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Exploring qualitative applications of social media data for place-based assessments in destination planning

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ABSTRACT

Understanding the physical attributes of a destination valued by visitors allows tourism managers to consider those components when planning, managing, and marketing destinations. However, determining the key components of visitors' destination image can be difficult. This study utilizes social media data to explore visitors' destination image of a nature-based tourism locale. Specifically, we examined user-generated content by visitors to the tourism region adjacent to Lake Superior in Minnesota USA during the summer 2015 tourism season. Content analysis was utilized to determine the major themes of visitors' destination image. Our findings are similar to those of existing studies: natural resources, built resources, and human subjects are the most prevalent components of destination image. However, our method of ascertaining these components of destination image – specifically, thematically analyzing social media data – present a technique that may be more easily accessible to tourism providers, as it can be a lower cost and time investment. We discuss how these findings can inform the development of recreation opportunities and marketing materials. This qualitative analysis of social media data can be applied in other locales as a relatively efficient and real-time method to inform place-based management and marketing.

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Sense of place; place making; place meanings; place management; place branding; nature-based tourism

Introduction

Place-based management and marketing depends on understanding visitors' perceptions of a destination (e.g. Swinney, Lang, & Runyan, 2012; Yung, Freimund, & Belsky, 2003). Destination image (Stylianidis, Sit, & Biran, 2014) – also known as place form (Beckley, Stedman, Wallace, & Ambard, 2007) and place image (Kavaratzis & Hatch, 2013) – refers to the physical characteristics of a geographic space. Previous research has established a relationship between destination image and place satisfaction (Chen & Tsai, 2007; Lee, Lee, & Lee, 2014), intention to re-visit a place (Assaker & Hallak, 2013), and destination loyalty (Prayag & Ryan, 2012). Understanding visitor perceptions of a destination's physical characteristics can enhance place-based management efforts (Lin, Morais, Kerstetter, & Hou, 2007; Stedman, 2003), as physical attributes are a common pull factor for tourism-based economies (e.g. Cocolas, Walters, & Ruhanen, 2016). Understanding which specific attributes of place are important to visitors can help tourism providers understand key resources (Cahyanto, Pennington-Gray, & Thapa, 2013) and better brand destinations to ensure sustained tourism flows (Lew, 2017).

In this study, we explore destination image using social media data. While social media data is of growing interest and has been analyzed quantitatively (e.g. to understand visitor flows, Wood, Guerry, Silver, & Lacayo, 2013), we were interested in utilizing a qualitative content analysis of social media posts to better understand visitors' destination image. To achieve this goal, we established two research questions:

1. What are the dominant themes captured in images of a nature-based tourism destination that visitors share (via social media) with family and friends?
2. How can photographic social media data inform place-based management and marketing for tourism destinations?

We utilized a modified visitor-employed photography (VEP) approach to explore the content of photographs that visitors to a nature-based tourism destination shared with family and friends via the Instagram social media platform. Photographs that were posted to Instagram were analyzed thematically (e.g. Richards & Friess, 2015) to reveal the key themes of destination image. Such user-generated content (UGC) can help tourism providers determine the dominant characteristics of destination image as conceptualized by visitors and, based on this information, strategically set place-based management and marketing goals. While the findings presented here are destination-specific, our method of using UGC to assess place-based characteristics and inform place-based management and marketing is transferable to other destinations.

Background

Understanding destination image

The concept of 'place' has been used in various disciplines (sociology, geography, environmental studies, psychology, planning, and human health) to understand how individuals' residence or the outdoor recreation settings they visit influences various aspects of their lives (Seamon & Sowers, 2008). The earliest research regarding place established how this concept is defined, distinct of space, by three main components: (1) physical attributes; (2) the meanings individuals and groups assign; and (3) the activities which occur within those spaces (Relph, 1976). Other research has built on this foundational understanding of place by exploring how 'sense of place', or one's relational and affective operationalization of space, is manifested and maintained (Yi-Fu, 1974).

