social capital from the non-digital society surrounding the follower (Levy, 2015). First, from a consumer behavior perspective, we use *symbolic consumer behavior* to define the interaction effects between followers and the social groups around them. Because influencer accounts act as consumable products, following different influencer accounts signals which groups a person might identify with. Both consuming influencer accounts and the actual consumption that is displayed on influencer posts directly relate to symbolic consumer behavior. Symbolic consumption occurs when the meaning and value of a product is derived from culture, a product of the social groups around us (Hoyer et al., 2013). Hoyer's (2013) model of symbolic consumer behavior (Figure 2) identifies four unique categories of function.
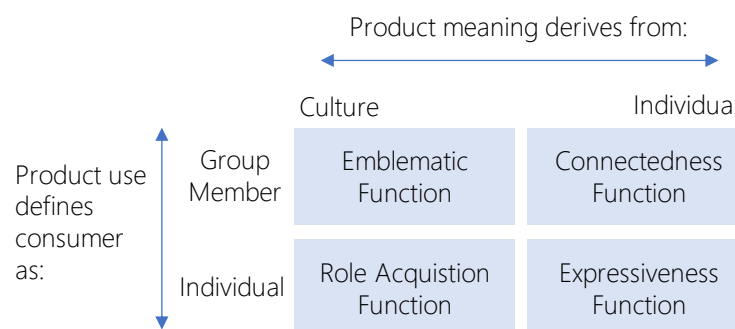
Figure 2: Hoyer (2013) Model of Symbolic Consumer Behavior

Emblematic function is when product meaning is derived from culture in the form of possessions that symbolize the follower's membership in a social group (Hoyer et al., 2013). For example, consider influencer Morgan Phillips (@morganphillips), an avid backcountry skier who posts many photos of his trips, always seen in his luxury, Arcteryx outdoor gear (Phillips, n.d.). His luxury gear and skiing activity signals to his followers on Instagram and

his non-digital social encounters that he is affluent enough to afford the luxury gear and is part of an extreme backcountry skiing social group (ibid.). A follower of Morgan might consume his content and buy an Arcteryx jacket to appear in the same affluent, extreme group.

Role-acquisition function is when product meaning is derived from culture and helps a follower define their specific role, allowing them to use the possession to transition from one group to another (Hoyer et al., 2013). Consider Katie, an intermediate climber, who begins to follow influencers in the climbing world who demonstrate an advanced climbing technique and climbing-oriented lifestyle. Katie uses these influencer accounts to inspire and transition herself into becoming a more advanced climber, going to the climbing gym and crag more frequently and seeing herself as an advanced climber.

Connectedness function is when meaning comes from the follower that uses the product, through the expression group membership or connectedness to other people, events, or experiences (Hoyer et al., 2013). As Katie's self-concept begins to include advanced-climber as a distinction, her willingness to join other advanced climbing groups or make Instagram content on advanced-climbing could signal her belonging to the advanced-climber social group.

Finally, the *expressiveness function* occurs when the meaning is derived from the follower consumption and is used to express uniqueness from others and other social groups (Hoyer et al., 2013). While some would argue that uniqueness on the Instagram platform might be an underlying goal of every curated account, it remains a difficult qualification to achieve given the growth and connectedness of the platform, influencers, and consumers (Barton, 2018; Hennessy, 2018).

From communication theory, the *Riley and Riley communication model* (1959) (Figure 3) also provides a view of the influencer-follower relationship that considers the external social structure. The model asserts that a large social structure '*Communicator*' (C) sends messages in accordance with the actions of other persons and groups within the same social structure (Riley & Riley, 1959). In this model, influencers would be group C, with the patterns and expectations dictating the type of content and engagement they are expected to share with followers. A specific example of these societal communication rules could be using a selfie camera to address followers in stories, the use of hashtags in posts to generate traffic or even the promotion of sponsored content. The '*Receiver*' group (R) also adheres to its own set of

expectations and patterns communicating back to group C (ibid.). Examples of 'Receiver' rules could be the like button, emojis in comments, tagging other followers in comments or engaging in story polls or Q&A's. In the model, these two groups exist in an overall social system and communication occurs in a two-way process (ibid.). These rules of communication are likely to evolve and change as influencer presence continues to grow and as Instagram releases new capabilities that enable new forms of communication between the two parties.
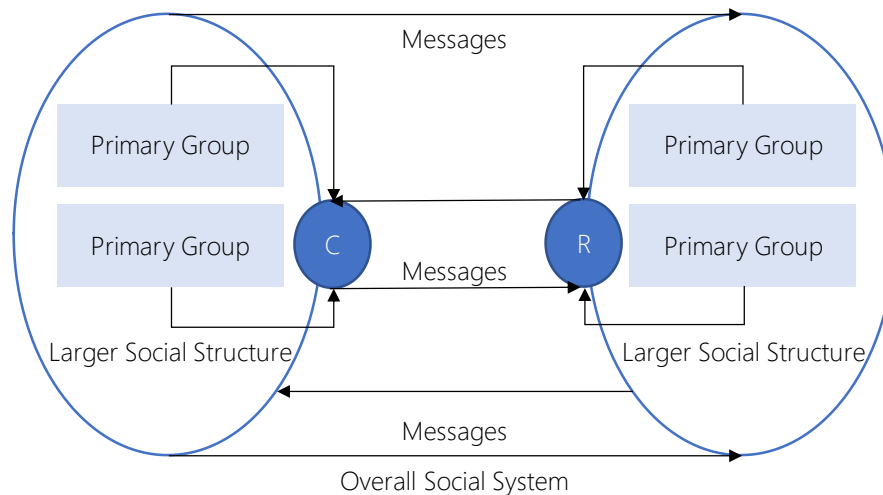
Figure 3: Riley & Riley (1959) Communication Model

2.2.4 Commercial Intention behind Content

While definitions of influencers vary, most acknowledge that part of their role is acting as a word-of-mouth advertiser, meaning they are paid by brands to recommend or place products in their content (Hennessy, 2018). This section expands on this commercial element of the influencer-follower relationship drawing upon communication, consumer behavior, advertising, and marketing theory.

Shelly Rodgers and Esther Thorson's (2000) model of advertising claims that additional elements must be included for a message to be considered advertising (Figure 4). These elements are present in the influencer-follower relationship and provide further evidence of the relationship's commercial nature. The first component that must exist is *advertising organizations* with a need to promote, for example, ad agencies, corporations, regulatory agencies, etc. (ibid.). In the influencer-follower relationship, these are the sponsoring brands who pay influencers for posts that review or highlight their products. The second element is the *message source* or the various mediums that one can use to communicate: text, image, video, etc. (ibid.). Instagram supports various message sources and continues to expand

capabilities to embrace more forms of communication as seen in Figure 1 (Barton, 2018; Hennessy, 2018) Message sources can result in intended and unintended interpretations of the message, another important consideration of the advertiser and the influencer (ibid.).

In connecting the message to the desired audience, *media channels* are the different mediums to connect with an audience such as email, television, paid search, etc. (Rodgers & Thorson, 2000). Instagram currently is a stand-alone media channel that is a singular platform in the social media channel category. Due to the expansion of technical devices, the advertiser must consider which *device* will be used to consume the media channel considering that a web browser and mobile platform have different user experiences and screen specifications (ibid.). Instagram is designed primarily for mobile, but a web browser and tablet versions exist (Lee et al., 2015). These channels and devices are all in consideration of how the audience, the actual receivers of the advertising message, will consume the message (ibid.). Influencers can track views, engagements, and demographics of their audience by using a business profile which enables additional analytics that personal accounts do not allow (Barton, 2018; Hennessy, 2018). Finally, each advertisement exists within a larger *context* varying from political, legal, economic, to ethical contexts, implying that advertisers and influencers must consider how their message will interact with other external messages in the field (ibid.).
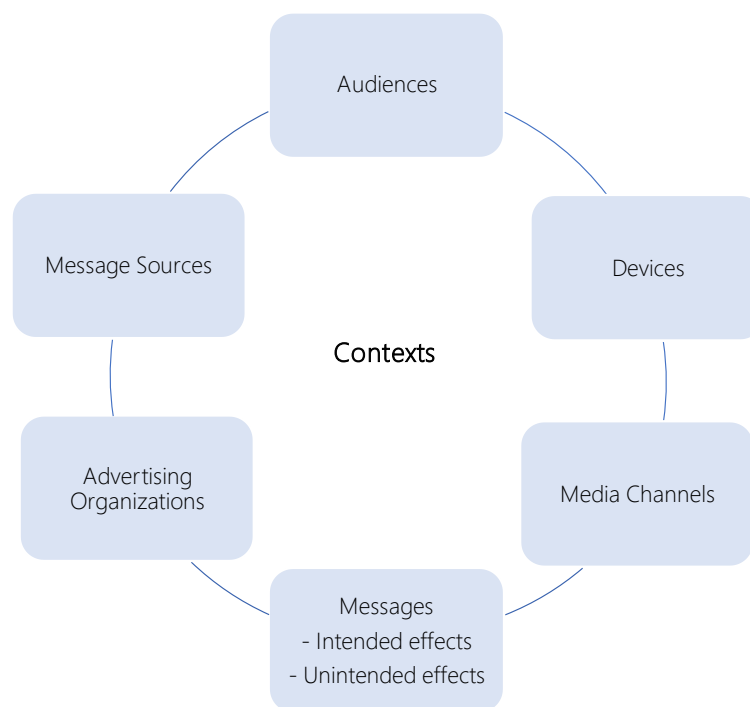

Figure 4: Rodgers & Thorson (2000) Advertising Model

The widely known *AIDA communication model* identifies four steps to form an effective advertising artifact: *attention, interest, desire,* and *action* (Strong, 1925). Although the simple model has been expanded by others to include post-sale measures like satisfaction (Rogers, 1983), most of the influencer's content does not involve post-sale measures unless they are requesting feedback on their own content (Barton, 2018). Influencers use high-quality cameras, editing, and design elements to craft eye-catching visuals that align with their brand (ibid.). This often means consistent color-filters, geographies, and other visual elements (images of food, children, or a particular activity) to maximize the engagement in their posts (ibid). Other non-visual forms of grabbing *attention* are the use of tagging and hashtags so that users who are searching for content by subject or brand can be linked to their content (ibid).

In the next stage, *interest* can be invoked with text in the caption, bio, or a link to external content that provides more information. Given Instagram's length restrictions of text and video, *desire* is often established over a series of posts about a particular product or experience such as a week-long trip or even repetitive content about every-day life and the products used to support the influencer's habits (Barton, 2018).

In the final stage, the advertisement leads up to a call to *action* for the consumer (Strong, 1925). Most commonly, influencers tag the Instagram accounts of the advertising brand so followers can find the business account that displays a website hyperlink in the brand's bio (Barton, 2018). Instagram bans hyperlinks in the captions and comments of posts, so some influencers use a call to action "link in bio" to connect followers to an external website (ibid.). Instagram allows some business-accounts to access additional capabilities that link directly to a purchasing platform through a swipe-up function in the Instagram stories, but these do not exist on influencers' accounts who often rely on personal-account access (ibid.).

While the influencer-follower relationship falls within the definition of an advertising message, an influencer's call to action is not always intended to trigger a purchase decision. Customarily, influencers address a variety of audience members with differing levels of awareness and attention (Barton, 2018; Hennessy, 2018). These differing levels of awareness are well defined by the *Gfk purchasing funnel* (Figure 5) which identifies many sub-categories within the original AIDA model (GfK Global, 2019). Influencers use various tactics with stand-alone posts, stream of conscious stories, and even lengthy Instagram TV broadcasts to address their audiences' needs and create meaningful movement down the Gfk funnel.

Numerous messages and message sources allow them to customize how they address followers and build upon their journey in the Gfk funnel.
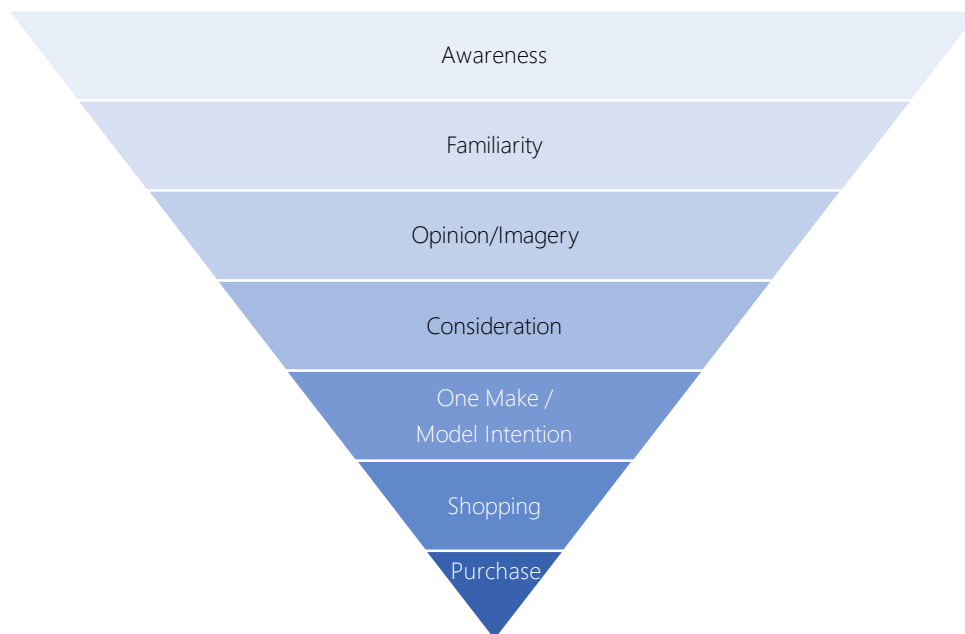
Figure 5: Gfk Funnel (Gfk Global, 2019)

2.3   Adventure Tourism

Given the intricacies of the Instagram app and the nature of its use among influencers and followers, the significant body of adventure tourism content on Instagram foreseeably has some influence on the industry and its customers. Therefore, it is important to define adventure tourism, understand the boundaries of the industry, and the motivations for tourists. This section will provide background about the industry, then outline Instagram's relationship with the industry, and finally introduce sustainability concerns for the industry.

2.3.1 Background of Adventure Tourism

Historically, all tourism before the 19th century involved enough uncertainty that it was labeled as adventurous (Weber, 2001). After the 19th century, exploration of the environment occurred for more personal gain rather than necessity (ibid.) Sung (2004) also notes a recent shift in the industry where tourists try to dissociate themselves from the average "mass tourist" by labeling their motivations to travel as a means of finding personal escape. By identifying their tourism ambitions as an adventurous personal-seeking experience, they intend to be labeled outside

the realm of the traditional institutionalized, mass tourism, which tends to have a negative image (ibid).

Throughout the years society's understanding of adventure has evolved, so today the industry has landed on a few key elements in the definition of adventure tourism. From an industry perspective, the Adventure Travel Trade Association (2018) defines adventure tourism as combining nature, physical activity, and cultural experience (Viren et al., 2017). Adventure tourism, defined by the New Zealand Ministry of Commerce, consists of commercial activities in the pursuit of adventure and excitement in an outdoor environment (Roberts, 2011). The Canadian Tourism Commission builds on this definition, including that the outdoor leisure must take place in an exotic, remote location involving a form of unconventional means of transportation (Orieade & Evans, 2011).

Academic researchers have approached defining adventure tourism by classifying it through the motivations among adventure tourists. Swarbooke et al. (2003) claim that *adventure* must include perception of risk, excitement, newness, and discovery, allowing participants to enter the unknown and face challenges that will engender something valuable from the experience. Physically challenging experiences ensure that tourists experience high sensory stimulation (Muller & Cleaver, 2000), however, Swarbrooke et al. (2003) distinguish this into *hard* adventure travel with components of risk and unknown territories. *Soft* adventure travel also exists, requiring less physical effort and minimal risk or danger (e.g. horseback riding trip) (ibid.).

Hall (1992) classifies adventure tourism within a spectrum of two key variables: competition and physical activity. They build on this by identifying the environmental setting as a key element of adventure tourism. Weber (2001) cites that adventure tourism is an extension of adventure recreation that merely occurs further away from an individual's home. Table 1 shares a sampling of some adventure recreation activities that can also be considered adventure tourism (ibid.)

Table 1: Adventure Tourism Activities (Weber, 2001)

Adventure Recreation Pursuits		
Backpacking	Kayaking	Rogaining
Bicycling	Orienteering	Sailing
Diving	Mountaineering	Snowshoeing
Hang gliding	Rafting	Spelunking
Ballooning	Rappelling	Trekking
Hiking	Rock Climbing	Sky Diving

This list of activities certainly aligns with Swarbrooke et al. (2003) two classifications of hard and soft adventure tourism activities, noted by the differences in the required physical activity and the amount of unknown. Weber (2001) critiques these classifications, noting that an individual's perception of risk and excitement creates their own relative definition of adventure. Therefore, a wider market for adventure tourism exists if academics and the industry use a more subjective definition that is customized to each adventure tourist.

While academic definitions of adventure tourism vary, its reliance on natural resources is evident in the overall industry and academic understanding. The environmental setting is a key supplier within the adventure tourism industry, and like most natural resources, it has not always been used in a sustainable way. Skiing resorts and golf courses are some of the most commonly known offenders given the infrastructure changes they must make to a natural environment (Roberts, 2011). Other adventure tourism business models might make less visual infrastructure changes to an environment, but the regular use or visits to a natural environment certainly creates wear, as seen in Norway's Trolltunga and Peru's Rainbow Mountain examples shared in the introduction. Sustainability issues will be discussed further in chapter 2.6 below.

2.3.2 Motivations of the Adventure Tourist

To create a more subjective definition of adventure travel, academics have investigated tourist's motivations for adventure traveling. Initially, general tourism typologies relied on Maslow's Hierarchy of Needs (1970) to classify different groups of tourist motivations (Heitmann, 2011). For example, when a tourist demanded relaxation, they could choose a spa trip or a trip to a beach (ibid.).

In considering an adventure tourist's needs, traditionally adventure tourists are labeled as "risk-takers" or those seeking risk (Roberts, 2011). Within this typical view, adventure tourists can be motivated by destination-driven experiences or activity-driven experiences

(Schneider & Vogt, 2012). In research among National Geographic magazine subscribers, Schneider & Vogt (2012) found that hard adventure tourists were seeking a *need for arousal* whereas soft adventure tourists were seeking *cultural experiences* and *competitiveness*. They conclude that adventure travel is both understanding new cultures and seeking self-independence (ibid.)

Walle (1997) critiques the belief that adventure tourists are seeking risk given that many are elite experts in their field, trying to reduce risk in their travel endeavors with trip planning, expensive technical gear, and expertise in their activity. Walle (1997) instead claims that adventure tourists are seeking knowledge and insights (ibid.). Weber (2001) expands on this by claiming tourists seek cultural experiences that drive cultural understanding. Quinn (1990) share that given the inclusion of 'adventure' in the name, tourists are motivated by a sense of discovery and unveiling of the unknown (Weber, 2001). Whether the unknown is about a different culture or a personal unknown is another point of debate. Some adventure tourists could be motivated to achieve peak experiences or self-actualization through adventure tourism (Weber, 2001). Such personal ambitions are achieved when adventure tourists can participate in a *flow experience*, when their physical skills are optimally challenged so that they are not overly challenged and anxious about risk, nor are they bored with a lack of challenges (Csikszentmihaly, 1975).

Finally, given the cost of adventure travel, some tourists are motivated by status and prestige that accompanies significant adventure accomplishments (Heitmann, 2011). Instagram is certainly one platform for publicly showcasing achievements in this manner. Alternatively, when considering the monetized market of Instagram influencers in the adventure tourism industry, their motivations for adventure travel could be purely economical, needing to fulfill contracts with adventure tourism agencies or continue to build their own presence and brand.