The prevailing trajectory of place research has explored the affective component of place: attachment; identity; and dependence on a place (Altman & Low, 1992; Proshansky, Faban, & Kaminof, 1983; Stokols & Shumaker, 1981; Williams & Roggenbuck, 1989). More recently, place meanings were posited as the functional, descriptive foundations of affective ties (Davenport & Anderson, 2005). Place meanings are the values individuals assign to geographic spaces and can range from the abstract (e.g. a place of spiritual significance) to the tangible (e.g. one's business location is dependent on a particular place). Place meanings have been reliably measured through quantitative survey items, which further operationalize place meanings into various dimensions such as individual identity, family identity, community identity, self-expression, ecological integrity, economic dependency, and place dependency (Kil, Holland, & Stein, 2014; Smith, Anderson, & Moore, 2012). Additionally, qualitative studies have used personal narratives to explore place meanings specific to a geographic space, such as a river valued for providing sustenance to residents living along a waterway (Davenport & Anderson, 2005). Collectively, research has demonstrated that place meanings are related to physical characteristics of the landscape (Stedman, 2003). However, there remains limited research on methodologies used to determine individuals' destination image.

VEP is a common method used to ascertain individuals' visual preferences or in other cases where understanding physical characteristics are a key component of the research design (e.g. Amsden, Stedman, & Kruger, 2010; Kim, Chang, & Shelby, 2003; Michaelidou, Siamagka, Moraes, & Micevski,

2013; Taylor, Czarnowski, Sexton, & Flick, 1995). VEP allows visitors to capture their own images (often on disposable cameras provided by a researcher) and then discuss those images with a member of the research team (e.g. Dorwart, Moore, & Leung, 2009). The VEP method allows for the generation of rich data; however, the technique is time-intensive as researchers must first distribute cameras and instructions and then reconnect with participants to administer post-photography surveys or interviews.

Social media data have the potential to inform tourism science in new and meaningful ways, including understanding social values, enhancing place-based management and branding, and informing resource conservation (Di Minin, Tenkanen, & Toivonen, 2015; Metaxas & Mustafaraj, 2014). Recently, UGC has been used to quantify landscape values at a continental scale (van Zanten et al., 2016). UGC has also been used to assess sense of place through analysis of the tags that accompany Flickr photographs from urban areas throughout the United States (Feick & Robertson, 2015). UGC joins conventional mechanisms such as stories, art, film, and music as examples of media 'through which landscapes are created, recreated, and redefined' (Greider & Garkovich, 1994, p. 18). UGC allows individuals to define the meaning of a landscape and share that meaning with others. UGC can also generate more generalizable research, as it enables participation by individuals with varying levels of literacy, eligibility, and availability (Sancar & Severcan, 2010).

Studying visitors' photographs alone may not reveal the complex and dynamic meanings individuals assign to the landscape. However, analyzing visitors' photographs can reveal the key tourism resources to which visitors assign these complex and dynamic values. Landscape characteristics are important as 'they underpin both place attachment and satisfaction' (Stedman, 2003, p. 682) and allow tourism providers to better understand the favorable components of a destination (Cahyanto et al., 2013; Lew, 2017). Tourism providers cannot directly manage for the many, unique values of each individual visitor; however, tourism providers can seek to understand the key elements of a setting that facilitate the realization of visitors' place meanings.

Informing place-based management and marketing

Exploring issues in tourism management from a place-based perspective allows for diverse views and consequently diverse management strategies to be considered by managers (Yung et al., 2003). For example, public participation geographic information systems (PPGIS) can be used to identify areas that visitors believe are important; these data can then be used to inform place-based planning processes (Brown & Weber, 2011; Lowery & Morse, 2013). Interviews are often used to elicit narratives that can inform theory regarding how and why places take on certain meanings for individuals (e.g. Gustafson, 2001). Qualitative data from focus groups, meetings, and workshops have also been used to identify support for natural resource management and intentions to participate in planning process (Jacobs & Buijs, 2011; Kil et al., 2014).

A more recent line of place research extends the idea of place-based management to include the concept of place branding or marketing. Generally defined, place-based management is 'a coordinated, area-based, multi-stakeholder approach to improve locations, harnessing the skills, experiences, and resources of those in the private, public, and voluntary sectors' (IPM, 2016, n.p.). Place-based marketing is defined through three components: visual; verbal; and behavioural expressions of place (Kavaratzis & Hatch, 2013), or 'the link between identity, experience, and image' (Govers & Go, 2009, p. 23). Both of these definitions suggest an important component of place-based management and marketing is the visual image of a place. In some cases, the image may transcend verbal marketing cues that can be misinterpreted by individuals with different socio-cultural backgrounds (Govers & Go, 2009; Kavaratzis & Hatch, 2013). As such, we contend that UGC posted to social media platforms is an emerging and readily available data source for informing place-based management and marketing.

Methods

We qualitatively analyzed social media data to understand destination image as conceptualized by visitors. Specifically, we analyzed photographs and textual information posted to the Instagram

social media platform and affiliated with Lake Superior's 'North Shore' during the summer of 2015. The North Shore region is a tourism dependent, natural-resource rich region in northeastern Minnesota, USA. The destination is characterized by small towns, locally-owned businesses, and nature-based recreation opportunities, with the height of annual tourism occurring in the summer during which time hiking, boating, camping, and fishing are popular recreational activities (Davenport, Schneider, Date, & Filter, 2011). Eight Minnesota state parks, along with private tourism operators (lodges, outfitters, and guides), provide access and infrastructure to visitors seeking to experience the destination's forests, coast, and waterbodies.

Research design

We used a phenomenological research design using qualitative thematic analysis to explore how summer visitors to the North Shore conceptualized key attributes of the region's destination image. Specifically, visitors' photographs, which were posted to Instagram with the hashtag 'MyNorthShore' (hereafter, '#MyNorthShore'), were thematically coded using interpretive content analysis to reveal key themes in the destination image of the North Shore tourism region (Drisko & Maschi, 2015). The coding strategy was developed to ascertain and illustrate the specific and tangible resources captured and shared by North Shore visitors on social media.

Sampling

The initial sample consisted of individuals visiting the North Shore between 15 July and 3 August 2015, which corresponded with the sampling period for on-site visitor survey. We determined that the on-site visitor survey (see Hestetune et al., 2018) was an ideal opportunity to prompt visitors to participate in the photographic component of the research project. Visitors, as characterized by data resulting from the summer 2015 on-site survey ($n = 4,298$; 57% response rate), are typically in-state (71%) visitors who make an average of two trips to the North Shore per summer season (Table 1). Common activities of North Shore visitors consist of scenic driving, hiking, and visiting cultural and historic sites.

We did not set a target sample size for the content analysis of the UGC, as the research design was predominantly exploratory. Additionally, we did not make any explicit efforts to reduce sampling error within the target population. Rather, data generation was intended to occur organically via visitors' exposure to #MyNorthShore through either primary or secondary prompts. A primary prompt was made when visitors were intercepted by a research assistant during the on-site survey. Specifically, #MyNorthShore stickers were handed out to visitors (primary prompt), regardless of their eligibility to participate in the survey, with directions on how to use the hashtag and a prompt to post images from their current trip to social media using the hashtag (Figure 1). Remaining stickers and directions were available for visitors to freely take from sampling locations after on-site survey sampling concluded (secondary prompt). Stickers were selected as a prompt due to their popularity among visitors and the low cost of the stickers as a data-generation mechanism. Two thousand stickers were distributed at various recreation sites, although we cannot verify how many visitors took stickers, as any particular visitor may have taken no stickers, one sticker, or multiple stickers. Additional prompting occurred when individuals saw other individuals (friends/family/individuals they 'follow' on social media) using the hashtag on social media and also elected to use the hashtag in their own social media posts. The sticker design was based on the popular white oval decals with black 'place' initials (originally devised in Europe as a way to determine a vehicle's country of origin) with '#MyNorthShore' text. While the directions (see Figure 1) referenced a variety of social media sites, review of content on multiple sites revealed that, after the data generation period concluded, the majority of #MyNorthShore posts were made to Instagram. For this reason, Instagram was the platform from which we collected data.

Table 1. Descriptive statistics emerging from the summer 2015 on-site survey of North Shore visitors.

Survey measure	North Shore summer visitors
Gender	56% female
Age	75% over the age of 35
Income	29% make more than \$100,000 annually (2015 USD)
Education	66% hold at least a Bachelor's degree
Trip purpose	82% are primarily recreating at North Shore sites
Origin	71% from Minnesota
Years making visits to the North Shore	mean = 16 years (Std. Dev. = 15.82)
Trip length	mean = 4 nights (Std. Dev. = 4.01)
Party size	mean = 3 people (Std. Dev. = 2.08)
No. of current trips per summer season	mean = 2 trips per summer season (Std. Dev. = 1.60)
Activity participation:	
Scenic driving	89%
Hiking	81%
Visiting cultural/historic sites	65%
Swimming	51%
Picnicking	46%
Wildlife viewing	46%
Rock collecting	38%
Camping	36%
Bicycling	15%
Fishing	15%
Non-motorized boating (inland lakes)	10%
Creating art	9%
Non-motorized boating (Lake Superior)	9%
Motorized boating (Lake Superior)	6%
Gathering wild plants (foods)	6%
Motorized boating (inland lakes)	6%
ATV riding	2%
Horseback riding	1%
Hunting	1%

[Note: 1,298 total usable survey resulted from on-site summer sampling (a 57% response rate).]