2.4   Adventure Tourism Portrayed on Instagram

In order to understand the potential impact which Instagram influencers could have on the adventure tourism industry, it is important to understand how adventure tourism is currently portrayed on the platform. This section will overview the various points of view that make up the *adventure tourism Instagram univers*e (Figure 6), or the entire collection of content, and then provides a few case studies that highlight important points of view that relate to the influencer.
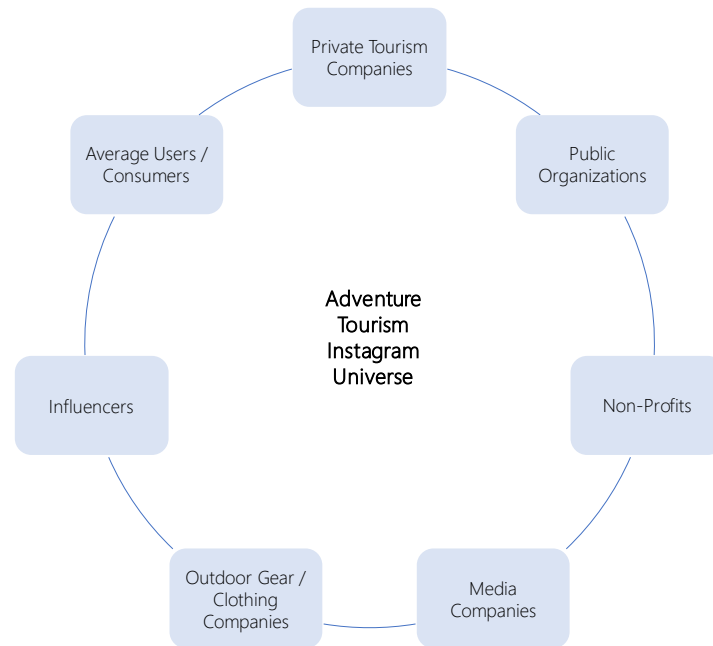
Figure 6: Actors in the Adventure Tourism Instagram Universe

When investigating the network of Instagram content portraying adventure tourism, we discovered various points of view in the mix. From an organizational perspective, there are *commercialized adventure tourism companies* that use the platform to advertise their products, such as outdoor trips or experiences in a particular location. *Public organizations*, such as national parks or municipalities, also use accounts to highlight natural attractions or landscapes within their domain. Countless *non-profits* exist to promote the longevity, open access, and sustainability of natural spaces, so they too often use Instagram to promote their beloved environmental space and subsequent mission. *Media organizations*, and those specifically dedicated to the environment, such as National Geographic or Outdoor Magazine, use Instagram to share content portraying natural spaces and link to their published stories. Even *outdoor gear companies*, like Patagonia or Norrøna, that produce the gear required for adventure tourism, all use Instagram to show their products in use, often in famous places to grab viewers' attention. At an individual-level, *influencers* publish posts about adventure travel either on behalf of the organizations mentioned above, or merely to promote their own brand. Finally, *average users* like friends and family you follow on Instagram share pictures and posts about their own adventure travels. These organizational and individual players in the adventure tourism Instagram universe have a varying number of followers and the popularity of their content, so it is difficult to identify which voices are most important. Additionally, Instagram's algorithms which dictate which posts a user sees in their feed, and a user's self-selection of accounts to follow allows an Instagram user to craft their Instagram feed with content that appeals to them more.

2.4.1 Case Studies: Adventure Tourism on Instagram

We outline a few case studies that take place in the Norwegian market, which has seen a drastic increase in adventure tourism over the last few years, largely accredited to Instagram (Maclean, 2017). To understand how adventure tourism influencers currently use their voice in the adventure tourism industry, we start with a case study of a prominent influencer in the field, Daniel Ernst. Then, we will introduce two other points-of-view that we consider most related to the influencer, a commercial company and a non-profit to identify how they use Instagram today.

Case 1: Influencer

Our adventure tourism influencer of choice, Daniel Ernst (@daniel_ernst) is based out of Frankfurt, Germany (Ernst, n.d.). As of December 2019, he has roughly 697,000 followers and 754 posts (ibid.). In reviewing his last 20 posts, he has driven engagement ranging from 10,000 to 30,000 likes, with 100 to 500 comments per post (ibid.). Most recently, he took a trip through Norway, so many pictures highlight the fjords and natural beauty of the countryside (ibid.). In reviewing older content, he travels throughout the Nordic countries with destinations like Iceland, Faroe Islands, and Sweden commonly tagged (ibid.). His posts are high-quality pictures that involve the outdoors and activities like hiking, surfing, and camping, all edited to craft a consistent feel across his content (Appendix A1) (ibid.). His post-composition also includes a short description of the scene, a few localized hashtags (#norsknatur #friluftsliv #norge, etc.), a geotagged location, and more popularized hashtags in comments (#weroamgermany, #stayandwander, #roam, etc.) (ibid.). There is no commercialized content in his posts, so from an outsider follower's perspective it is difficult to know if he is being paid for any of these posts, and if so, by whom (ibid.). As noted before, most influencers indicate when their content is sponsored, so we can assume that his content is sponsorship free.

Case 2: Commercial Tour Company

A tour guiding company, Trolltunga Active (@trolltungaactive) is one of the players within the Norwegian adventure tourism industry ("Trolltunga Active | About Us.", n.d.). Based out of Odda, Norway, the guiding company offers many guided trips and stays involving the Trolltunga rock formation and surrounding geographies (ibid.). Trolltunga Active's Instagram has roughly 6,392 followers and 626 posts (Trolltunga Active, n.d.). Its last 20 posts have

engagement rates ranging in 100 to 500 likes and 3 to 15 comments (ibid.). Similar to Ernst's account, it uses common editing on all its posts which exclusively highlights the scenery of its tours (Appendix A2) (ibid.). While some posts merely show off the landscapes, others depict travelers on guided tours (ibid.). Most of its posts are geotagged at "Trolltunga" or "Odda, Norway" (ibid.). A short description in the caption is then followed with a localized hashtag (#visithardangerfjord, #trolltunga, #utno, etc.) and industry hashtags (#naturephotography, #paddleviews, #climbing, etc.) in both the caption and comments (ibid.). From a follower's perspective, Trolltunga Active presents itself in the bio and in its posts as a commercial company clearly using Instagram as a marketing channel for its products (ibid.).

Case 3: Non-Profit Organization

Den Norske Turistforening (DNT) is the most prominent non-profit dedicated to the outdoors in Norway (Om DNT, n.d.). DNT's regional chapters maintain local trail infrastructure and cabins throughout Norway, supported by local members and volunteers (ibid.). DNT chapters offer organized events and trips to members and non-members, with nearly every outdoor adventure activity offered (ibid.). The Oslo DNT chapter (@dntoslo) Instagram account has roughly 23,100 followers and 619 posts (DNT Olso, n.d.). Their engagement rate in the last 20 posts is roughly 300 to 500 likes per post with a few comments, although outliers exist (ibid.). Posts depict Norwegian landscapes and the variety of activities their members can be seen doing, with geotagging of the respective activity location (Appendix A3) (ibid.). The captions are written exclusively in Norwegian, and they use far fewer hashtags with emphasis on those custom to their organization (#dntoslo) or other local Norwegian hashtags (#utno, #historiskevandreruter, #liveterbestute, etc.) (ibid.). Given the publishing language, DNT Oslo's account caters to a Norwegian audience, however, Instagram's built-in translation tool makes their post more easily accessible to non-Norwegian speakers (ibid.). From a follower's perspective, there are no perceived commercialized messages in their posts, rather their message encourages the audience to go explore Norway's landscapes (ibid.).

Collectively, these three Instagram cases provide a small snapshot of the variety of Instagram content and behavior. While each case is only a single example of a point-of-view, they reveal different content strategies and subsequent follower engagement. In considering the posts themselves, each case above uses very similar photos, but simple changes in captions and hashtags create a completely different stream of engagement. Engagement alters how the Instagram algorithm shows the post to others on the platform and contributes to the success of

a post (Barton, 2018). The case exercise demonstrates how influencers act as a single point-of-view that shapes the view of adventure tourism on Instagram. Influencers, companies, non-profits, and other organizations in the industry must consider how they might partner with each other to more effectively get out a message. The next section will introduce why we think the adventure tourism industry needs to partner for sustainability.

2.5 Adventure Tourism's Effect on the Environment

While adventure travel can create positive tourism income, it comes with the cost of environmental, economic, and social impact (Oriade & Evans, 2011). *Sustainable tourism* at the most basic level is applying sustainable development ideas to the tourism sector (Weaver, 2006). When the concept first appeared in the industry, focus primarily was placed on environmental conservation, however through the 1990s and 2000s, sustainable tourism also expanded to include social, cultural, and economic considerations (Oriade & Evans, 2011). Swarbrooke et al. (2003) define sustainable tourism as the balance of meeting the needs of tourists, the tourism industry, and host communities now without compromising future generations' ability to meet their needs. Adventure tourism is highly linked to sustainable tourism, given the natural environments setting of the travel. Still, most adventure tourism firms market their products as green, regardless of the scarcity of the environmental resources they operate in (Oriade & Evans, 2011).

When considering the life cycle of an adventure tourist on a vacation, there are many behaviors that affect their impact on their environmental location. Because tourism involves traveling, the transportation costs alone create a major carbon footprint from a combination of road, land, sea, or air travel (Oriade & Evans, 2011). Even in 2001, the World Trade Organization predicted that as tourism developed worldwide, long-haul air travel between world regions would make airlines a major contributor to air pollution (ibid.) As adventure tourism locations become more remote, land and sea travel will be essential for tourists to access hard-to-reach locations (ibid.). Without careful consideration of their behavior, tourists could leave a path of harmful impact across further landscapes in transit to remote locations. An example of this could be the highly eroded trekking trail to the Rainbow Mountain in Peru (Magra & Zarate, 2018).

The infrastructure of adventure tourism operations also creates a negative impact on the natural resources they operate in. For example, ski resorts harm their ecosystem by eliminating natural

land when clearcutting trails and making roads to access the resort (Oriade & Evans, 2011). They increase noise and light pollution to a mountain while emitting carbon through lifts and lodging operations (ibid.). Eventually, too much infrastructure development can harm the biodiversity of an area, causing animals to relocate to new wild spaces (ibid.).

As tourists travel and reach a location of interest, they generate significant waste that can end up concentrated in a remote area. Excess waste can be caused by single-use packaging for food and supplies, unwanted or broken gear, and even human waste (Wilkinson, 2019). Everest basecamp on the Nepal side shows tons of garbage piling up driven by the increase in tour operators offering guided trips up the mountains and the growing popularity of trekking to the basecamp (ibid.). To combat this waste problem, China's Everest basecamp has closed to all visitors except the limited quota that has a permit to the summit (ibid.)

Finally, as locations gain popularity, tourism impacts are magnified by the sheer amounts of tourists visiting a location sometimes in a concentrated amount of time otherwise known "peak season" (Weaver, 2006). Heightened tourism numbers affect how locals go about daily life and can force many locals to leave an area entirely for the season, either for economic reasons, like renting their house to visitors, or for other social reasons, like wanting to escape the crowds of tourists (ibid.).

In summary, Buckley's (2012) research consolidates much of the academic research on sustainable tourism. Key sustainability issues impacting the industry include park management, recreation ecology, culture and community change, land-use changes, resource consumption, waste and pollution management, and climate change (ibid.). Buckley (2012) goes on to share that the industry's ability to manage and reduce these impacts is based on how industry stakeholders (e.g. companies, government, technology) adapt and regulate the status quo behaviors. Furthermore, rigorous measurement of relevant economic, social and environmental indicators based on new data sources is needed to monitor and regulate precisely (ibid.).

2.5.1 Case Study: Sustainable Adventure Tourism on Instagram

As mentioned earlier, the paradox any adventure tourism follower can see on Instagram is that even despite the millions of posts about adventure tourism, few make any mention of sustainability or the delicacy of the natural resources seen in the posts. As adventure tourism grows, more destinations will come under the environmental pressure from over-use driven

by the unprecedented popularity that Instagram can grant to a single view or destination. We will now share a case of an influencer who includes sustainability in his messaging about adventure tourism.

Case 4: Sustainability Influencer

One example of a sustainable adventure tourism influencer account is Tristan Bogaard (@trsitanbogaard). His Instagram bio labels him as a "plant-based cyclist" who has roughly 44,700 followers and about 722 posts (Bogaard, n.d.). Engagement rates on the last 20 of his posts range from 500 to 1,000 likes and 10 to 20 comments per post (ibid.). His posts show remote natural landscapes or depict himself and his travel partner biking through the landscapes, only geotagging the country the image takes place in (Appendix A4) (ibid.). His hashtag use varies, mostly using localized hashtags in the comments of the post rather than directly in the caption (ibid.). Bogaard includes messages about environmental protection and sustainability in many of his posts, for example, in April 2019, he shares a series of posts about Norway protecting the Lofoten, Vesterålen and Senja islands from oil exploration (ibid.). Interestingly, not all his content includes sustainability messages, but generally speaking a follower might consider a biking-trip across remote landscapes to be a sustainable tourism endeavor in itself (ibid.). Whether a follower considers Bogaard and his travel partner to be leading by example, or they follow for his explicit insights about sustainable travel, across his content, there's a clear difference in the message from Daniel Ernst's Instagram content. Additionally, from a follower's perspective, there is no commercial content on his Instagram (ibid.).

2.6 Sustainable Consumer Behavior & SHIFT

In assessing how to approach a sustainability intervention in the adventure tourism industry, we considered the breadth and depth of the body of research on consumer behavior. Given the extensive nature of this research, we relied on the White et al. (2019) new research study that provides a framework for navigating this field. White et al. (2019) defines *sustainable consumer behavior* as "actions that result in a decrease in adverse environmental impacts, as well as decreased utilization of natural resources across the lifecycle of the product behavior, or service," (pg. 6-7). Through an extensive in-depth literature review research study, White et al. (2019) assess and aggregates the academic body of research in fields such as psychology,

marketing, economics, consumer behavior and translates them into a concise framework about sustainability behavior, defined by the acronym SHIFT.

SHIFT is an acronym for five psychological factors that the researchers identify as key for influencing and encouraging sustainability behaviors (ibid.). SHIFT states consumers are more favorable to engaging in sustainable behavior when the intervention incorporates the "psychological factors of *social influence, habit, the individual self, feelings and cognition,* and *tangibility,"* (ibid., pg. 2). These psychological factors influence what White et al. identify as the five key challenges for sustainability: "the *self-other trade-off, the long-time horizon, the requirement of collective action, the problem of abstractness, and the need to replace automatic with controlled processe*s" (ibid., pg. 5). This section will outline which challenges are most relevant to influencers and the adventure tourism industry, and then explain why social influence and tangibility are the most influential psychological factors in our research. Beyond the identification of these psychological factors and challenges, White et al. (2019) also provide a guiding research approach for practitioners to further the research agenda in the area. Following, we will outline the SHIFT research approach which we will apply in our methodology section.

2.6.1 SHIFT Psychological Factors and Sustainability Challenges

Social influence explains how "consumers are impacted by the presence, behaviors, and expectations of others," including social norms, what is socially appropriate and approved (ibid., pg. 8). Social influence is also impacted by the social identities stemming from their different social group membership (ibid.). Social norms and group membership have implications on how an individual might perceive sustainability as accepted or disapproved (ibid.). White et al. (2019) also conclude that sustainability behaviors can be influenced by how socially desirable a behavior might be and if the behavior is present in a public context (ibid.).

Habit change is critical when a sustainable behavior is not a one-time change and requires a new habit formation (White et al., 2019). The breadth of habit change includes discontinuing bad habits through tactics such as penalties for deviation or simply making it easy (ibid.). Prompts, incentives, and feedback are also meaningful steps to encourage a new habit adoption (ibid.).

White et al. (2019) describe *the individual self* as the combination of several factors including self-concept, self-consistency, self-interest, and self-efficacy. Self-concept and self-consistency include how an individual identifies their values and sees them in harmony or conflict with sustainability behaviors (ibid.). Additionally, benefits that appeal to an individual's self-interest might warrant more sustainable behavior adoption, particularly when individuals are primed to think about their values or when viewing a message in private (ibid.). Self-efficacy occurs when an individual believes that one can "undertake the required action and that the action will have the intended impact" (ibid., pg. 19).

White et al. (2019) proposes that consumers are driven by either *feelings or cognitions* when pursuing sustainability behavior. Negative emotions such as fear, guilt, and sadness can be successful in some specific contexts, whereas positive emotions are generally viewed as more effective at changing a consumer's inclination towards a sustainability behavior (ibid.). White et al. (2019) discuss tactics such as educational messaging, eco-labeling, and framing to more effectively impact an individual's feelings and cognitions and the ultimate decision whether to engage in a sustainability behavior.

Tangibility addresses that often sustainable behaviors are intended for outcomes that "can seem abstract, vague and distant from the self" (White et al., 2019, pg. 25). By consuming concrete examples that exemplify a temporal focus and communicate local and proximal impact, an individual might understand the effects and importance of his or her behavior (ibid.). Finally, concrete communications using vivid imagery, analogies, and narratives can make issues more relevant and concrete to a person (ibid.).

While the five psychological drivers all remain important to the concept of changing sustainable consumer behavior, consider a few of the challenges that are most relevant to the influencer and adventure tourism context (White et al., 2019). The *self-other trade-off* challenge concludes that sustainable consumer behavior is often thought to have a direct cost to the self through increased effort or cost or inferior quality or aesthetics which is endured for the benefit of others" (ibid.). Social influence is a useful tactic for curbing this challenge particularly through the role of aspirational social influence (ibid.) An influencer is an example of an aspirational figure who signals social norms and social desirability to her followers. Thus, an influencer creates a social group of their followers and is able to construct ingroup psychological pulls. As an influencer demonstrates the values of the ingroup, a follower might feel the pull to mimic the behaviors and values. Furthermore, an individual might be compelled

in identity signaling to share their own behavior to the influencer's following group given the status and publicity the Instagram platform provides.

Another challenge important to the influencer and adventure travel context is the challenge of *collective action*. Social influence is also important to this particular challenge because if an individual sees others engaging in a behavior, they might be motivated by the perception of the group's beliefs and capabilities. Messages which communicate collective action and signal the impact of working collectively will increase the collective efficacy and tendency to engage in said behaviors (ibid.). Furthermore, framing messages in ways that demonstrate the power of collective impact utilizes both social influence and tangibility drivers. An influencer's Instagram channel can both communicate a collective message, but also connect the voices of followers within their social group to further amplify a collective message.

Finally, the problem of *abstractness* can also be linked to the influencer and adventure tourism context. White et al. (2019) share that "people are influenced by social factors because individuals look to the expectations and behaviors of others when the situation is uncertain." (p. 39). When sustainability problems are ambiguous and the impact is not clear, influencers could provide both social influence and tangibility facts to simplify the problem (ibid.). Messages that encourage small milestones, or a call to focus on their future-self might help close the gap between the present and future, tackling the potential for green fatigue (ibid.). These three challenges are best suited for the influencer channel and the adventure tourism context. Hence, we will rely on social influence and tangibility to inform our research model further discussed in the methodology section.