Data gathering

A Python script, enabled by an Instagram Application Program Interface (API) token, was used to collect the content associated with #MyNorthShore from the Instagram website. Python is a computer programming language that enables crawling (or searching the internet) and gathering data from the internet where content is retrievable through a permanent Uniform Resource Locator (URL, or web address) (Metaxas & Mustafaraj, 2014). The resulting data were organized into an Excel spreadsheet. Data in the spreadsheet included the individuals' username and user ID, time and date of the post, a URL of the image, any tags and captions posted with the image, type of filter used on the image, and number of likes and comments on the image. A geo-tagged location was available for some posts, depending on individual users' Instagram settings and voluntary choice to designate the location of the photograph in their social media post (see Figure 2 for spatial distribution of those images which were geo-tagged). We used photographs posted between July 15 (when sticker distribution/data prompting began) and 7 September 2015 (Labor Day, a typical date considered to be the end of a summer season within the United States) for analysis.

Analysis

Analysis was completed within QSR International N*Vivo (v. 10) software; the software enabled us to create and assign parent category codes and themes to individuals' posts (both images and caption text), query data, and export results. We created an initial codebook based on existing place-related literature (e.g. commonly reported attributes of place, particularly in coastal and/or nature-based tourism destinations). We analyzed Instagram posts using interpretive content analysis, which focuses on identifying characteristics (the subjects or objects) of an image or text rather than

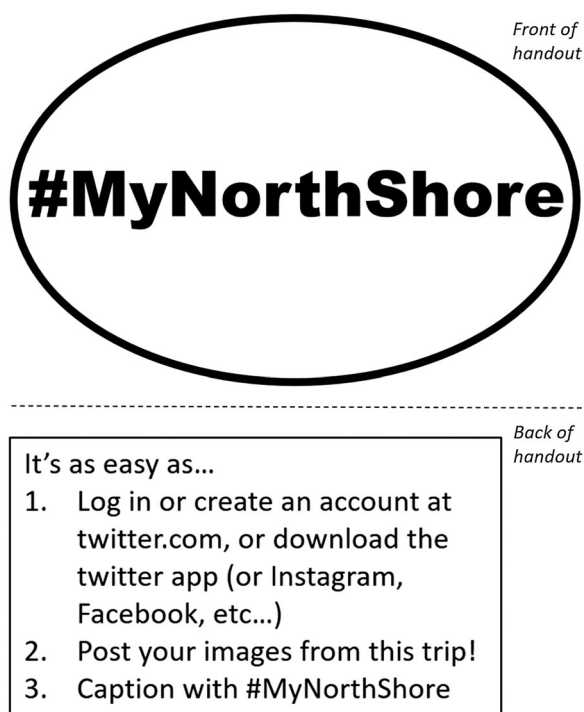


Figure 1. Directional handout provided to visitors for data collection of North Shore destination image study.

quantitative descriptions (i.e. words counts) (Drisko & Maschi, 2015). We coded photographs iteratively; that is, as new themes emerged and were added to the codebook, we reanalyzed previously coded photographs. Coding was not restrictive; meaning multiple themes could be applied to a single photograph or its accompanying text.