2.6.2 SHIFT Research Approach

The six-step research approach outlined by White et al. (2019) explains how a practitioner should use the SHIFT framework and apply their tools (Figure 7). In this section, we briefly outline the approach. Its application will be discussed further in the methodology section.
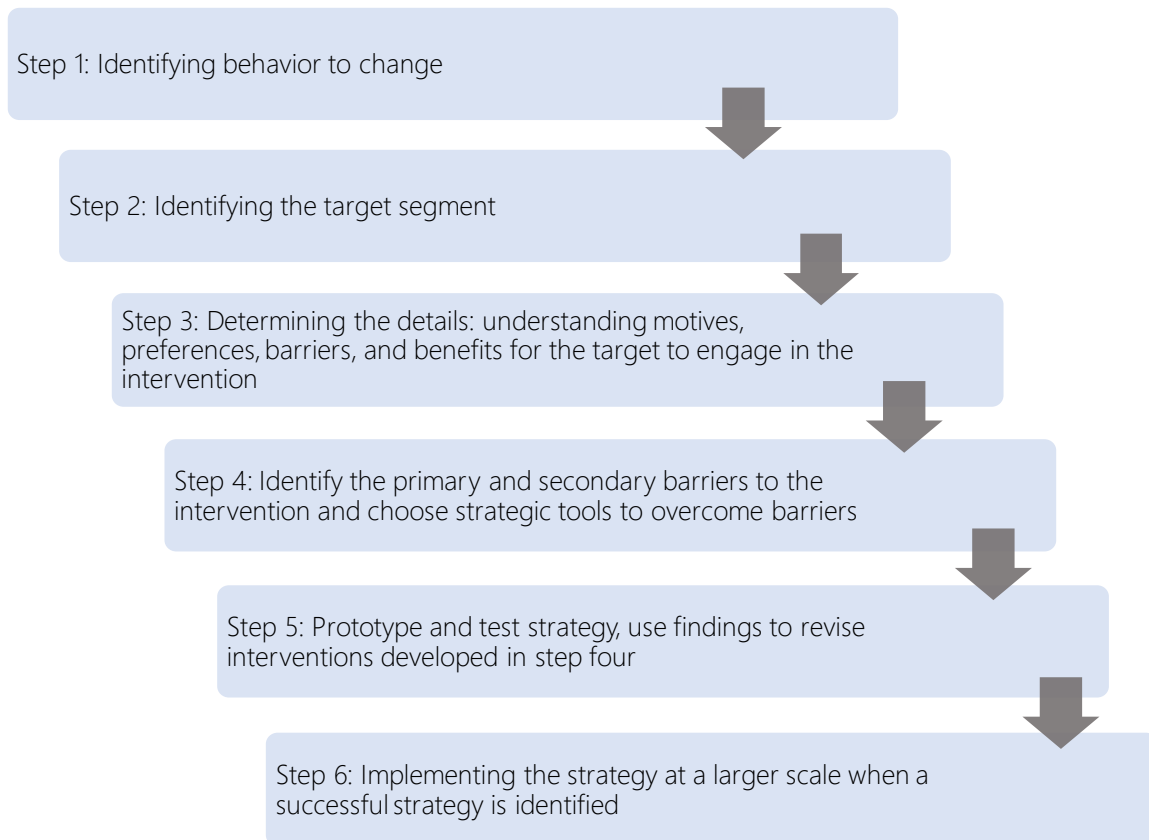
Step 1: Identifying behavior to change

Step 2: Identifying the target segment

Step 3: Determining the details: understanding motives, preferences, barriers, and benefits for the target to engage in the intervention

Step 4: Identify the primary and secondary barriers to the intervention and choose strategic tools to overcome barriers

Step 5: Prototype and test strategy, use findings to revise interventions developed in step four

Step 6: Implementing the strategy at a larger scale when a successful strategy is identified

Figure 7: SHIFT Research Methodology

The first step in using the SHIFT framework is identifying the behavior that a practitioner wants to change and how it links to higher-level goals (White et al., 2019). This includes identifying the characteristics in which the behavior occurs and discovering which elements are critical in creating a behavior change (ibid.). The second step identifies the target segment, meaning which segments will lead to the most impactful sustainable behavior change and will be most responsive to the desired intervention strategy. The third step is called determining the details, where a practitioner must understand the motives, preferences, barriers, and benefits for the target market to engage in the intervention. This stage requires the practitioner to conduct research on specific groups of interest using various methodologies (qualitative interviews, surveys, focus groups, etc.) (ibid.). These interviews inform step four where a practitioner must identify the primary and secondary barriers (out of the SHIFT factors) and select the strategic tools used to overcome the barriers. The fifth stage requires the practitioner to prototype and test a strategy, then use the results to progress with a larger-scale intervention or go back to step four and revise the strategy. The final step is implementing the strategy at a larger scale once a successful strategy has been identified. This six-step approach acts as the basis of our research methodology and will be discussed further below.

3.   Methodology

The methodology employed in this thesis can be broken into two phases: exploratory research and causal research. This section outlines our reasoning for choosing these methodologies (Table 2) and summarizes how the phases align with the White et al. (2019) SHIFT methodology introduced above. Then, we discuss the validity concerns given our chosen methodologies.

Table 2: Research Methodologies

Method	Sample
• Literature Review	• 75 Articles
• Depth Interviews	• 10 Respondents
• Online Survey	• 360 Respondents

3.1   Exploratory Research

We began the thesis with exploratory research to initiate the discovery of ideas and insights (Churchill & Iacobucci, 2005). Exploratory research helped us break down large, vague problem statements into more precise sub-problems via our hypotheses (ibid.). In breaking down the three main subjects: influencer marketing, adventure tourism, and sustainability consumer behavior we discovered many nuanced sub-problems in the topics and how they overlap. Identifying sub-problems allowed us to prioritize competing explanations of the problem (ibid.). Exploratory research is ex post facto, meaning the criteria variable Y is observed, and we attempt to find causal variables (X) that offer a plausible explanation of why Y occurred (ibid.). To manage this, our research methods built on each other in the exploratory stage starting first with a literature review, then moving to case studies, and finally concluding with qualitative interviews.

Our literature review consisted of a broad search of extant research on three main subjects: influencer marketing & Instagram, adventure tourism, and sustainable consumer behavior. Our sources included conceptual literature, industry publications, and media coverage. Conceptual literature included articles in marketing, advertising, psychology, communication and business journals. Trade and industry publications included books, blogs, news, and media coverage. Finally, we turned to primary research on the Instagram platform itself, conducting case studies within the adventure tourism and sustainability influencer sphere. Case studies allowed us to conduct an intensive study of a few selected cases in the adventure tourism

influencer sphere and include all relevant data to find big-picture insights across all cases (Churchill & Iacobucci, 2005).

When considering the SHIFT methodology, our literature review was most impactful on step one and two, meaning the literature provided the means to our analysis of the problem and allowed us to link academic theory and industry trends to define the problem, target market, and desired intervention as explained in the introduction. Churchill & Iacobucci (2005) state that exploratory research helps researchers find the correct "why" question to research, which is certainly evident in how our understanding of the problem evolved as we learned more about the intersection of the topics.

This initial exploratory research allowed us to define a clear research question based on the SHIFT framework and our understanding of influencers' role in the adventure tourism context. We knew our intended dependent variable from the beginning of our research: creating more sustainable behavior intentions among adventure travelers on Instagram. Our detailed study of the SHIFT framework allowed us to define two independent variables or intervention techniques for an influencer to achieve the dependent variable. We settled on social influence and tangibility as intervening techniques because we found these two factors most related to influencers and their relationship with followers. Furthermore, our study of influencers, sustainability, and adventure tourism informed our identified third variables impacting this relationship. These variables are summarized in our model below and will be discussed further in our causal research section 3.2.
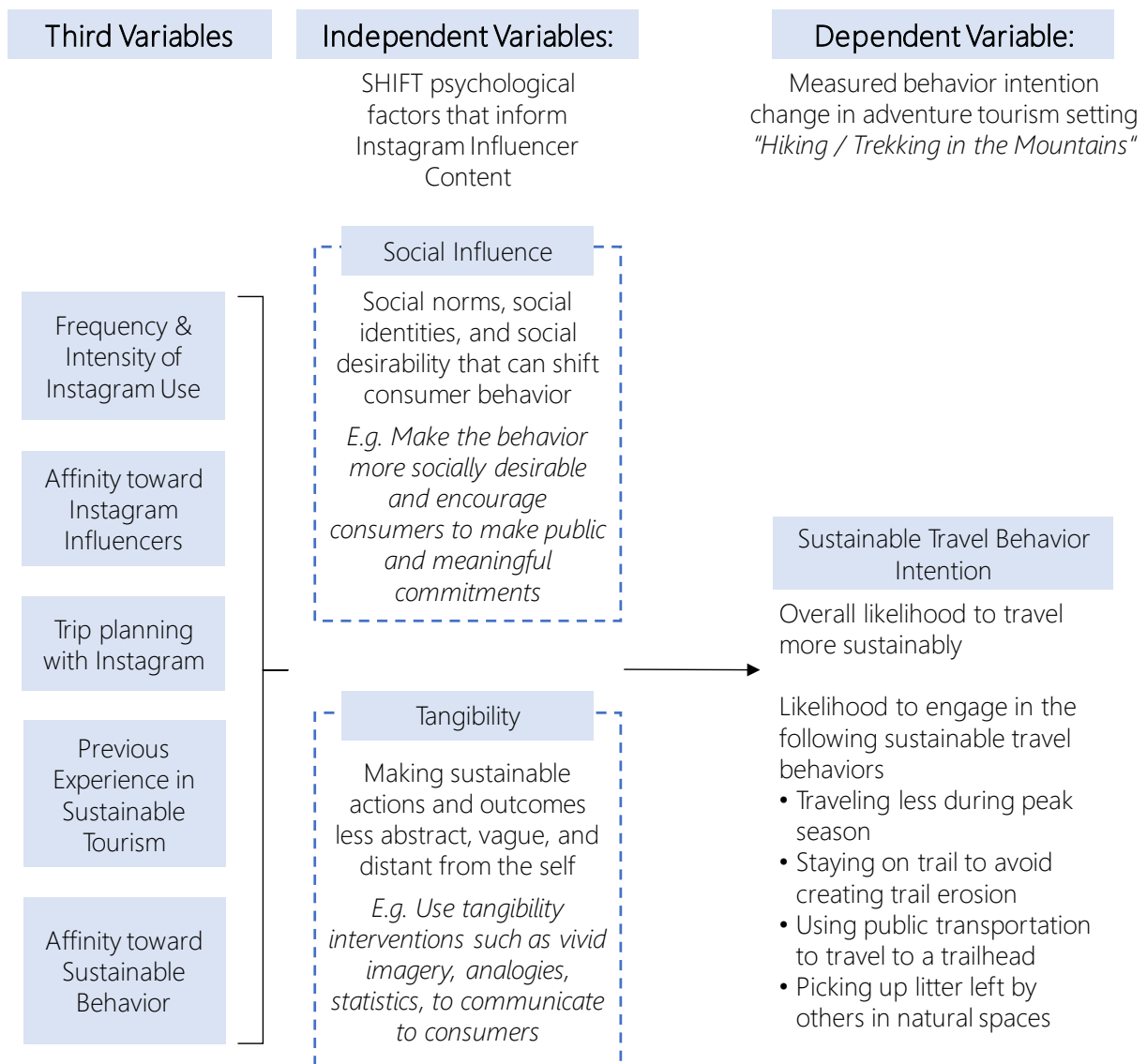
Third Variables

Independent Variables:
SHIFT psychological factors that inform Instagram Influencer Content

Dependent Variable:
Measured behavior intention change in adventure tourism setting
"Hiking / Trekking in the Mountains"

Frequency & Intensity of Instagram Use

Affinity toward Instagram Influencers

Trip planning with Instagram

Previous Experience in Sustainable Tourism

Affinity toward Sustainable Behavior

Social Influence
Social norms, social identities, and social desirability that can shift consumer behavior

E.g. Make the behavior more socially desirable and encourage consumers to make public and meaningful commitments

Tangibility
Making sustainable actions and outcomes less abstract, vague, and distant from the self

E.g. Use tangibility interventions such as vivid imagery, analogies, statistics, to communicate to consumers

Sustainable Travel Behavior Intention
Overall likelihood to travel more sustainably

Likelihood to engage in the following sustainable travel behaviors
• Traveling less during peak season
• Staying on trail to avoid creating trail erosion
• Using public transportation to travel to a trailhead
• Picking up litter left by others in natural spaces

Figure 8: Theoretical Model

Our model (Figure 8) was built on an understanding derived from our initial literature review and case studies, so we wanted to validate our hypothesized model by speaking with industry professionals in the field. Our current country of residence, Norway, has a booming adventure tourism industry with high potential for the problems we identified in our literature review. A series of local, qualitative interviews could validate our understanding and further inform the issues we wanted to explore later in a causal research survey. These problems in the Norwegian market are also known to occur in other adventure tourism destinations, so the insights from these conversations should have good applicability to other locations.

We chose depth interviews because they offered rich data and new ideas through a flexible approach that allows the opportunity for probing, and limited influence from others (Churchill & Iacobucci, 2005). We used a single discussion guide (Appendix B1) to speak

with the representatives of multiple parties in the adventure tourism universe (Table 3). We conducted eight, thirty-minute interviews in a span of two weeks in September 2019. Our discussions addressed the respondents' perceptions of Instagram's effect on the Norwegian adventure tourism market, the role of influencers in the problem and solution, sustainable adventure tourism, and potential behavioral interventions for the problems we discovered in our literature review like trail erosion, transportation issues, over-crowding during peak season, and tourism's impact on locals.

Table 3: Depth Interview Respondents

Type of Organization	Name of Organization	Role of Respondent(s)
Public Organization	Vestvågøy Municipality	Planner & Director of Development
Non-Profit	Den Norske Turistforening (DNT)	Editor of DNT magazine & podcast
Non-Profit	Den Norske Turistforening (DNT)	Photojournalist / Instagram Manager
Public Organization	Visit Norway	Social Media Team (Stories Lead & International Media Lead)
Public Organization	Visit Norway	Senior Advisor Adventure Tourism
Influencer	Sustainable Tourism Influencer	Influencer
Private Tourism Company	Hvitserk of Norway	Guide
Private Tourism Company	Trolltunga AS	Manager

In our analysis, we wanted to consider our respondents' experience and perspective holistically and generalize findings across the audience, rather than use a coding analysis approach. These interviews were crucial in step three of the SHIFT methodology by helping us determine the details, motives, preferences, barriers, and benefits for encouraging travelers to act more sustainably in an adventure tourism context. Our qualitative findings also confirmed our variables of interest, prioritized specific interventions to test and allowed us to develop specific hypotheses or if statements to test in our causal research phase (Churchill & Iacobucci, 2005).

The literature review, case studies, and qualitative research allowed us to synthesize findings and identify four key hypotheses we wanted to test in causal research. Our conclusions from the exploratory research encourage us to believe that the influencer marketing model can be employed to create a positive impact on tourists' behaviors. Therefore, we introduce the following hypotheses we aim to test in our causal research.

The adventure tourism market is susceptible to sustainability concerns given its reliance on the environment and the increase in exposure from Instagram in the last few years. Adventure tourists are classified as those searching for a personal-seeking experience (Sung, 2004) or knowledge and insight through travels in the outdoors (Walle, 1997). Other motivations for

adventure tourists are a sense of discovery or unveiling the unknown (Quinn, 1990), risk, excitement, or newness (Swarbrooke et al., 2003). Content promoting adventure tourism on Instagram largely plays into these motivations, suggesting that followers viewing these types of content should be open to messages that draw upon personal growth, knowledge, and changes to the status quo.

Based on the influencer-follower relationship theory, we know that when a follower interacts with content on Instagram, the psychological core dictates how they allow the content to affect their behaviors (Hoyer et al., 2013). A consumer's self-concept is mirrored by interacting with influencers that align with the existing or desired self-concept (Sirgy, 1982). However, personal relevance must exist to ensure a potentially large consequence within the follower (Hoyer et al., 2013). The content message needs to be highly elaborated by the follower to activate the high effort central-route processing (ibid.). Hence, we formulate Hypothesis One (H1) as the following:

> *H1: Influencer content that promotes sustainable adventure travel behavior will have some effect on followers' future intended sustainability travel behavior.*

The same arguments supporting H1 can be applied with inverse effects to sustainability outcomes if an influencer chooses to make no mention of sustainability or even promote unsustainable travel behaviors to followers. Therefore, we postulate Hypothesis Two (H2) as follows:

> *H2: Influencer content that promotes unsustainable adventure travel behavior or makes no mention of sustainability will negatively affect a followers' future intended sustainability travel behavior.*

The White et al. (2019) SHIFT framework supports the use of tangibility and social influence messaging strategies as most applicable to behavior change driven by the influencer-follower relationship. Social influence assumes that if an individual sees others engaging in a behavior, they will be motivated by their perception of the group's beliefs and capabilities. Therefore, messages communicating collective action will increase the collective efficacy of the group and an individual's tendency to engage in the group behavior (ibid.). Hence, we formulate Hypothesis Three (H3):

H3: Social influence content that calls on followers to consider how their values align with an influencer's values and the influencer's in-group will have a positive effect on a follower's future intended sustainability travel behavior.

The SHIFT framework suggests that by consuming concrete examples that exemplify a temporal focus and communicate local and proximal impact, an individual might understand the effects and importance of their behavior (White et al., 2019). Therefore, tangible communication can make issues more relevant and concrete to an individual (ibid.). Hence, we formulate Hypothesis Four (H4):

H4: An influencer's use of tangibility content that calls on followers to confront sustainability issues in the adventure travel context will positively affect a follower's future intended sustainability travel behavior.

These four hypotheses provide a connection between our theoretical and exploratory findings and will be addressed with our causal research phase below.

3.2   Causal Research

Following SHIFT's fifth research phase, our causal research design will test the hypotheses and behavioral interventions described above. We use an experiment to establish the validity of our independent variables (X) causing our dependent variable (Y), so we can infer a relationship between the two (Churchill & Iacobucci, 2005). Part of the reason we will use an experiment is to establish the time order occurrence of these variables so that we can measure that our independent variables (X) occur before our dependent variable (Y) (ibid.). Additionally, a controlled experiment also allows us to eliminate any other explanatory variables and establish concomitant variation, defined as the extent to which X and Y occur in the way predicted in our hypotheses (ibid.).
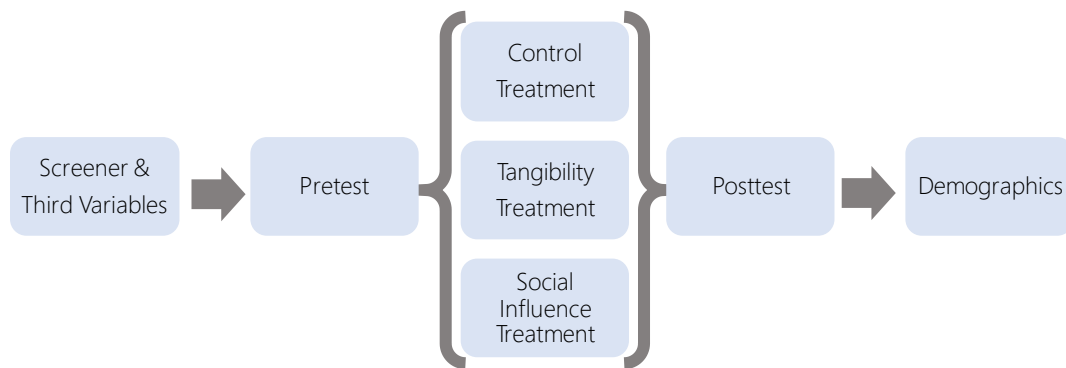
Figure 9: Survey Flow

Given the role of Instagram in our research, we needed to employ a digital platform for the research and thus decided an online lab experiment would work best. Through a true experiment design, we established a survey that measures the concepts of interest before and after treatment to compare to a control group (Churchill & Iacobucci, 2005). This approach creates a contrived experience for the respondents, allows us more control and often provides the most convincing evidence of a causal relationship (ibid.) Our survey flow is summarized in Figure 9 with the full questionnaire in Appendix B6. Respondents partake in a single screening question, that they must be familiar with Instagram to participate in our research. Then, they partake in a pretest that measures the third variables and the dependent variables. Next, the respondents are randomly assigned to a group: control, social influence treatment, or tangibility treatment. Each group sees two Instagram posts as a part of the groups' treatment or control (Appendix B2-B4). Across the groups, we tried to hold as many aspects of the Instagram posts constant to reduce other explanatory variables. Table 4 shows what elements of the posts were held constant and what was manipulated. The specific manipulation of the captions for each group while holding the photos, influencer, and engagement consistently allowed us to measure the impact of the caption's message.

Table 4: Elements Manipulated in Treatment Posts

Post Elements Held Constant	Post Elements Manipulated
• Type of adventure tourism activity • Number of people in the image • Geo-tagged region (Norway) • Influencer identity • Number of influencer followers • Number of likes / engagements, length of caption, number of hashtags	• Caption message & topic • Tone of voice • Hashtags

All post captions were carefully written using the tools for sustainable consumer behavior change proposed in the SHIFT framework (White et al., 2019). In the social influence

captions, we primed and reminded readers of relevant injunctive social norms, such as in traveling off-season, by stating how important it is to travel outside the peak season in order not to overwhelm nature and the local community. Likewise, the trail erosion post stated how walking off-trail will cause trail erosion. In survey 2, the captions reminded people of the importance of choosing public transportation to reduce the negative externalities of car travel, and also about the collective impact travelers can have by removing waste we find while in natural landscapes. The posts also showed the respondents representations of the desired sustainable behavior by stating that the influencer has tried to make a change with the actions. In addition, the desired behavior was linked to the relevant ingroup of sustainable travelers by differentiating them from mass tourism travelers. By using an encouraging voice, the captions made the behavior socially desirable for readers to want to join this movement and to make public and meaningful commitments. The captions called upon a change towards sustainable travel behavior in the community by asking questions such as "What's your next off-season destination?" or "Save the trails […] Who's with me?"

The key differentiating characteristic of the tangibility treatment was the informative statistics communicated to the readers in every caption. By specifically stating "during peak season I would have been 1 of 1000" or "Kvalvika Beach saw […] a 60% increase from last year," respondents consumed tangible, concrete information related to sustainability. Sustainable traveling can be considered an intangible, yet valuable experience to a consumer. Our captions encourage the desire for intangibles with specific examples like a rewarding sense of collective action in reducing litter or traffic problems. SHIFT advises researchers to, "communicate the specific steps consumers can take, as well as the precise outcomes." (White et al., 2019). We adhere to this recommendation because the influencer treatment communicates specific steps that a traveler can take to be more sustainable and therefore communicates sustainable actions and outcomes to engender local effects. For example, one caption informs a follower to plan a little more when using public transportation but also states the positive impact this will have consequently.

The captions in the control group were all kept general and made no mention of sustainability following the common approach followed by many travel influencers on Instagram. In survey 1, the first caption included a short description of the experience of stepping on Kjerag, encouraging people to consider traveling during the peak season because "it is the best season to travel even if there is a long queue." For the trail erosion treatment in survey 1, while

encouraging people to visit, the influencer showcases an unsustainable behavior, by traveling off-trail to avoid mud. In survey 2, the first post shows the influencer choosing car-travel instead of public transit, with an added complaint about traffic and parking. This complaining voice is maintained in the second post, with laments about Kvalvika beach being covered in trash. For all the treatments in the control group, the caption reveals the influencer's ignorance toward the problem presented in the second photo of the post. Instead, it focuses on the beautiful locations without stating anything informative and educational.

After the treatment, respondents then went through a posttest measuring additional third variables and the dependent variable. Finally, to conclude the experiment, demographic questions were included to measure for any audience differentials. This causal research experiment provides us a quantitative dataset that can be analyzed against our hypotheses developed in the exploratory research phase. Ideally, the SHIFT methodology guides researchers to be iterative and test multiple interventions to optimize and find what works best before moving on to step six, putting the strategy into action.

3.3 Validity

After having developed a relevant research design suitable to investigate our research problem, we designed a quantitative study to optimize external and internal validity.

3.3.1 Internal Validity

Internal validity analyzes whether we can infer that the relationship from X to Y is responsible for the effects that we observe (Churchill & Iacobucci, 2005). The goal of the chosen design is to eliminate alternative explanations for the observed relationship (Breivik, 2018). First, the participants have been randomly assigned to the different treatments and control groups to exclude a systematic bias between the groups (ibid.). Additionally, the respondents were unaware of what treatment they will receive, known as blinding (ibid.). The questionnaire was distributed without previously mentioning the goal of the study to limit respondents' potential bias in perceiving the treatments. To increase the internal validity in our study we have used experimental manipulations, by manipulating our independent variables, which gave us greater control (ibid.). Lastly, we have ensured that the treatment style was consistent throughout the three groups.

While designing to ensure internal validity, we considered the following threats. To avoid a maturation threat which refers to changes resulting from the passage of time (Breivik, 2018), we have chosen to have a pretest and posttest in a single survey at one point in time. To avoid the testing threat that acknowledges that the experiment itself could affect the responses (ibid.), we have limited a respondent to take the survey once. This prevents the respondent from becoming aware of the testing differences or to become too familiar with the treatment. We acknowledge that the instrumentation threat (ibid.) could be the biggest problem for us as we have simulated the use of the Instagram app in the survey. Hence, we tried to make the treatment as realistic as possible to eliminate this as an alternative explanation of our findings.

To begin the treatment, we asked the respondent to look at an influencers' profile on Instagram (Appendix B5). This step was added to simulate a realistic scenario where an Instagram user would proceed to build a relationship with the influencer. By composing a complete profile and identifying photo, grid, story highlights, and a short bio, this allowed the respondent to identify the type and style of the influencer. The influencer in this experiment has been profiled as a young female traveler from Germany with the handle "globetrotter," who defines herself in the bio as a "full-time traveler exploring the beauty of our planet" while currently being located in Norway. Her profile category is marked as a photographer with 678,000 followers and a verified account. Lastly, we limited treatment to two posts per group to avoid the attrition threat (ibid.). More posts could have resulted in people dropping out of the survey. Since we have three groups in our experiment, we faced a diffusion threat if respondents from different groups communicated with each other leading to resentful demoralization in which someone in the control group could have felt resentful of being in this group (ibid.). However, as we distributed the survey online to a diverse audience, we assume that most respondents did not discuss the experiment with each other.

3.3.2 External Validity

External validity concerns the representativeness of the study, meaning how the observed findings can be generalized to a larger population (Churchill & Iacobucci, 2005). To improve the external validity of our study, we first clearly defined the inclusion and exclusion criteria (ibid.). Our screener in the survey only included people who are familiar with Instagram, our population of interest. To ensure that the respondent answers as one would outside an experiment, we introduced the survey to the respondents with a cover story about the aim of

the study instead of disclosing what we are researching on in detail. We used a convenience sample in both our surveys, which allowed us to enforce external validity by replication (ibid.).

With our classical experiment, we have attempted to simulate a field experiment by making the treatment as realistic as possible (Churchill & Iacobucci, 2005). First, the influencer's profile has been curated as an original account on Instagram, showing the different functions of Instagram such as stories and the direct messaging button. Instagram terminology such as feed, comment, and tag have been used throughout the survey to create a realistic setting. The interface of the app was used in the posts to make the treatment look realistic. We allowed respondents to take the survey on desktop and mobile, but we optimized user-friendliness for mobile since Instagram is developed to be mainly consumed on mobile devices.

To enhance the realistic feeling in the survey, we enabled a swipe function on the posts so respondents could see multiple images in one post. We added a forced-answer question after each treatment post to ensure that respondents viewed both images in the post. Following Rodgers & Thorson 's (2000) model of advertising, we used an image and text as the message source. The image in this experiment was posed as a photo taken by the influencer, and the text was the caption. We acknowledge that the message source can result in intended and unintended interpretations of the message, analyzed later in the discussion (Rodgers & Thorson, 2000).

The experiment started off with a short introduction, informing the respondent that they are looking through an Instagram feed to gain inspiration for their next trip. This introduction aligns with the two-step flow of communication presented by Lazarsfeld and Katz in 1940, where the respondent is acting as an opinion follower who is looking for an opinion leader as guidance to gain more information (Katz et al., 1955). We have here imitated how a respondent might reasonably conduct the task of looking for travel inspiration, only that we have not given the respondent a choice of different feeds of influencers to look at. Meanwhile, the goal of the experiment was to create a respondent's meaningful movement down the Gfk funnel to inspire trust in the influencers' content (GfK Global, 2019). When followers interact with an influencer, there is a relationship building that encourages this downward movement in the funnel. Hence, the respondents were not told that they are buying anything but exploring and gaining inspiration for the next trip.

After the introduction to the experiment, the respondent comes to the Instagram profile of the influencer. The account of the macro-influencer has been designed as a verified account with 678,000 followers, as these accounts are considered to be more trustworthy (Hennessy, 2018). We added this step in the experiment hypothesizing that a respondent's consumption of the account and the individual posts on the feed relates directly to symbolic consumer behavior (Hoyer et al., 2013). The respondent looks at the influencer from an emblematic function or role acquisition function, meaning that as a follower, they want to be a part of the influencer's ingroup by acting in a similar sustainable way and even adapting this behavior (ibid.). The content treatment was created using an educational message to inspire the follower to identify and act with the influencer (ibid.). The goal was to stimulate system two thinking with high elaboration evaluation in the social influence and tangibility treatment (ibid.). However, the control group intended to inspire a system one evaluation.

The influencer-follower relationship in the experiment is supported by the Riley & Riley (1959) communication model, where the influencer is following the dictated societal patterns and expectations for their content and engagement. This rule-following inspires the follower to follow societal rules by communicating back to the influencer through comments and likes. In designing the individual posts, many aspects have been considered to make them as effective as possible. The design of the posts aligned with the AIDA communication model (Strong, 1925). To grab respondents' attention, the posts all have the same editing style with consistent color-filters in the style of other travel influencers (in alignment with our case studies). Interest has been drawn not only by the photos but also by the bio and caption of the posts, providing more information. A consistent feed and several posts from Norway are used to establish desire. The posts were all unsponsored, hence the goal is not an active action, but to inspire the follower of sustainable traveling or of traveling in general for the control group. Considering this, we have chosen not to have sponsored posts as trustworthiness generally decreases when there is a commercial intention behind it (Hennessy, 2018).

The chosen design of our quantitative study is based on our theoretical understanding of influencer marketing and market research aiming to gain valuable insights while ensuring high external and internal validity. However, we do acknowledge that to increase internal validity we had to make a trade-off in decreasing external validity and vice versa. In the following section, we will analyze the results of our study.

4.   Results

4.1   Qualitative Findings

Our interviews were used as a validation tool to confirm our understanding from our literature review and discover intersections between the three core topics we may not have already found. We structured the interviews into two main themes, discussing problems in the Norwegian adventure tourism market and potential interventions. Our findings from the interviews align with those two themes and are summarized in Table 5. Industry stakeholders in Norway (Table 3) identified three key categories of problems: infrastructure and education, tourism revenue, and the sustainability dilemma.

4.1.1 Problem 1: Infrastructure and Education

When considering the status quo of hiking tourism today, many popular hikes can be characterized by overuse and lack of preparedness by travelers according to our respondents at the DNT, and the guides we spoke to. A high density of travelers on trails can cause trail erosion, littering, and contributes to negative impacts of excessive backcountry camping like human waste and fauna destruction. One of the guides we interviewed shared, "Leave no trace principles are now becoming a problem for Norway because of all the people coming." Additionally, respondents from the small communities shared that when travelers are not knowledgeable of backcountry best practices, this increases the need for rescue operations which are undertaken by their local community volunteers.

Lack of education also relates to the infrastructure surrounding the trail. Many popular hikes do not have adequate signage for travelers unfamiliar with navigating in the backcountry. Additionally, the popularity of a trail increases car traffic and creates parking issues. Public transportation could be a reasonable way to solve for some of this, but public transportation information is mostly published in Norwegian and thus is less accessible or understood by tourists.

To many of our respondents, Instagram is responsible for putting pressure on these popular destinations. In agreement with Chris Burkard's quote above, respondents view Instagram as creating an influx of travelers who have spent less time learning about the destination they are visiting. For example, one cited that an Instagram post of Trolltunga might give the wrong

impression about the level of difficulty of the hike. We heard repeatedly that many travelers only want to "get the picture" and this leads to breaking the rules, acting unsafe, and disrupting others in the process. Furthermore, one respondent from the DNT questions if some of these travelers are even open to becoming more educated. Clearly, infrastructure and education are important aspects of making these destinations more sustainable in the long run.

4.1.2 Problem 2: Tourism Revenue

Another important problem addressed by respondents is that some popular destinations are not commercialized, meaning they are not a part of a business model that captures tourism revenue. Respondents from the small communities share that they need a way to capture value from the influx of tourists to support the tourists' infrastructure needs. Government grants have helped in the short run, but local communities want the tourists to also contribute. For example, one small community shared that lengthening the stay even only by one additional night significantly increases the profit the local businesses can capture. One of our guides shared that her employer only partners with locally owned venues instead of corporate chains to ensure that the money spent by their guests will stay in the community. This demand to attract more money from tourists contrasts with another idea that locals still want to keep some places unspoiled by tourists. Competing priorities are hard to balance for small communities who might foresee the influx of tourists as unpredictable and almost inevitable because of Instagram.

But despite the need to capture more income to support infrastructure and education, our respondents in the small communities acknowledge that they want to maintain a diverse audience of travelers. This means having tenting and low-cost options that cater to low-budget travelers, and luxurious, premium, offers for wealthy travelers. We also heard that travelers from different cultural backgrounds have different understandings about how to act in nature, which is why education is so important. When considering the diverse audience Norwegian tourism attracts, our respondents agreed that most travelers do not intentionally create harm, they just do not realize the consequences of their actions.

4.1.3 Problem 3: The Sustainability Dilemma

When nearing the end of our interviews, we commonly heard our respondents make conclusions addressing the dilemma in the industry: is sustainable tourism even possible? Consider a few quotes: "Sustainable tourism is a contradiction in terms," according to

Vestvågøy. "How can we be active in nature without spoiling nature?" asks the DNT. "Sustainability is balancing the needs of the environment and society," according to Visit Norway. These are the quotes that demonstrate our respondents' acknowledgment of the sustainability dilemma, one that we grappled with ourselves during our research. Visit Norway has established ten sustainability principles that guide their strategy in promoting sustainable tourism. But these values are not necessarily widespread throughout the industry, as the influencer we interviewed shared that he thinks his ideas are not what most tourism agencies want to promote, ideas like bike traveling, and slow, immersive travel.

Despite the dilemma, our audience acknowledges that inaction is not the answer. "The problem will only intensify as people are making more time for travel," according to the influencer. The guide agreed by sharing that people who want to travel internationally will do it no matter what. For tour operators, the influx of mass tourism was positive for business but puts pressure on this sustainability problem. Still, Visit Norway shares that mass tourism does not generate value creation as they want it because it is unsustainable. Acknowledging that mass tourism, Instagram tourism, and adventure tourism all will continue, we asked our respondents about what interventions could help curtail the negative impacts.

4.1.4 Intervention 1: Infrastructure and Education

When talking about interventions, infrastructure and education were identified by our respondents as one of the most tangible ways of creating a change in the industry. One respondent introduced us to Norwegian Scenic Hikes, an organization dedicated to solving some trail infrastructure problems discussed above on Norway's most famous locations (e.g. Trolltunga, Preikestolen, Reinebringen). Respondents familiar with the infrastructure investments that Norwegian Scenic Hikes has made at Trolltunga, such as full-time mountain guards (park rangers) during the peak season, bathrooms, parking hostesses, improved parking lots, signage, weather reports, and trail narrowing cited the significant, positive improvement at the location. One indicator of success used to measure the impact of these infrastructures is the drop in emergency rescues from 42 to 15 between the years 2015 and 2018.

But others see these interventions as insufficient, wanting Norway to make more radical changes to curtail these problems. Public transportation has been cited as an area for improvements. Even trail permitting to restrict some density to certain areas should be on the table according to some respondents. However, to native Norwegians permitting is often

dismissed because of Norway's infamous public right to access called "allemannsretten". Freedom to access natural lands has been a guaranteed right in Norway's culture for thousands of years, so no one wants to cite Instagram ending that. Still, the influencer we spoke to believes Norway should expand national park boundaries to at least limit some drone usage and wild camping.

In considering education, there's always the fear that educational messages will be ignored by tourists who choose to stay ignorant. Messages that make a traveler's impact more tangible was one suggested way to make education more effective and distance it from buzzwords like sustainability, which has "lost its meaning" according to one of the guides we spoke to. Guides themselves are another educational intervention because they are role models of how tourists act. Trolltunga's mountain guards are also educators out in the field.

Besides in-person education, respondents cite online education and marketing campaigns as feasible methods. Visit Norway has used its Instagram account for educational campaigns about safety and the Norwegian mountain code "fjellvettreglene" which describes how to safely travel in the alpine environment. Trolltunga has created a campaign offering free trash bags with the message, "leave nature as you found it." Even the influencer we spoke to has used Instagram carousels to show followers who swipe through images what the locations look like before and after the litter has been cleaned up. These conversations gave us hope that Instagram can be used as a positive educational channel, and tool for change in consumer behavior if it adheres to other important interventions discussed below.

4.1.5 Intervention 2: Change the Story

Our respondents introduced us to how they are changing the typical, mass tourism story of Norway to become more sustainable. Recently, Visit Norway changed their brand message from "Powered by Nature" to "People, Food, Culture, Tradition, and Society." Their self-declared mission is to convince people to visit new places, during new seasons to differentiate the message about Norway. Additionally, they encourage travelers to travel locally within the Scandinavian region to encourage them to stay longer and explore more. The influencer shared that while local travel should be incentivized to followers, there will always be exotic destinations that are truly different from your home. "Germany will never be Thailand, the US will never be the Bahamas." So, his account shares how he can contribute to a better environment through bike tourism, even while traveling and encouraging people to visit new

places. He feels his message is positively differentiated from the mainstream tourism influencers.

As a part of this new story, tourist places are considering how they can be more responsible marketers. For instance, the management company of the Trolltunga trail does not engage in any marketing activities. Instead, it partners with the municipality to spread Trolltunga traffic to other activities in the area such as summer skiing, glacier walks, or even other trails. Visit Norway has made the effort to collaborate only with influencers who want to share new destinations, rather than create content about destinations that are well covered by Instagram. A respondent from Visit Norway shares, "In telling the new story, we sacrifice likes and engagement for a more responsible message." This message also includes safety, as Visit Norway only wants to include photos that align with the destination's management principles, like staying behind barriers.

Additionally, small communities also feel like they have an important say in the new story. For instance, some locals use signs that say "Don't tag this place" to limit over-popularity from Instagram. For residents of these small communities, they want the changes they have made to accommodate tourists to be more apparent and appreciated by new travelers. Both the influencer and the guide shared with us that connections to locals are what is key in adventure travel. "Understanding the Norwegian mindset is an important cultural learning during your travels," the guide shared. Whereas, the influencer advocated "Biking forces you to be closer to the environment and the people you encounter. You are not behind the glass window of a car. You're really out there."

But how to best put these messages in practice? The influencer said to use an inspirational message as followers do not appreciate negativity. Visit Norway echoed this, sharing educational messages are important, but they cannot be overly strict. Finding the right balance of urgency and inspiration will help keep the messages more relevant to followers.

4.1.6 Intervention 3: Stay Positive

With all the negativity surrounding the effects of Instagram on these natural environments, it is easy to get lost in negativity. One of our respondents from the DNT reassured us that Instagram is a positive channel that inspires people to see the mountains. He shared, "[Instagram] widens the world and makes it more accessible." He thinks Instagram is so effective because it is a visual channel that can also be highly personalized, where a follower

can find influencers and then listen to them. Citing National Geographic as a great example of a brand that uses its Instagram channel as a visual and educational blog, its content attracts a huge following because its followers trust the brand.

Our respondents also reminded us of the positive value of adventure tourism. For instance, Trolltunga is rated with a 5.0-star review on Trip Advisor. Travelers love the hike and genuinely enjoy their trip, even if some of that personal value is from the picture they capture while there. We could relate to this finding, as even we have traveled to Trolltunga to see the impressive formation for ourselves and capture our own picture on the tongue. Furthermore, tourism offers new income to small communities that have suffered as industries like fishing and agriculture weaken and threaten the pace of rural life in Norway. Tourism can be a new lifeline of income which helps small communities survive and preserve the cultural aspects of rural life.

Perhaps, most importantly, we heard from our respondents that the future of the tourism market needs to be grounded in values. The influencer shared that people need to think about their values and ask themselves, "Why am I going on this trip?" By critically thinking about why you might take the holiday and what value you are deriving from it, would you still go? One of the guides expanded on this, sharing that she thinks people need to consider whether they want more time to explore a place and really get to know it, or if they want to see as much as possible. These are not new questions, but they are certainly not present in the center of Instagram travel content today.

Table 5: Qualitative Findings

Problems		Interventions	
Infrastructure and Education	• Overuse of hiking trails causes problems like trail erosion, wild camping effects, litter, and human waste issues • Increased need for emergency rescues • Car traffic and parking congestion because of little use of public transportation by tourists • Lack of signage and trail infrastructure • Ignorant travelers break rules and don't understand the difficulty of getting to certain places	Infrastructure and Education	• Infrastructure investments: full-time mountain guards (park rangers) during the peak season, bathrooms, parking hostesses, improved parking lots, signage, weather reports and trail narrowing • Improved public transportation and accessibility • Trail permitting or expansion of national park boundaries and rules • Educational messages that have tangible details • Campaigns that address issues like safety, littering, and guidance for alpine travel
Tourism Revenue	• Tourism revenue is not captured from hikes and non-commercialized activities • Small communities want tourists to help pay for infrastructure needed to support them • Lengthened stays (beyond one night) help small communities become more profitable per each tourist • Communities want to maintain a diverse target market of tourists, including low-budget travelers • Diverse tourists have different cultural understandings of what behavior is appropriate	Change the Story	• Visit Norway's brand message evolved to become more inclusive to elements beyond nature: "People, Food, Culture, Tradition, and Society" • Visit Norway encourages regional travel in Scandinavia to extend the stay in the area, promoting travel to new places and at new times of year • Some locals ask "Do not tag this place" as a barrier to social media fame • Tourism agencies encourage tourists to try to connect more with locals • Inspirational messages, without too much strictness or negativity are more engaging on Instagram
The Sustainability Dilemma	• Sustainable tourism is a contradiction in terms • There is a need to balance the needs of the environment and society • Pressure on environmental locations will continue as people make more time for travel	Stay Positive	• Instagram is a positive channel that increases accessibility and knowledge of global locations • Instagram is a highly personal visual channel and allows followers to find inspirational content • Adventure tourism creates positive value for tourists who greatly enjoy the experiences • Tourism provides a new source of income for small communities • Tourists should be encouraged to identify their values and how they align with tourism decisions

4.2 Quantitative Findings

This quantitative analysis utilizes data from two surveys distributed in October 2019 among an audience of N=360. The sample frame is composed of a convenience sample distributed to our academic and social networks. Both surveys had the same structure and questions, with only changes to treatment posts as discussed above. This analysis section explains the exploratory and statistical techniques that we employed to investigate our model and hypotheses, detailed further in Table 6.

Table 6: Quantitative Analysis Techniques

Quantitative Analysis Approach
1. Exploratory Analysis
• Frequencies
• Descriptive Statistics
• Skewness / Kurtosis
• Correlation Matrix
2. Pre/Post DVs Δ Comparisons
• Paired T-Test
3. Group Comparison
• Pre DVs - MANOVA
• Post DVs - MANOVA
• Δ Pre/Post - MANOVA
4. Factor Analysis
5. Linear Regression using Factors
• DV Investigated: DV1-DV3
• DV Investigated: DIFF_DV1 - DIFF_DV2

4.2.1 Frequencies and Descriptive Statistics

The demographics of the sample for survey 1 differ from survey 2, in that on average the sample is slightly younger, more likely to be a student with an income of less than €10,000 annually and is from an international audience. Survey 2 sample is comprised mostly of full-time employed, Americans, on average making €50,000-59,999. Both samples are majority female (67% in survey 1 and 89% in survey 2). For both surveys, we recognize the limitations of the convenience sample approach, given that certain skewness and kurtosis values for the demographic variables are greater than the absolute value of 2 (Chakrapani, 2004). Our sample has a statistically skewed distribution for variables such as age and income (survey 1) and gender and nationality (survey 2), see Appendix C1 for full descriptive statistics and Appendix C2 for a visualization of the demographic variables.

Our analysis investigates three dependent variables (DV) surrounding a respondents' sustainability behavior intention. Dependent variables are measured twice, once before the treatment and once after the treatment, with slight variations in the question text (Table 7). DV1 asks, "*How **likely are you to choose** to travel more sustainably?*" with a scale of 1-extremely likely to 5-extremely unlikely. DV2 and DV3 use a similar question, "How likely are you to engage in the following behaviors while being an adventure tourist?" referring the respondent to a specific travel behavior to consider as outlined in the treatment post descriptions above. Note, that while the treatment interventions differ between survey 1 and 2 as well as DV2 and DV3, the experiment is testing the messaging strategy or voice which is held constant within the groups across both surveys. DV2 and DV3 use the same 5-point likelihood scale as DV1, and all DVs are described in Table 7 below. The scales remain static for post-treatment measures of the DVs as well.

Table 7: Dependent Variables

	Survey 1		Survey 2	
	Pre	Post	Pre	Post
DV1	How **likely are you to choose** to travel more sustainably?	After having seen these posts, how **likely are you to choose** to travel more sustainably?	How **likely are you to choose** to travel more sustainably?	After having seen these posts, how **likely are you to choose** to travel more sustainably?
DV2	How likely are you to engage in the following behaviors while being an adventure tourist? *Walking on the side of a muddy trail so your shoes don't get wet*	After having seen these posts, how likely are you to engage in the following behaviors while being an adventure tourist? *Walking on the side of a muddy trail so your shoes don't get wet*	How likely are you to engage in the following behaviors while being an adventure tourist? *Traveling by car instead of public transportation*	After having seen these posts, how likely are you to engage in the following behaviors while being an adventure tourist? *Traveling by car instead of public transportation*
DV3	How likely are you to engage in the following behaviors while being an adventure tourist? *Visiting during the less popular months instead of peak season*	After having seen these posts, how likely are you to engage in the following behaviors while being an adventure tourist? *Visiting during the less popular months instead of peak season*	How likely are you to engage in the following behaviors while being an adventure tourist? *Picking up trash left by others in natural places*	After having seen these posts, how likely are you to engage in the following behaviors while being an adventure tourist? *Picking up trash left by others in natural places*

Despite the skew in our sample, we find a normal distribution for all dependent variables except the Pre-DV1 in survey 1, with a kurtosis value 2.464. All other DVs have skewness and kurtosis values less than |2|, signaling normal distribution. When initiating the analysis of the three DVs, we conducted a factor analysis to see if the three variables could be combined into a single DV or factor, but two factors were found in both survey 1 and survey 2 (Appendix C3). Given the relatively low eigenvalues and the factors' ability to explain ~80% of variance, it made sense to use three separate DVs rather than factors which combined only two DVs.

Our survey included measures for our hypothesized third variables, which stayed static for both survey versions (Appendix C4). During the pretest, we captured measurements of respondents' Instagram usage such as frequency of use, number of accounts followed, usage of Instagram for travel planning, and specific interaction with Instagram influencers and appeal of influencers. We also asked respondents about their involvement in adventure travel, previous experience in traveling sustainably and the appeal of traveling sustainably. Using a factor analysis, we investigated these third variables for potential grouping discussed further in Appendix C5.

Unlike our DV, our convenience sample choice had a more significant impact on these third variables resulting in skewness and kurtosis values that communicate abnormal distributions for variables in both survey versions summarized in Table 8. Familiarity with Instagram was a screening question that required a 'Yes' answer choice to be included in our sample, so the high skewness and kurtosis values are explained by that requirement. Other variables with abnormal answer distribution are Q2: frequency of Instagram use, Q4: usage of Instagram for travel planning, Q6: following influencers on Instagram (survey 1 only), Q8: frequency of adventure tourism (survey 2 only), and Q9: previous experience traveling sustainably (survey 2 only).

Table 8: Descriptive Statistics of Third Variables

Survey 1: Pre-Test	Sample Size	Minimum Value	Maximum Value	Mean	Std. Deviation	Skewness	Kurtosis
Familiar with Instagram	180	1	2	1.04	0.207	4.458	18.078
Frequency of Instagram Use	172	1	6	1.36	1.053	3.459	11.722
Number of Instagram Accounts Followed	172	1	6	3.05	1.099	0.216	0.739
Use Instagram for Travel Planning	172	1	2	1.48	0.501	0.070	-2.019
Following Influencers on Instagram	172	1	3	1.25	0.520	2.003	3.186
Appeal of Instagram influencers	172	1	5	2.78	0.990	0.640	-0.234
Frequency of adventure tourism	172	1	5	2.01	0.985	0.793	-0.020
Previous experience acting sustainably in adventure tourism	172	1	3	1.48	0.753	1.183	-0.198
Pre- Appeal of traveling more sustainably	172	1	4	1.59	0.700	1.084	1.044
Survey 2: Pre-Test							
Familiar with Instagram	180	1	2	1.02	0.128	7.615	56.610
Frequency of Instagram Use	177	1	6	1.58	1.209	2.542	6.093
Number of Instagram Accounts Previous experience acting sustainably in adventure tourism Followed	177	1	6	2.98	1.295	0.223	-0.112
Use Instagram for Travel Planning	177	1	2	1.53	0.500	-0.126	-2.007
Following Influencers on Instagram	177	1	3	1.33	0.579	1.592	1.525
Appeal of Instagram influencers	177	1	5	2.96	1.125	0.345	-0.826
Frequency of adventure tourism	177	1	5	1.58	0.902	1.977	4.290
Previous experience acting sustainably in adventure tourism	177	1	3	1.24	0.615	2.322	3.753
Pre- Appeal of traveling more sustainably	177	1	3	1.36	0.558	1.259	0.627

4.2.2 Correlation Analysis

A Pearson correlation matrix with all study measures to identify correlations revealed many correlations among variables that were significant at the 90 and 90% confidence level (CL). A closer look at the correlations of our pre and post DVs (Appendix C6) showed similarities across the two surveys. Interestingly, many of our hypothesized third variables were not significantly correlated with the pre or post DVs except for frequency of Instagram use, frequency of adventure tourism, previous experience in sustainable adventure tourism, and appeal of sustainable travel. Additionally, the pretest DVs were often correlated with posttest DV measures.

We return to our demographic variables and consider their correlations with the DVs, revealing some differences in the two surveys. In survey 1, age, gender, employment, and income had correlations with the DVs, suggesting that being younger was correlated with the likelihood of choosing to travel off-season, and being younger and female was more correlated with a likelihood of choosing to travel more sustainably. In survey 1, having a higher income was also correlated with traveling off-season. The non-ordinal scale of the employment question makes interpretation of correlation difficult, but we do know that our sample was mostly students (answer choice 6) which could explain the positive correlation, meaning students are correlated with traveling less during the off-season. In survey 2 only gender and nationality correlated with the DVs which we can likely ascribe to survey's sample consisting of mostly female Americans (Table 9).

Table 9: Demographic Correlations to DVs

Survey 1	Age	Gender	Employment	Income	Nationality
Pre- DV1	-0.084	-,255**	0.028	0.048	-0.091
Pre- DV2	-0.074	0.092	0.035	0.009	-0.127
Pre- DV3	-,151*	-0.038	,188*	-,179*	0.066
Post- DV1	-,153*	-,196**	0.087	-0.073	-0.070
Post- DV2	-0.026	0.122	-0.119	0.015	0.025
Post- DV3	-0.028	-0.104	0.096	-0.130	0.072
Survey 2					
Pre- DV1	-0.04	-,167*	0.08	-0.07	-,231**
Pre- DV2	0.01	-0.06	-0.04	0.06	-0.08
Pre- DV3	-0.08	-,177*	0.00	-0.03	-0.14
Post- DV1	0.08	-0.08	-0.05	0.09	-0.07
Post- DV2	-0.05	0.02	0.08	-0.08	-0.03
Post- DV3	0.01	-,166*	0.00	0.06	-0.05

🟨 Significant at the 95% CL
🟧 Significant at the 90% CL

4.2.3 Pre-Post DV Measurement: Paired T-Test

Given the structure of our pre and post DV measurement, we use a paired t-test to compare the means. A paired t-test is most suitable for comparing means that come from the same sample but have a time-difference in measurements (Chakrapani, 2004). Our results for our three groups which are control, tangibility, and social are in Appendix C7.

Our control group was shown treatment posts that do not promote sustainability (Appendix B4); therefore, we can look to the results of the pre/post paired t-test to comment

on H2. We find a mixed result across the two surveys with varying levels of significance in the mean difference. In survey 1, DV1, the average mean lowers significantly at the 90% CL, signaling a lower likelihood of traveling sustainably after seeing the treatment and supporting H2. In contrast to H2, DV2 reveals a negative mean difference significant at the 95% CL, which means respondents are less likely to walk on the side of a trail after seeing treatment (an increase in a positive sustainability behavior) after seeing the posts. DV3 follows our expectations and has a negative mean difference, signaling a lower likelihood to engage in sustainable behavior, but the mean difference is insignificant. Survey 2 also has mixed results, with DV2 showing respondents' likelihood to act more sustainable after the treatment, with a mean difference significant at the 95% CL. DV3 follows this trend but with a mean difference that is insignificant. DV1 follows the same trend as survey 1, meaning respondents report being less likely to travel sustainably, but the mean difference is not significant. These mixed results imply that we cannot accept H2 and must reject it.

H2: Influencer content that promotes unsustainable adventure travel behavior or makes no mention of sustainability will negatively affect a followers' future intended sustainability travel behavior.

Our social influence treatment also created mixed results across the two surveys. Most shocking is that on average DV1 for both surveys shows respondents reporting to be significantly less likely to choose to travel sustainably after the content. This directly contradicts H3, meaning we will not be able to accept it. We look to DV2 and DV3 for the confirmation of this trend and see that respondents in survey 2 on average report slightly more sustainable intentions, when asked about the specific behaviors, however only DV3, has a mean difference significant at the 95% CL. In survey 1, respondents also report more sustainable behavior intentions that are significant at the 95% CL, but DV3 shows a slight shift to less sustainable behavior intentions on average. These mixed results mean we cannot accept H3 and must reject it.

H3: Social influence content that calls on followers to consider how their values align with an influencer's values and the influencer's in-group will have a positive effect on a follower's future intended sustainability travel behavior.

For the tangibility treatment in survey 1, respondents report a higher likelihood to choose to travel sustainably in the posttest, with a significant mean difference at the 90% CL. Whereas,

survey 2 respondents report a slightly lower likelihood to travel sustainably in the posttest, but it is not a significant difference. Both survey 1 and survey 2 respondents on average are also more likely to engage in sustainable travel behaviors (DV2 and DV3), with the mean difference significant for DV2 at the 95% CL. Survey 1 data indicate that we can accept H4, and the mixed results in survey 2 are not significant therefore we do not need to reject this hypothesis.

H4: An influencer's use of tangibility content that calls on followers to confront sustainability issues in the adventure travel context will positively affect a follower's future intended sustainability travel behavior.

Ultimately, we accept H1 because of the presence of significant mean differences between pre and post measures for both surveys. Even though significant results are not consistent across all DVs, we suspect sample differences account for some differences in results between the two surveys and turn to a correlation analysis to shed light on some of these differences.

H1: Influencer content that promotes sustainable adventure travel behavior will have some effect on followers' future intended sustainability travel behavior.

4.2.4 Between Group Analysis: MANOVA

Our theoretical understanding of influencer marketing techniques and the SHIFT framework led us to believe that both social influence treatment and tangibility treatment would yield a positive sustainability behavior among our audience. Our pre-post paired t-test shows that tangibility was most effective in generating significant changes in a respondent's answer choice over time. This comparison over time is essential to take into account pretest levels of the DV.

We utilized a between-group analysis of the dependent variables using a multivariate analysis of variance (MANOVA) technique and the Scheffe post-hoc test. The Scheffe test is advantageous for unplanned comparisons in a data set after the ANOVA experiment finds a significant F-statistic (Chakrapani, 2004). In considering the pretest DVs, the MANOVA and Scheffe analysis revealed no significant differences between the control, tangibility, and social influence group (Appendix C8). This we expect and confirms that our sample and group assignment was random.

Next, we analyzed the mean differences between the three treatment groups' posttest dependent variables to look for significant differences (Table 10). In survey 1, we see a significant mean difference between control and tangibility groups for all three DVs, however, for DV2 the mean difference is negative. Tangibility treatment resulted in more sustainable outcomes for all three DVs because DV was asking the likelihood to engage in negative behavior, so we expect the mean difference to be negative. Additionally, there is a significant mean difference between tangibility and social influence for DV1 meaning that the tangibility treatment resulted in more sustainable outcomes than social influence. Unfortunately, in survey 2, we see no significant mean differences between groups for any of the post DV measures because the F-statistic of the group variable was insignificant at a .05 alpha (Appendix C9). Based on survey 1 results, we can conclude that tangibility treatment is most effective at generating a more statistically significant difference from the control and could be viewed as comparatively more effective than social influence treatment for generating positive sustainable results for DV1.

Table 10: Survey 1 MANOVA of Post DVs

Dependent Variable	Group	Comparison Group	Mean Difference (I-J)	Std. Error	Sig.
DV1 : Post - Likelihood to choose to travel more sustainably	Control	Tangibility	.41	0.150	0.026*
		Social Influence	0.05	0.147	0.953
	Tangibility	Control	-.41	0.150	0.026*
		Social Influence	-.36	0.145	0.046*
	Social Influence	Control	-0.05	0.147	0.953
		Tangibility	.36	0.145	0.046*
DV2: Post - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	Control	Tangibility	-0.57	0.246	0.072**
		Social Influence	-0.46	0.242	0.163
	Tangibility	Control	0.57	0.246	0.072**
		Social Influence	0.11	0.238	0.907
	Social Influence	Control	0.46	0.242	0.163
		Tangibility	-0.11	0.238	0.907
DV3: Post - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season	Control	Tangibility	0.32	0.147	0.090**
		Social Influence	0.08	0.144	0.861
	Tangibility	Control	-0.32	0.147	0.090**
		Social Influence	-0.25	0.142	0.230
	Social Influence	Control	-0.08	0.144	0.861
		Tangibility	0.25	0.142	0.230

*Mean difference significant at 95% CL
**Mean difference significant at the 90% CL

Given that the group differences in Survey 2's posttest DVs had no significance, we also wanted to test group comparisons in the pre-post differences (Table 11). This test differs from the paired t-test described above in that it uses a new variable, DIFF_DV, a calculated difference between PostDV1-PreDV1 as the input variable for the MANOVA and Scheffe. In

survey 1, DIFF_DV1, we see significant differences (in the pre-post delta) for control & tangibility and tangibility & social influence, meaning tangibility treatment caused a bigger change than the control group and the social influence group. For DIFF_DV2, we see a significant difference between control and tangibility and control and social influence, this time showing that the control group had a bigger change than tangibility and social influence. There are no significant between-group differences for DIFF_DV3. In Survey 2, the only between-group difference is between social influence and tangibility for DIFF_DV2, showing that social influence treatment caused a larger change than tangibility treatment (Table 12). The interpretation of these pre-post delta differences is most meaningful when combined with the analysis of the posttest DV outcomes, so in summary:

1. Tangibility treatment had a significantly larger and significantly more positive impact on the likelihood to choose to travel sustainably than the social influence treatment and control groups.
2. The control group had a significantly larger and significantly more negative impact on the likelihood to walk on the side of a muddy trail than the tangibility group.
3. Control group had a significantly larger impact on the likelihood to walk on the side of a muddy trail than the social influence group, but it resulted in less sustainable outcomes.
4. Social influence treatment had a significantly larger impact on the likelihood to travel by car instead of public transportation than tangibility treatment, but it resulted in less sustainable outcomes.

Table 11: Survey 1 MANOVA of Pre-Post DV Δ

Survey 1:

Dependent Variable	Group	Comparison Group	Mean Difference (I-J)	Std. Error	Sig.
DIFF_DV1	Control	Tangibility	0.40	0.135	0.015*
		Social Influence	0.04	0.133	0.961
	Tangibility	Control	-0.40	0.135	0.015*
		Social Influence	-0.36	0.131	0.026*
	Social Influence	Control	-0.04	0.133	0.961
		Tangibility	0.36	0.131	0.026*
DIFF_DV2	Control	Tangibility	-0.63	0.272	0.070**
		Social Influence	-0.78	0.267	0.016*
	Tangibility	Control	0.63	0.272	0.070**
		Social Influence	-0.15	0.264	0.851
	Social Influence	Control	0.78	0.267	0.016*
		Tangibility	0.15	0.264	0.851
DIFF_DV3	Control	Tangibility	0.16	0.122	0.422
		Social Influence	-0.01	0.120	0.997
	Tangibility	Control	-0.16	0.122	0.422
		Social Influence	-0.17	0.119	0.356
	Social Influence	Control	0.01	0.120	0.997
		Tangibility	0.17	0.119	0.356

*Mean difference significant at 95% CL
**Mean difference significant at the 90% CL

Table 12: Survey 2 MANOVA of Pre-Post DV Δ

Survey 2:

Dependent Variable	Group	Comparison Group	Mean Difference (I-J)	Std. Error	Sig.
DIFF_DV1	Control	Tangibility	0.09	0.143	0.812
		Social Influence	-0.02	0.142	0.987
	Tangibility	Control	-0.09	0.143	0.812
		Social Influence	-0.12	0.144	0.726
	Social Influence	Control	0.02	0.142	0.987
		Tangibility	0.12	0.144	0.726
DIFF_DV2	Control	Tangibility	-0.16	0.205	0.729
		Social Influence	0.29	0.203	0.354
	Tangibility	Control	0.16	0.205	0.729
		Social Influence	0.46	0.207	0.090**
	Social Influence	Control	-0.29	0.203	0.354
		Tangibility	-0.46	0.207	0.090**
DIFF_DV3	Control	Tangibility	0.04	0.122	0.951
		Social Influence	0.12	0.120	0.608
	Tangibility	Control	-0.04	0.122	0.951
		Social Influence	0.08	0.123	0.801
	Social Influence	Control	-0.12	0.120	0.608
		Tangibility	-0.08	0.123	0.801

*Mean difference significant at 95% CL
**Mean difference significant at the 90% CL

4.2.5 Combined Data Analysis

For a final investigation into the data, we combined the datasets from survey 1 and survey 2 to see if the larger combined sample size would yield differing results or significance. We ran all the analytical tests described above on the combined data, and on a whole, there was little differentiation in the results, nor improvements or expansion of significant results. Because no new insights were found, we have not detailed a combined view of the analysis.

5. Discussion

5.1 Qualitative

The interventions discovered and described in our qualitative analysis connect with our theoretical research in many ways. Our interviews with tourism stakeholders called for infrastructure and education based on the understanding of sustainable development that considers the triple bottom line, namely social, environmental, and economic value (Jørgensen and Pedersen, 2018). This aligns with the definitions of sustainable travel outlined by Weaver (2006), Oriade & Evans (2011), and Swarbrooke et al. (2003). By prioritizing care for the people and the environment ingrained in these adventure tourism destinations, the industry can effectively preserve and extend the value of these resources (Oriade & Evans, 2011). Many of the Norwegian representatives we spoke to already shared a sustainability awareness, but continual development of infrastructure and education is necessary to remedy the existing problems.

When crafting educational messages for Instagram, campaigns by national agencies, such as Visit Norway, will engender more trust because of their relative authority as compared to an influencer. Influencers can still be valuable partners by providing access to a larger audience, but it is important the messages are created in a way that resonates with their respective audience. Per the results of our quantitative research, tangibility messages will be most effective, grounding followers in concrete numbers and vivid imagery of the impact they can have. Captions must adhere to the recommendations outlined by Barton (2018) and Hennessy (2018) to drive engagement rates. Engagement shows deeper cognitive involvement from a follower, potentially accessing their system 2 process (Hoyer et al., 2013).

Even though the adventure tourism industry cannot fully remove its environmental impact, industry stakeholders and their subsequent messaging must remain positive about making improvements. Followers can extract many types of value (informational, aesthetic, entertaining, social, etc.) from the Instagram platform and therefore, educational messages can take on many voices (Barton, 2018). Our experimental content relied on both aesthetic value and informational value: we composed beautiful images to first inspire people to pay attention and followed with a more exposed view of the problem with a carefully worded caption to inspire behavior change. Other potential messaging strategies may rely on more entertaining value, like REI's recent "Everything to Lose" campaign starring Pattie Gonia in a comedic, vulnerable, yet honest account of the plastic impact in our oceans (REI Staff, 2019). Likewise, an influencer with an engaged community on Instagram could create social value in the form of an influencer-follower relationship or follower-follower relationship to inspire more conversation, idea-sharing, and greater collective action (Barton, 2018; Hennessy, 2018).

5.2   Group Comparison

Our quantitative findings reveal that the social influence treatment did not have the expected effect we hypothesized. We see several potential reasons based on our theoretical understanding of influencer marketing. First, a respondent's individual relationship and reaction to the influencer might have affected their interpretation of the treatment. Given that the basis of the influencer's word-of-mouth marketing technique is a trusting relationship between the two parties (Lis & Korchmar, 2012), the contrived experiment could have failed to create this for the respondents. Trust might not have been possible for some respondents, because open-ended responses showed that about 10% of the respondents are skeptical of influencers' commercial intention. Furthermore, our respondents' self-image might not have aligned with the fictional influencer presented in the experiment causing a lack of self-image congruence between the two parties (Sirgy, 1986). Additionally, the respondent's reaction or a sense of belonging to a social group of followers could not be controlled in the experiment. Symbolic consumer behavior supports the idea that a lack of connectedness function might explain the lack of effect of the social influence treatment, which largely relied upon a call to collective action (Hoyer et al., 2013). If respondents did not perceive themselves as a part of a group, the in-group and out-group dynamics would not occur. Finally, involvement is also important to consider because in the short experiment it would be difficult for a respondent to form enduring or affective involvement and social-capital bonding (Hoyer et al., 2013). While

it is reasonable to assume the respondent demonstrated situational or temporal involvement, given the lack of incentive, respondents might have lacked full cognitive involvement (ibid.).

We did not measure a respondent's motivation and reasoning for using the Instagram app, so there could also have been misalignment in the type of value the respondent seeks from Instagram and our treatment. Our experimental content provided informational value in the form of traveling and sustainability recommendations, but a respondent might be seeking more entertaining or aesthetic value and hence not react as expected to our treatment (Barton, 2018; Hennessy, 2018). A field experiment that relies upon an actual relationship between an influencer and her followers might be more suitable to test social influence messaging and provide a more customized treatment that matches a respondent's preferences and needs.

Tangibility treatment had a statistically significant, positive impact on creating more sustainable travel behavior in respondents. Tangibility treatment's shocking numbers might have been more successful in grabbing the attention of the respondents, as attention is the important first step in the AIDA communication model (Strong, 1925). The concrete tangibility messages might have also been more credible if our respondents were seeking informational content value from the Instagram posts (Barton, 2018; Hennessy, 2018). Furthermore, the concrete numbers also solve the problem of abstractedness often associated with sustainability, which might have bolstered respondents' greater trust in the influencer (White et al., 2019). Because we found skepticism of influencers' in our sample, perhaps concrete numbers instead of sharing an opinion, like in the social influence treatment, was a more effective approach.

The mixed results in the control group revealed that the respondents might have been primed by the mention of sustainability in the pretest. Perhaps, they succumbed to cognitive dissonance where they associate their own travel behaviors and intentions of traveling more sustainably as misaligned with the travel behaviors tested. This would explain why the control group reported more sustainable intentions about not creating trail erosion but did not exhibit sustainable intentions in the other DVs. Motivated reasoning about their sustainability intentions or beliefs could also explain why their stated behavioral intentions do not align with our expectations of unsustainable or neutral intentions. Finally, given that even our control group on average showed high or somewhat high likelihood to travel sustainably (DV1), our control group might have been skewed to behave more sustainably. Our experiment treatment then might have presented conflicting content about traveling unsustainably pushing the

respondents into an approach-avoidance conflict where they both liked the content and traveling posts but did not like their unsustainable nature (Hoyer et al., 2013). Given our limited quantitative measures, it is difficult to pinpoint this relationship and an in-depth interview would likely be more effective at teasing out the nuances of the control groups' behavior and interpretation of the experimental treatment.

6. Limitations

6.1 Validity Concerns

When designing our study, we have taken into consideration the factors influencing external and internal validity (see section 3.3). However, the goals of these two validity factors usually conflict, leading to optimizing one while sub-optimizing the other (Churchill & Iacobucci, 2005).While the goal was to increase validity, we do acknowledge that some threats could not be prevented. We used a convenience sample in our study because of a lack of resources, therefore the sample is not representative of the overall target population of Instagram users. In our survey questionnaire, one DV measurement question has been intentionally inversed. DV1 and DV3 questions utilized a positive sustainable behavior, while DV2 question text was inverted to being negative. This was intended as a quality check to ensure that respondents were paying attention but could have led to confusion in our study. In our sample, we could not ensure that the measured behavior has not been biased by historical events. With sustainable consumer behavior highly discussed from polarizing viewpoints in the news, this attention could have biased the respondents' perception of our posts. To try to reduce the history threat, we only ran the survey once instead of over time. We used two treatments in the experiment to limit respondent fatigue and drop-out. However, we still experienced a high dropout rate (survey 1: 10%; survey 2: 25%) leaving us with responses from people who are already interested in the topic. Since the goal of our study is to find out how to reach people best who are not interested in sustainability, we may have lost some of the attention of this population.

Concerning external validity, the chosen lab experiment provided more control, but is more artificial than a field study. Since the treatment posts were not placed in a feed with other posts that the respondent could choose to look at, the experiment called attention to a particular post with sustainability content. Additionally, the sample of survey 2 mainly consisted of women in the US, meaning our findings are representative of only that population. Since we could not

replicate the survey with different samples because of a lack of resources, this could have confirmed or disproved the effect of the independent variable in other populations. Previous research has found that consumers see sustainability as a feminine trait (Brough et al. 2016), therefore our largely female sample could be responsible for the effect that we have measured. Furthermore, the fact that we only tested two posts decreases the generalizability of our findings.

Every respondent participated in the pre- and posttest, which could have introduced an interactive testing effect and bias in the DV measurements. Our pretest informs respondents of our subject matter of interest, sustainability, which could lead them to act differently in the posttest than if they had not seen the pretest. Without these tests together, the cause-and-effect relationship could disappear, which is why a four-group, six-study design can be an advantageous approach to measure the effect of the pretest (Churchill & Iacobucci, 2005). However, given the two IVs we wanted to test, and our limited sample size, we could not employ this four-six method. The chosen design of our study does have its limitations mainly due to time and financial constraints. Regardless, these findings are relevant for stakeholders in the industry and we encourage more research on the influencer effect on tourism.

6.2 Future Research

During the time period of this master's thesis, we have observed an increase of press and public awareness about sustainability which can be tied to recent events and movements in 2019, like Greta Thunberg's "Fridays for Future". This increased attention is movement in the right direction. However, there is still a gap when it comes to sustainable travel tourism reflected on Instagram. Due to the limited time for this thesis, we could only research in one niche in the adventure tourism industry, hiking in Norway. We aim to generalize these findings globally to other countries with vulnerable natural landscapes exposed to mass tourism. However, future research should address this niche in other countries with different economic growth then Norway.

In the manipulation of the experiment itself, we also suggest varying the influencer gender as this may have an effect on the outcome. We kept the engagement rate throughout the experimental posts constant, but it would be interesting to see how the willingness of engagement changes with the use of Instagram stories with interactive polls and swipe-up links. These engagement tools could impact the perception of the content. While the aims of

this thesis focused on educational, non-commercialized posts, future research about sponsored collaborations is crucial for the industry.

Lastly, we acknowledge that researching the effect of a social influence messaging strategy might be more successful in a field study. This methodology would allow researchers to observe a respondent in a natural environment, scrolling through Instagram, and better understand a respondent's reactions and motivations. Allowing a respondent to engage with an influencer in a field study could increase relationship building and lead to different behavioral change outcomes. A field study could better measure a change in traveling behavior after exposure to the content on Instagram instead of only intentions. For example, travelers who are about to hike up Trolltunga could be shown posts utilizing a social influence or tangibility message and see if they changed their behavior accordingly. Sustainable tourism has much room for further research, and the goal of this thesis is merely a first look into the new marketing phenomenon of Instagram influencers and their role in the adventure tourism sector. We hope that the results that we share with those who participated in our qualitative research will be beneficial and inspire future testing and exploration of the ideas presented here.

7.   Conclusion

This thesis contributes to the body of marketing research by investigating the recent phenomenon and emerging trend of influencer marketing on the Instagram platform. Our exploratory research phase provides an overview of influencer marketing on the Instagram platform explained by academic literature, industry accounts, and primary research on the app. Our detailed review of the adventure tourism industry and White et al. (2019) SHIFT sustainable consumer behavior framework highlights the overlap and interplay between these three subjects. By researching Instagram's role in the adventure tourism market, we identified specific sustainability problems attributed to the increased tourist awareness and accessibility introduced by this marketing channel. We explored the dynamics between these three subjects through conversations with adventure tourism and Instagram industry players to greater understand the impact Instagram and influencers have on the adventure tourism market.

These conversations, and the White et al. (2019) SHIFT framework, informed our research goal of determining if the Instagram platform and influencers could create a positive benefit by changing the behaviors of adventure tourists to become more sustainable. Based on our

qualitative interviews, we identified a few sustainability travel behavior interventions to investigate in a traditional experiment, using fictional Instagram influencer posts as treatment. These influencer posts were designed by the influencer and Instagram parameters discovered in our literature review, and from a sustainability messaging standpoint, informed by White et al. (2019) SHIFT framework.

While the results of the experiment are mixed, several important conclusions are found. Positive improvements to sustainable travel behavior intentions are induced by Instagram influencer content, most successfully using a "tangibility" messaging approach, "use vivid imagery, analogies, and statistics to communicate to consumers" (White et al., 2019). This type of messaging should be implemented immediately by adventure tourism stakeholders on the Instagram platform to initiate the much-desired education about sustainability behaviors.

Users who view content that has no mention of sustainability sometimes showed statistically significant worse outcomes in sustainable behavior. This finding solidifies our opinion that the status quo of adventure tourism portrayals on Instagram needs to change to promote sustainability. Social influence treatment, or content that "makes the behavior more socially desirable and encourages consumers to make public and meaningful commitments" (ibid.) was not successful in our traditional experiment but deserves more attention in future research employing a field test methodology with actual influencers and followers engaged in an authentic influencer-follower relationship.

In an age where sustainable development is no longer a choice, but a necessity, the future of the adventure tourism industry must be grounded in preserving the value of the natural environments it so heavily relies on. Locations like Trolltunga, Rainbow Mountain, and even Everest all need a new digital story that not only showcases the beauty and the adventure in traveling there but also educates users about how to be more responsible on the journey. Instagram influencers play a key role in communicating this to followers and can partner with other industry players on the platform to promote more sustainable behaviors among travelers who use the Instagram platform.

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Appendices

Appendix A – Case Studies

Appendix A1: Daniel Ernst

Appendix A2: Trolltunga Active

Appendix A3: DNT Oslo

Appendix A4: Tristan Bogaard

Appendix B – Methodology

Appendix B1: Discussion Guide

1. Introduction:
   - Who we are
   - Why we're interested in the topic
   - Outline our research
   - Can we record this conversation?

2. Can you tell us about your organization and how you interact with tourism in Norway? (Only ask for DNT & Municipality representatives)

3. How has Instagram affected tourism in Norway?
   a. Probe: Positive influences? Negative Influences?

4. What are the most destructive behaviors that you see in tourism in Norway?
   a. Are these connected / influenced by Instagram?

5. We'd like to as your opinion on a few interventional techniques for improving sustainability behaviors. Please let us know if you think they would be effective in solving some of the destructive behaviors we discussed above.

   Intervention 1: More education to foster greater respect for ecological locations -- specifically on topics like waste management, care of trails, treatment of locals

   I**ntervention 2:** Promoting more frequent local, regional travel to minimize effects of air travel.

   Intervention 3: Teach how to love and take care of natural places, leaving a place better than you found it

6. Are there any other important sustainability interventions that you think should be shared on Instagram? What's missing from our list?

7. Do you partner with Instagram Influencers?
   a. Who do you partner with? What kind of relationship?

8. How does your organization want to change tourism in Norway?
   a. What are the barriers and benefits of those changes?

9. Do you have any additional comments about anything we discussed today?

10. Are you working with anyone else on this topic that you might recommend we speak with?

Appendix B2: Social Influence Treatment

Survey 1 – Non-Peak Season Travel

Survey 1 – Trail Erosion

Survey 2 – Public Transportation

Survey 2 – Picking up Litter

Appendix B3: Tangibility Treatment

Survey 1 – Non-Peak Season Travel

Survey 1 – Trail Erosion

Survey 2 – Public Transportation

globetrotter
Reinebringen

Liked by **belletoscan** and **816 others**

globetrotter Reinebringen has one of the best views, and no wonder it's Lofoten's most popular trail. On average, 300-400 hikers trek to this viewpoint each day, which means hundreds of cars in the crowded parking area below. It required a little more planning, but I took the local bus 🚌 to the same location with 30 others. Not only did us bus riders help reduce emissions, we also didn't contribute to the traffic and parking issues.
.
#norway #lofoten #reinebringen #sustainability

globetrotter
Reinebringen

Liked by **belletoscan** and **816 others**

globetrotter Reinebringen has one of the best views, and no wonder it's Lofoten's most popular trail. On average, 300-400 hikers trek to this viewpoint each day, which means hundreds of cars in the crowded parking area below. It required a little more planning, but I took the local bus 🚌 to the same location with 30 others. Not only did us bus riders help reduce emissions, we also didn't contribute to the traffic and parking issues.
.
#norway #lofoten #reinebringen #sustainability

Survey 2 – Picking up Litter

globetrotter
Kvalvika Beach

Liked by **belletoscan** and **816 others**

globetrotter Kvalvika beach is one of the most breathtaking places in Lofoten. Its popularity means hundreds of visitors each day during peak season. I was sad to see lots of litter and plastic washing up from the ocean, so I spent 15 minutes picking up as much trash as I could carry back ♻️ This is only a small dent in the millions of tons of plastic in the ocean but imagine all the bags of trash we could remove if every beach visitor did the same.
.
#norway #lofoten #kvalvika #sustainability

globetrotter
Kvalvika Beach

Liked by **belletoscan** and **816 others**

globetrotter Kvalvika beach is one of the most breathtaking places in Lofoten. Its popularity means hundreds of visitors each day during peak season. I was sad to see lots of litter and plastic washing up from the ocean, so I spent 15 minutes picking up as much trash as I could carry back ♻️ This is only a small dent in the millions of tons of plastic in the ocean but imagine all the bags of trash we could remove if every beach visitor did the same.
.
#norway #lofoten #kvalvika #sustainability

Appendix B4: Control Treatment

Survey 1 – Non-Peak Season Travel
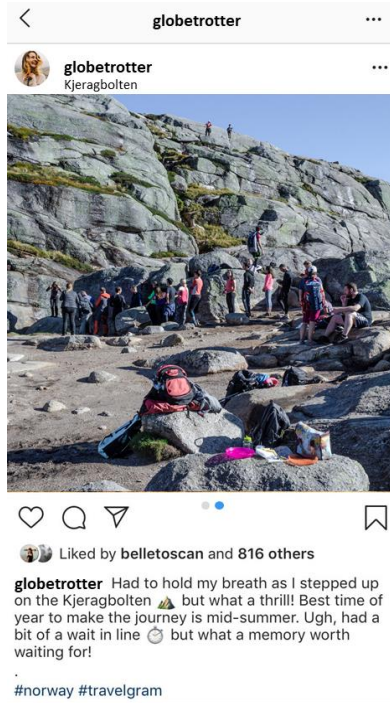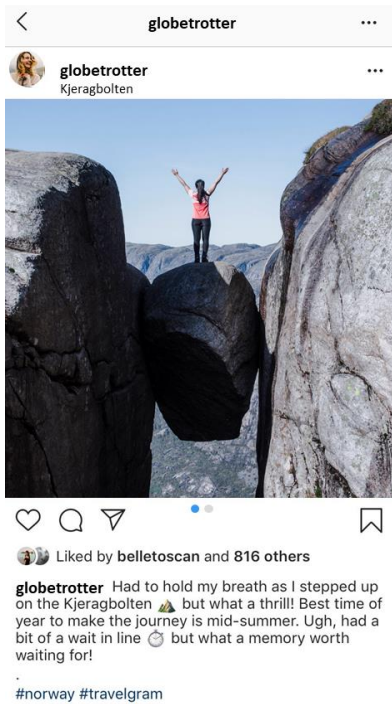
Survey 1 – Trail Erosion
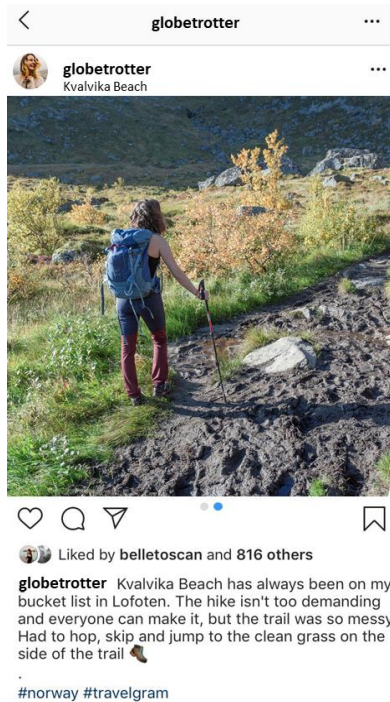
Survey 2 – Public Transportation

Survey 2 – Picking up Litter
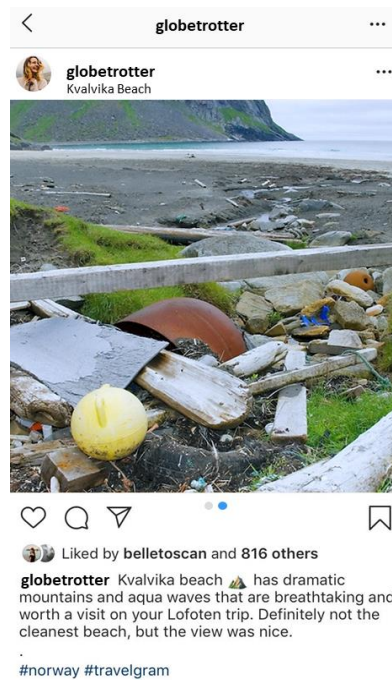
Appendix B5: Fictional Influencer Account

Survey 1

Survey 2
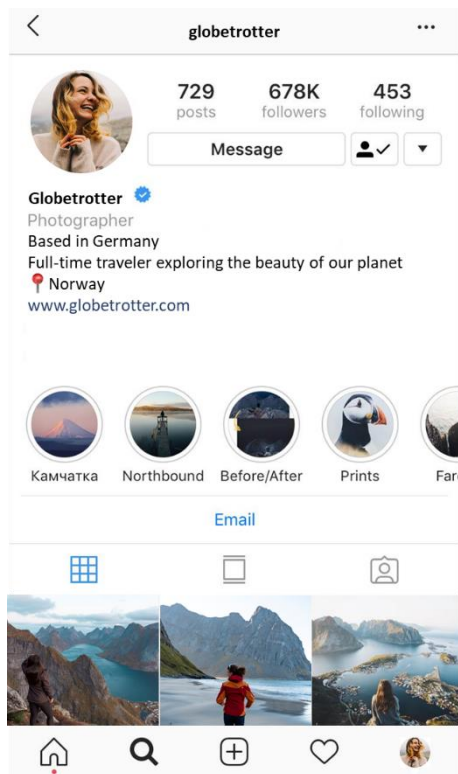
Appendix B6: Survey Questionnaire

Q1   Hi there! We are two master's students at the Norwegian School of Economics researching Instagram and adventure tourism. We appreciate you taking this survey, which will take approximately 5-7 minutes. Thank you for your time and attention!
Q1_SCR Are you familiar with Instagram?

○ Yes (1)

○ No (2)

Q2 On average, how often do you use Instagram?

○ Every day (1)

○ A few times a week (2)

○ A few times a month (3)

○ A few times a year (4)

○ Not sure (5)

○ Never (6)

Q3 How many Instagram user accounts are you following?

○ 1-99 (1)

○ 100-199 (2)

○ 200-499 (3)

○ 500+ (4)

○ Not sure (5)

○ None (6)

Q4 Have you ever used Instagram to help you plan a vacation?

○ Yes (1)

○ No (2)

Page Break

Q5_TXT An influencer is a common label for anyone **making a career on Instagram** or for anyone **attracting a follower audience in the thousands**.

Q6 Based on the definition above, do you follow any influencers on Instagram?

○ Yes (1)

○ No (2)

○ Not sure (3)

Q7 How appealing are Instagram influencers to you?

○ Extremely appealing (1)

○ Somewhat appealing (2)

○ Neither appealing nor unappealing (3)

○ Somewhat unappealing (4)

○ Extremely unappealing (5)

End of Block: Instagram Background

Start of Block: Travel Background

Q8 In the past 5 years, how frequently have you participated in any of the following adventurous activities while on vacation: hiking, biking, camping, skiing, horseback riding, sailing, or kayaking?

○ Many times per year (1)

○ A few times per year (2)

○ About once a year (3)

○ Less than once a year (4)

○ Never (5)

Q49 **Acting sustainably** can be defined as behaviors that **decrease negative environmental impacts** and **balance the needs of today with the future generations' ability to meet their needs**.

Q9 Based on the definition above, in any of your previous adventurous activities, have you ever made a decision to act more sustainably?

○ Yes (1)

○ No (2)

○ Not sure (3)

Q10 How **appealing** is the idea of traveling more sustainably?

○ Extremely appealing (1)

○ Somewhat appealing (2)

○ Neither appealing nor unappealing (3)

○ Somewhat unappealing (4)

○ Extremely unappealing (5)

Q11 How **likely are you to choose** to travel more sustainably?

○ Extremely likely (1)

○ Somewhat likely (2)

○ Neither likely nor unlikely (3)

○ Somewhat unlikely (4)

○ Extremely unlikely (5)

Page Break

Q12 How likely are you to engage in the following behaviors while being an adventure tourist?

SURVEY 1	SURVEY 2	Extremely likely (1)	Somewhat likely (2)	Neither likely nor unlikely (3)	Somewhat unlikely (4)	Extremely unlikely (5)
Walking on the side of a muddy trail so your shoes don't get wet (1)	Traveling by car instead of public transportation (1)	○	○	○	○	○
Visiting during the less popular months instead of peak season (2)	Picking up trash left by others in natural places (2)	○	○	○	○	○

End of Block: Travel Background

Start of Block: Introduce Experiment

Q13_TXT Imagine you're looking through your Instagram feed to gain inspiration for an upcoming trip in Norway. You come across the following influencer and decide to check out their profile.

FICTIONAL INFLUENCER PROFILE SHOWN (APPENDIX 1)

Q15_TXT From their account you click on a post to check it out in closer detail

Q97 Please carefully review the caption and both pictures in the post below. **Click on the white arrows** to see the next photo.

TREATMENT 1 (NON-PEAK SEASON or PUBLIC TRANSPORTATION)

Q17_SI_OS In considering the post you see above, how likely are you to like, comment, or tag a friend on the post?

○ Extremely likely (1)

○ Somewhat likely (2)

○ Neither likely nor unlikely (3)

○ Somewhat unlikely (4)

○ Extremely unlikely (5)

Q50 Did you click the white arrows to see both pictures in the post above?

○ Yes (1)

○ No, I'll look at the second picture now. (2)

Q18_SI_OS What was your main takeaway from the post you just saw?

_____[OPEN END RESPONSE]_____

Q98 Please carefully review the caption and both pictures in the post below. **Click on the white arrows** to see the next photo.

TREATMENT 2 (TRAIL EROSION or PICKING UP LITTER)

Q20_SI_TE In considering the post you see above, how likely are you to like, comment, or tag a friend on the post?

○ Extremely likely (1)

○ Somewhat likely (2)

○ Neither likely nor unlikely (3)

○ Somewhat unlikely (4)

○ Extremely unlikely (5)

Q51
Did you click the white arrows to see both pictures in the post above?

○ Yes (1)

○ No, I'll look at the second picture now. (2)

Page Break

Q21_SI_TE What was your main takeaway from the post you just saw?

_____[OPEN END RESPONSE]_____

End of Block: Content Review

Start of Block: Posttest

Q34 After having seen these posts, how **appealing** is the idea of traveling more sustainably?

○ Extremely appealing (1)

○ Somewhat appealing (2)

○ Neither appealing nor unappealing (3)

○ Somewhat unappealing (4)

○ Extremely unappealing (5)

Q35 After having seen these posts, how **likely are you to choose** to travel more sustainably?

○ Extremely likely (1)

○ Somewhat likely (2)

○ Neither likely nor unlikely (3)

○ Somewhat unlikely (4)

○ Extremely unlikely (5)

Page Break

Q36 After having seen these posts, how likely are you to engage in the following behaviors while being an adventure tourist?

SURVEY 1	SURVEY 2	Extremely likely (1)	Somewhat likely (2)	Neither likely nor unlikely (3)	Somewhat unlikely (4)	Extremely unlikely (5)
Walking on the side of a muddy trail so your shoes don't get wet (1)	Traveling by car instead of public transportation (1)	○	○	○	○	○
Visiting during the less popular months instead of peak season (2)	Picking up trash left by others in natural places (2)	○	○	○	○	○

End of Block: Posttest

Start of Block: Demographics

Q37 What is your age?

○ Under 18 (1)

○ 18 - 24 (2)

○ 25 - 34 (3)

○ 35 - 44 (4)

○ 45 - 54 (5)

○ 55 - 64 (6)

○ 65 - 74 (7)

○ 75 - 84 (8)

○ 85 or older (9)

Q38 What is your gender?

○ Male (1)

○ Female (2)

○ Would rather not say (3)

Q39 What is your primary role?

○ Employed full time (1)

○ Employed part time (2)

○ Unemployed looking for work (3)

○ Unemployed not looking for work (4)

○ Retired (5)

○ Student (6)

○ Would rather not say (7)

○ Other (8) _____

Q40 What is your annual income?

○ Less than €10,000 (1)

○ €10,000 - €19,999 (2)

○ €20,000 - €29,999 (3)

○ €30,000 - €39,999 (4)

○ €40,000 - €49,999 (5)

○ €50,000 - €59,999 (6)

○ €60,000 - €69,999 (7)

○ €70,000 - €79,999 (8)

○ €80,000 - €89,999 (9)

○ €90,000 - €99,999 (10)

○ €100,000 - €149,999 (11)

○ More than €150,000 (12)

End of Block: Demographics

Start of Block: Country of Origin

X→

Q41 What is your country of origin?

▼ Afghanistan (1) ... Zimbabwe (1357)

End of Block: Country of Origin

Appendix C – Data Analysis

Appendix C1: Descriptive Statistics

Survey 1	Sample Size	Minimum Value	Maximum Value	Mean	Std. Deviation	Skewness	Kurtosis
Pre-Test							
Familiar with Instagram	180	1	2	1.04	0.207	4.458	18.078
Frequency of Instagram Use	172	1	6	1.36	1.053	3.459	11.722
Number of Instagram Accounts Followed	172	1	6	3.05	1.099	0.216	0.739
Use Instagram for Travel Planning	172	1	2	1.48	0.501	0.070	-2.019
Following Influencers on Instagram	172	1	3	1.25	0.520	2.003	3.186
Appeal of Instagram influencers	172	1	5	2.78	0.990	0.640	-0.234
Frequency of adventure tourism	172	1	5	2.01	0.985	0.793	-0.020
Previous experience acting sustainably in adventure tourism	172	1	3	1.48	0.753	1.183	-0.198
Pre - Appeal of traveling more sustainably	172	1	4	1.59	0.700	1.084	1.044
Dependent Variables (Pre)							
Pre - Likelihood to choose to travel more sustainably	172	1	5	1.92	0.768	1.080	2.464
Pre - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	172	1	5	2.07	1.127	1.077	0.398
Pre - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season	172	1	4	1.69	0.634	0.500	0.058
Post-Test							
Likelihood to engage with post (Off-season treatment)	172	1	5	3.14	1.308	-0.024	-1.236
Likelihood to engage with post (Trail Erosion treatment)	172	1	5	3.18	1.246	-0.035	-1.124
Post - Appeal of traveling more sustainably	172	1	4	1.82	0.793	0.833	0.422
Dependent Variables (Post)							
Post - Likelihood to choose to travel more sustainably	172	1	4	1.96	0.805	0.619	0.050
Post - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	172	1	5	2.89	1.309	0.238	-1.168
Post - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season	172	1	5	1.70	0.781	1.184	1.778
Demographics							
Age	172	2	9	2.57	0.905	3.449	17.816
Gender	172	1	3	1.70	0.485	-0.555	-0.923
Employment	172	1	7	4.84	2.077	-1.227	-0.450
Income	172	1	12	2.59	2.767	1.988	3.077
Nationality	172	1	192	116.48	56.590	-0.068	-1.338

Survey 2 Pre-Test	Sample Size	Minimum Value	Maximum Value	Mean	Std. Deviation	Skewness	Kurtosis
Familiar with Instagram	180	1	2	1.02	0.128	7.615	56.610
Frequency of Instagram Use	177	1	6	1.58	1.209	2.542	6.093
Number of Instagram Accounts Followed	177	1	6	2.98	1.295	0.223	-0.112
Use Instagram for Travel Planning	177	1	2	1.53	0.500	-0.126	-2.007
Following Influencers on Instagram	177	1	3	1.33	0.579	1.592	1.525
Appeal of Instagram influencers	177	1	5	2.96	1.125	0.345	-0.826
Frequency of adventure tourism	177	1	5	1.58	0.902	1.977	4.290
Act sustainably in adventure tourism	177	1	3	1.24	0.615	2.322	3.753
Pre - Appeal of traveling more sustainably	177	1	3	1.36	0.558	1.259	0.627
Dependent Variables (Pre)							
Pre - Likelihood to choose to travel more sustainably	177	1	4	1.67	0.695	0.852	0.690
Pre - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	177	1	5	2.28	1.075	0.510	-0.674
Pre - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season	177	1	5	1.71	0.919	1.595	2.505
Post-Test							
Likelihood to engage with post (Off-season treatment)	177	1	5	3.08	1.426	0.051	-1.363
Likelihood to engage with post (Trail Erosion treatment)	177	1	5	2.85	1.436	0.271	-1.269
Post - Appeal of traveling more sustainably	177	1	4	1.60	0.813	1.101	0.197
Dependent Variables (Post)							
Post - Likelihood to choose to travel more sustainably	177	1	5	1.83	0.815	1.022	1.571
Post - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	177	1	5	2.56	1.065	0.357	-0.552
Post - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season	177	1	5	1.60	0.887	1.708	2.996
Demographics							
Age	177	1	6	3.33	0.938	0.844	0.746
Gender	177	1	3	1.94	0.323	-1.291	6.012
Employment	177	1	8	2.24	2.187	1.561	0.904
Income	177	1	12	6.04	3.236	-0.014	-1.011
Nationality	177	9	187	172.01	42.163	-2.763	6.245

Appendix C2: Demographics

Demographics
Survey 1

Demographics Survey 2

Age

- 18 - 24: 12.36%
- 25 - 34: 56.18%
- 35 and older: 30.90%

% of Total Sample

Gender

- Female: 89.33%
- Male: 8.43%
- Would rather not say: 2.25%

Annual Income (Euros)

- Less than 10,000: 14.04%
- 10,000 - 19,999: 2.81%
- 20,000 - 59,999: 36.52%
- 60,000 - 99,999: 35.96%
- 100,000 and greater: 10.67%

% of Total Sample

Country of Origin

- United States of America: 86.44%
- Canada: 2.82%
- India: 1.69%
- Germany: 1.69%
- Russian Federation: 1.13%
- France: 1.13%
- Other Countries: 5.08%

% of Total Sample

Employment

- Employed full time: 67.42%
- Student: 11.24%
- Employed Part Time: 9.55%
- Unemployed: 4.49%
- Other: 7.30%

% of Total Sample

Instagram Usage Survey 1

Number of Accounts Followed on Instagram

% of Total Sample

- 1-99: 9.88%
- 100-199: 15.12%
- 200-499: 43.60%
- 500+: 26.74%
- None: 4.07%
- Not sure: 0.58%

Appeal of Influencers

% of Total Sample

- Extremely appealing: 4.07%
- Somewhat appealing: 43.02%
- Neither appealing nor unappealing: 30.81%
- Somewhat unappealing: 15.12%
- Extremely unappealing: 6.98%

Frequency of Instagram Use

% of Total Sample

- Every day: 84.30%
- A few times a week: 8.14%
- A few times a month: 1.74%
- A few times a year: 2.33%
- Never: 3.49%

Using Instagram for Vacation Planning

- No: 48.256%
- Yes: 51.744%

Following Influencers on Instagram

- No: 16.86%
- Not sure
- Yes: 79.07%

Instagram Usage Survey 2

Number of Accounts Followed on Instagram

% of Total Sample

- 1-99: 16.85%
- 100-199: 15.17%
- 200-499: 33.15%
- 500+: 28.09%
- None: 5.62%
- Not sure: 1.12%

Appeal of Influencers

% of Total Sample

- Extremely appealing: 5.62%
- Somewhat appealing: 36.52%
- Neither appealing nor unappealing: 26.40%
- Somewhat unappealing: 19.66%
- Extremely unappealing: 11.80%

Frequency of Instagram Use

% of Total Sample

- Every day: 71.91%
- A few times a week: 15.17%
- A few times a month: 5.06%
- A few times a year: 3.37%
- Never: 4.49%

Using Instagram for Vacation Planning

- No: 47.191%
- Yes: 52.809%

Following Influencers on Instagram

- No: 21.35%
- Not sure: 5.62%
- Yes: 73.03%

Appendix C3: Dependent Variable Factor Analysis

Survey 1: Dependent Variable Factor Analysis

	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.315	43.824	43.824	1.315	43.824	43.824	1.266	42.194	42.194
2	1.072	35.721	79.545	1.072	35.721	79.545	1.121	37.351	79.545
3	0.614	20.455	100.000						

Rotated Component Matrix		
	Component	
	1	2
Post - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	0.861	
Post- Likelihood to choose to travel more sustainably	-0.724	0.450
Post - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season		0.930

Survey 2: Dependent Variable Factor Analysis

	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.445	48.161	48.161	1.445	48.161	48.161	1.433	47.761	47.761
2	1.003	33.440	81.601	1.003	33.440	81.601	1.015	33.840	81.601
3	0.552	18.399	100.000						

Rotated Component Matrix		
	Component	
	1	2
Post - Likelihood to engage while being an adventure tourist: Picking up trash left by others in natural places	0.855	
Post- Likelihood to choose to travel more sustainably	0.837	
Post - Likelihood to engage while being an adventure tourist: Traveling by car instead of public transportation		0.991

Appendix C4: Third Variables

Survey 1 & 2	
Third Variables (Question Text)	Answer Choices
Q1 Are you familiar with Instagram?	Yes (1) No (2)
Q2 On average, how often do you use Instagram?	Every day (1) A few times a week (2) A few times a month (3) A few times a year (4) Not sure (5) Never (6)
Q3 How many Instagram user accounts are you following?	1-99 (1) 100-199 (2) 200-499 (3) 500+ (4) Not sure (5) None (6)
Q4 Have you ever used Instagram to help you plan a vacation?	Yes (1) No (2)
Q6 Based on the definition above, do you follow any influencers on Instagram?	Yes (1) No (2) Not sure (3)
Q7 How appealing are Instagram influencers to you?	Extremely appealing (1) Somewhat appealing (2) Neither appealing nor unappealing (3) Somewhat unappealing (4) Extremely unappealing (5)
Q8 In the past 5 years, how frequently have you participated in any of the following adventurous activities while on vacation: hiking, biking, camping, skiing, horseback riding, sailing, or kayaking?	Many times per year (1) A few times per year (2) About once a year (3) Less than once a year (4) Never (5)
Q9 Based on the definition above, in any of your previous adventurous activities, have you ever made a decision to act more sustainably?	Yes (1) No (2) Not sure (3)
Q10 How **appealing** is the idea of traveling more sustainably?	Extremely appealing (1) Somewhat appealing (2) Neither appealing nor unappealing (3) Somewhat unappealing (4) Extremely unappealing (5)

Appendix C5: Factor Analysis

The pretest contained a breadth of third variables addressing multiple topics and background details of the respondent, therefore we employed an exploratory factor analysis to meaningfully reduce the number of observed variables into fewer latent variables (Chakrapani, 2004). We used a factor extraction method of principal component analysis with an orthogonal varimax rotation and Kaiser normalization (ibid.). We accepted factors with an eigenvalue above 1 and assessed the resulting factors to see if they are interpretable (ibid.) Our analysis revealed four factors for survey 1 and five factors for survey 2, which have many similarities across the two surveys seen in Table 13, with a full factor matrix below.

Table 13: Identified Factors

Survey 1 Factor Naming		Survey 2 Factor Naming	
Component	Factor Name	Component	Factor Name
Component 1	Instagram Usage Intensity	Component 1	Instagram Usage Intensity including Travel Planning
Component 2	Likelihood to Engage with Posts	Component 2	Likelihood to Engage with Posts & Influencers
Component 3	Appeal & Previous Experience of Traveling Sustainably	Component 3	Appeal of Traveling Sustainably
Component 4	Adventure Traveling without Intense Instagramming	Component 4	Adventure Traveling & Previous Experience of Traveling Sustainably
		Component 5	Instagram Usage Intensity excluding Travel Planning

Seeing the similarity in the factors across the two surveys is reassuring that while our survey samples are indeed different, the sample populations are behaving relatively similarly in terms of Instagram, adventure tourism, and sustainability behavior. These clusters also align with our predicted third variables that were informed by our literature review, however, we make sure to consider that the labels of the factors are merely representative, and not fully descriptive of all the observed variables in the construct (Chakrapani, 2004).

Our factor analysis reveals some interesting relationships between our third variables. Instagram behaviors can largely be explained by a single factor, showing that those who use Instagram frequently are also more likely to use it intensely through following more accounts, following influencers, finding influencers appealing, and seeking travel advice. Interestingly, there was a divide in this factor for survey 2 based on usage of Instagram for travel planning, meaning there are two groups of Instagram users, those that use it for travel planning, and

those that do not. On further investigation, we see that the use of Instagram for travel planning is significantly, positively correlated with age, meaning that older respondents are less likely to use Instagram for travel planning. Our slightly older and more diverse age representation in survey 2, likely could be affecting this factor being split into two, given the relationship between age and using Instagram for travel planning. Similar to the intensity of Instagram use, the factor about engaging with the experimental posts confirms our understanding that followers extract different values from Instagram. Respondents who engage with content are likely seeking more social value from the app, as compared to others who consume content more passively (seeking entertainment or aesthetic value) (Barton, 2018; Hennessy, 2018). In survey 2, engagement with the experimental posts was also highly related to the appeal of influencers likely because respondents who like to engage on Instagram, find this value from influencers who spend a lot of time reciprocating their followers' engagement efforts (ibid.).

In considering the factors related to adventure travel, we see that the pre and post appeal of adventure travel and previous experience traveling sustainably can be explained in one factor in survey 1. This could imply that respondents are already aware of the environments' key role in adventure traveling and have taken this into account in their previous travels (Viren et al., 2017; Roberts, 2011; Orieade & Evans, 2011). This factor also aligns with our understanding of how adventure tourists try to distance themselves from the mainstream mass-tourist, by differentiating themselves through traveling more sustainably or the desire to travel more sustainably (Sung, 2004). Given that adventure tourism is often seen as a source of knowledge and insight, naturally, respondents who have experience in adventure travel might be more aware and knowledgeable of its impact (Walle, 1997). Interestingly, in survey 2, the factors are split with previous experience traveling sustainably and frequency of adventure travel as its own factor. These factor loadings are distinctly separate from any Instagram measures, unlike in Survey 1. This difference likely relates to how travelers extract different values from adventure tourism. For some, adventure tourism is a source of competition or status and prestige, some of which are achieved by posting on social media (Heitmann, 2011).

Survey 1: Third Variable Factor Analysis

	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.181	19.823	19.823	2.181	19.823	19.823	1.900	17.274	17.274
2	1.887	17.156	36.979	1.887	17.156	36.979	1.830	16.638	33.912
3	1.519	13.807	50.786	1.519	13.807	50.786	1.784	16.215	50.127
4	1.247	11.335	62.121	1.247	11.335	62.121	1.319	11.994	62.121

Rotated Component Matrix

	Component			
	1	2	3	4
Frequency of Instagram Use	0.771			
Appeal of Instagram influencers	0.665			
Following Influencers on Instagram	0.664			
Likelihood to engage with post (Trail Erosion treatment)		0.899		
Likelihood to engage with post (Off-season treatment)		0.881		
Pre- Appeal of traveling more sustainably			0.809	
Post- Appeal of traveling more sustainably			0.799	
Act sustainably in adventure tourism			0.663	
Frequency of adventure tourism				0.733
Number of Instagram Accounts Followed	0.333			-0.588
Use Instagram for Travel Planning	0.495			0.578

Survey 1 Factor Naming

Component	Factor Name
Component 1	Instagram Usage Intensity
Component 2	Likelihood to Engage with Posts
Component 3	Appeal & History of Traveling Sustainably
Component 4	Adventure Traveling without Intense Instagramming

Survey 2: Third Variable Factor Analysis

	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.310	21.000	21.000	2.310	21.000	21.000	1.980	18.000	18.000
2	1.847	16.789	37.789	1.847	16.789	37.789	1.860	16.905	34.906
3	1.657	15.068	52.856	1.657	15.068	52.856	1.621	14.738	49.644
4	1.136	10.326	63.182	1.136	10.326	63.182	1.376	12.512	62.155
5	1.057	9.610	72.792	1.057	9.610	72.792	1.170	10.637	72.792

Rotated Component Matrix

	Component				
	1	2	3	4	5
Following Influencers on Instagram	0.802				
Frequency of Instagram Use	0.760			0.306	
Appeal of Instagram influencers	0.703	0.350			
Use Instagram for Travel Planning	0.498			-0.413	
Likelihood to engage with post (Off-season treatment)		0.934			
Likelihood to engage with post (Trail Erosion treatment)		0.894			
Post- Appeal of traveling more sustainably			0.907		
Pre- Appeal of traveling more sustainably			0.858		
Act sustainably in adventure tourism				0.787	
Frequency of adventure tourism				0.731	
Number of Instagram Accounts Followed					0.929

Survey 2 Factor Naming

Component	Factor Name
Component 1	Instagram Usage Intensity including Travel Planning
Component 2	Likelihood to Engage with Posts & Influencers
Component 3	Appeal of Traveling Sustainably
Component 4	Adventure Traveling & Experience of Traveling Sustainably
Component 5	Instagram Usage Intensity excluding Travel Planning

Appendix C6: Correlation Analysis

	Frequency of Instagram Use	Frequency of adventure tourism	Act sustainably in adventure tourism	Likelihood to engage with post DV2	Likelihood to engage with post DV3	Pre-Appeal of traveling more sustainably	Post-Appeal of traveling more sustainably	Pre-DV1	Pre-DV2	Pre-DV3	Post-DV1	Post-DV2	Post-DV3
Survey 1													
Pre-DV1	-0.043	-0.061	,169*	-0.018	0.003	,666**	,437**	1.00					
Pre-DV2	-0.021	-0.053	-0.095	0.116	0.049	-,186*	-0.097	-0.034	1.00				
Pre-DV3	0.115	,165*	,203**	-0.018	0.049	0.134	0.110	0.104	-0.084	1.00			
Post-DV1	-0.045	0.001	,313**	0.089	,171*	,479**	,823**	,572**	-0.113	,170*	1.00		
Post-DV2	-0.026	0.037	-0.070	-0.008	0.019	-0.127	-,239**	-0.050	,287**	-0.069	-,282**	1.00	
Post-DV3	0.133	0.088	,160*	,167*	0.146	0.102	,204**	0.066	-0.062	,602**	,204**	0.076	1.00
Survey 2													
Pre-DV1	-0.04	,258**	,201**	0.04	,160*	,688**	,433**	1.00					
Pre-DV2	-0.01	0.08	0.00	-0.02	-0.01	-0.05	-0.06	-0.08	1.00				
Pre-DV3	-,154*	,219**	0.13	0.06	,155*	,430**	,285**	,355**	-0.05	1.00			
Post-DV1	0.04	0.05	,151*	0.14	,250**	,548**	,756**	,483**	-0.06	,290**	1.00		
Post-DV2	-0.04	0.12	,208**	-0.14	-0.06	-0.12	-0.07	-0.04	,450**	-0.04	-0.11	1.00	
Post-DV3	-0.12	0.14	0.11	0.13	,216**	,394**	,412**	,240**	0.04	,735**	,434**	0.01	1.00

Significant at the 95% CL
Significant at the 90% CL

Appendix C7: Paired T-Test Results

Survey 1		Mean	N	Std. Deviation	Std. Error Mean	Paired Differences Mean	Paired Differences Std. Deviation	t	Sig. (2-tailed)
Control	DV 1 Pre - Likelihood to choose to travel more sustainably	1.93	54	0.797	0.109	-0.185	0.729	-1.867	0.067**
	Post	2.11	54	0.769	0.105				
	DV 2 Pre - Likelihood to engage while being an adventure tourist: *Walking on the side of a muddy trail so your shoes don't get wet*	2.20	54	1.071	0.146	-0.333	0.971	-2.522	0.015*
	Post	2.54	54	1.094	0.149				
	DV 3 Pre - Likelihood to engage while being an adventure tourist: *Visiting during the less popular months instead of peak season*	1.78	54	0.691	0.094	-0.056	0.564	-0.724	0.472
	Post	1.83	54	0.771	0.105				
Tangibility	DV 1 Pre	1.91	57	0.872	0.115	0.211	0.773	2.056	0.044*
	Post	1.70	57	0.823	0.109				
	DV 2 Pre	2.14	57	1.246	0.165	-0.965	1.592	-4.576	0.000*
	Post	3.11	57	1.435	0.190				
	DV 3 Pre	1.61	57	0.620	0.082	0.105	0.673	1.181	0.243
	Post	1.51	57	0.759	0.101				
Social Influence	DV 1 Pre	1.92	61	0.640	0.082	-0.148	0.628	-1.835	0.072**
	Post	2.07	61	0.772	0.099				
	DV 2 Pre	1.89	61	1.050	0.134	-1.115	1.603	-5.431	0.000*
	Post	3.00	61	1.317	0.169				
	DV 3 Pre	1.69	61	0.593	0.076	-0.066	0.680	-0.753	0.454
	Post	1.75	61	0.789	0.101				

*Significant at 95% CL
**Significant at the 90% CL

Survey 2			Mean	N	Std. Deviation	Std. Error Mean	Paired Differences			
							Mean	Std. Deviation	t	Sig. (2-tailed)
Control	DV 1	Pre - Likelihood to choose to travel more sustainably	1.74	61	0.728	0.093	-0.180	0.975	-1.445	0.154
		Post	1.92	61	0.862	0.110				
	DV 2	Pre - Likelihood to engage while being an adventure tourist: *Traveling by car instead of public transportation*	2.30	61	1.131	0.145	-0.328	1.121	-2.284	0.026*
		Post	2.62	61	1.128	0.144				
	DV 3	Pre - Likelihood to engage while being an adventure tourist: *Picking up trash left by others in natural places*	1.79	61	0.933	0.119	0.049	0.669	0.574	0.568
		Post	1.74	61	0.929	0.119				
Tangibility	DV 1	Pre	1.68	57	0.686	0.091	-0.088	0.662	-1.000	0.322
		Post	1.77	57	0.780	0.103				
	DV 2	Pre	2.25	57	1.023	0.135	-0.491	1.197	-3.098	0.003*
		Post	2.74	57	1.126	0.149				
	DV 3	Pre	1.63	57	0.771	0.102	0.088	0.689	0.962	0.340
		Post	1.54	57	0.847	0.112				
Social Influence	DV 1	Pre	1.59	59	0.673	0.088	-0.203	0.637	-2.451	0.017*
		Post	1.80	59	0.805	0.105				
	DV 2	Pre	2.29	59	1.084	0.141	-0.034	1.017	-0.256	0.799
		Post	2.32	59	0.899	0.117				
	DV 3	Pre	1.69	59	1.038	0.135	0.169	0.620	2.099	0.040*
		Post	1.53	59	0.878	0.114				

*Significant at 95% CL
**Significant at the 90% CL

Appendix C8: MANOVA Analysis (Pre- DVs)

Survey 1:

Dependent Variable	Group	Comparison Group	Mean Difference (I-J)	Std. Error	Sig.
Pre - Likelihood to choose to travel more sustainably	Control	Tangibility	0.01	0.147	0.996
		Social Influence	0.01	0.144	0.999
	Tangibility	Control	-0.01	0.147	0.996
		Social Influence	-0.01	0.142	0.999
	Social Influence	Control	-0.01	0.144	0.999
		Tangibility	0.01	0.142	0.999
Pre - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	Control	Tangibility	0.06	0.214	0.957
		Social Influence	0.32	0.210	0.320
	Tangibility	Control	-0.06	0.214	0.957
		Social Influence	0.26	0.207	0.470
	Social Influence	Control	-0.32	0.210	0.320
		Tangibility	-0.26	0.207	0.470
Pre - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season	Control	Tangibility	0.16	0.120	0.399
		Social Influence	0.09	0.118	0.753
	Tangibility	Control	-0.16	0.120	0.399
		Social Influence	-0.07	0.117	0.816
	Social Influence	Control	-0.09	0.118	0.753
		Tangibility	0.07	0.117	0.816

*Mean difference significant at 95% CL
**Mean difference significant at the 90% CL

Survey 2:

Dependent Variable	Group	Comparison Group	Mean Difference (I-J)	Std. Error	Sig.
Pre - Likelihood to choose to travel more sustainably	Control	Tangibility	0.05	0.128	0.917
		Social Influence	0.14	0.127	0.526
	Tangibility	Control	-0.05	0.128	0.917
		Social Influence	0.09	0.129	0.781
	Social Influence	Control	-0.14	0.127	0.526
		Tangibility	-0.09	0.129	0.781
Pre - Likelihood to engage while being an adventure tourist: Traveling by car instead of public transportation	Control	Tangibility	0.05	0.199	0.970
		Social Influence	0.01	0.197	0.999
	Tangibility	Control	-0.05	0.199	0.970
		Social Influence	-0.04	0.201	0.978
	Social Influence	Control	-0.01	0.197	0.999
		Tangibility	0.04	0.201	0.978
Pre - Likelihood to engage while being an adventure tourist: Picking up trash left by others in natural places	Control	Tangibility	0.16	0.170	0.659
		Social Influence	0.09	0.168	0.862
	Tangibility	Control	-0.16	0.170	0.659
		Social Influence	-0.06	0.171	0.934
	Social Influence	Control	-0.09	0.168	0.862
		Tangibility	0.06	0.171	0.934

*Mean difference significant at 95% CL
**Mean difference significant at the 90% CL

Appendix C9: MANOVA Analysis (Post-DVs)

Survey 1:

Dependent Variable	Group	Comparison Group	Mean Difference (I-J)	Std. Error	Sig.
DV1 : Post - Likelihood to choose to travel more sustainably	Control	Tangibility	.41	0.150	0.026*
		Social Influence	0.05	0.147	0.953
	Tangibility	Control	-.41	0.150	0.026*
		Social Influence	-.36	0.145	0.046*
	Social Influence	Control	-0.05	0.147	0.953
		Tangibility	.36	0.145	0.046*
DV2: Post - Likelihood to engage while being an adventure tourist: Walking on the side of a muddy trail so your shoes don't get wet	Control	Tangibility	-0.57	0.246	0.072**
		Social Influence	-0.46	0.242	0.163
	Tangibility	Control	0.57	0.246	0.072**
		Social Influence	0.11	0.238	0.907
	Social Influence	Control	0.46	0.242	0.163
		Tangibility	-0.11	0.238	0.907
DV3: Post - Likelihood to engage while being an adventure tourist: Visiting during the less popular months instead of peak season	Control	Tangibility	0.32	0.147	0.090**
		Social Influence	0.08	0.144	0.861
	Tangibility	Control	-0.32	0.147	0.090**
		Social Influence	-0.25	0.142	0.230
	Social Influence	Control	-0.08	0.144	0.861
		Tangibility	0.25	0.142	0.230

*Mean difference significant at 95% CL
**Mean difference significant at the 90% CL

Survey 2:

Dependent Variable	Group	Comparison Group	Mean Difference (I-J)	Std. Error	Sig.
DV1: Post- Likelihood to choose to travel more sustainably	Control	Tangibility	0.15	0.151	0.625
		Social Influence	0.12	0.149	0.719
	Tangibility	Control	-0.15	0.151	0.625
		Social Influence	-0.02	0.152	0.987
	Social Influence	Control	-0.12	0.149	0.719
		Tangibility	0.02	0.152	0.987
DV2: Post - Likelihood to engage while being an adventure tourist: Traveling by car instead of public transportation	Control	Tangibility	-0.11	0.195	0.843
		Social Influence	0.30	0.193	0.299
	Tangibility	Control	0.11	0.195	0.843
		Social Influence	0.41	0.196	0.110
	Social Influence	Control	-0.30	0.193	0.299
		Tangibility	-0.41	0.196	0.110
DV3: Post - Likelihood to engage while being an adventure tourist: Picking up trash left by others in natural places	Control	Tangibility	0.19	0.163	0.496
		Social Influence	0.21	0.162	0.425
	Tangibility	Control	-0.19	0.163	0.496
		Social Influence	0.02	0.165	0.994
	Social Influence	Control	-0.21	0.162	0.425
		Tangibility	-0.02	0.165	0.994

*Mean difference significant at 95% CL
**Mean difference significant at the 90% CL