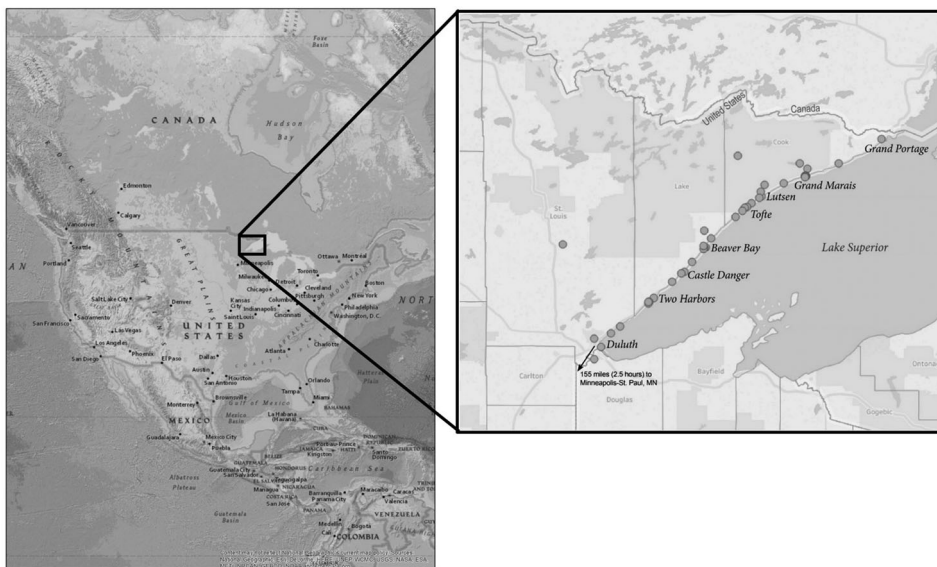


Figure 2. Locations of the 68 geo-tagged images posted to Instagram with #MyNorthShore between July 18 and September 7, 2015.

Categories and themes were not meant to represent place meanings explicitly, as meanings are socially constructed and ‘meaning is not a property of the person or the object, but a relationship between the two mediated through culture and individual past experience’ (Williams & Patterson, 2007, p. 936). As the desired outcome of analysis was to document the dominant components of a destination’s image, we used the codebook to provide an organizational system for understanding the most dominant physical characteristics of destination image included in visitors’ UGC. Although coding focused on physical attributes, the concept of affect emerged in captions and additional hash-tags related to #MyNorthShore posts; therefore, we also coded textual data for instances of these positive or negative emotional narratives. Based on this analysis we were able to make exploratory inferences regarding the underlying meanings or emotions the photographs may contain. These inferences or analyses are limited as there was no two-way communication with participants to verify our analysis of textual components.

After coding by the primary author was complete, inter-rater reliability was assessed. Although member checks are typically used in qualitative research inquiries (Williams & Patterson, 2007), this research design did not include communication with participants. As such, we conducted inter-rater reliability assessments by having three researchers analyze a random selection of the images/captions coded by the lead author, using the codebook to guide their analysis. A random sample of 10% of the dataset (18 photographs and captions) was assigned to each of the three researchers. To assess inter-rater reliability between more than two of the researchers, an intraclass correlation was computed in SPSS v. 24. Two-way mixed, absolute agreement intraclass correlation (ICC) statistics were calculated to determine reliability where subjects (photographs and captions) are randomly assigned and raters are fixed. Results of the ICC revealed high reliability of coding among the coders. For all 18 images, the ICC statistic was above .792 (mean = .819). This exceeds the commonly accepted threshold of .6 as an acceptable level of reliability among raters (Bruton, Conway, & Holgate, 2000).

Results

We collected a total of 194 photographs posted to Instagram with #MyNorthShore between 18 July and 7 September 2015. A total of 8 photographs were removed from the dataset due to irrelevance (e.g. advertisements for e-cigarettes that contained #MyNorthShore, among other tags related to Lake Superior and Minnesota). A total of 53 unique users posted the remaining 186 photographs for an average of 3.6 posts per user (range = 1–33). The majority ($n = 37$) of users posted three or fewer photographs. A few avid users ($n = 6$) posted more than three photographs. These avid users individually contributed 5% or more of the dataset (8 or more photographs). To explore the influence of more avid users, results were analyzed both including and excluding avid users to determine if avid users influenced the emergent patterns and themes.

We organized results from the thematic coding into six parent categories (Table 2). These categories were: (1) natural resources; (2) built infrastructure; (3) human subjects; (4) outdoor recreation; (5) affect; and (6) culture. Themes are codes that emerged under each of these six categories. There were not large discrepancies in the dominance of particular categories or themes when avid users were removed from analysis (Table 2), suggesting that the avid Instagram users’ conceptualization of North Shore destination image does not differ from other users. Many photographs and corresponding captions contained components from more than one of these categories; for example, outdoor recreation is explicitly captured in the photograph displayed in Figure 3 as it portrays an active recreationist in rock climbing gear. The photograph also highlights the destination’s rock formations, Lake Superior, and prominently features the clear, blue sky. The caption supports the application of these codes as the narrative contains references to rock climbing, the type of rock, and the lake itself (as well as the neighbouring Boundary Water Canoe Area Wilderness). This example demonstrates that outdoor recreation (climbing), natural resources (rock, lake, and sky), affect (‘very heady’), and human subjects (rock climber) are all components of this visitor’s image of the North Shore.

Table 2. Definitions and density of categories and themes used to analyze #MyNorthShore Instagram posts.

Category	Definition	Full (Post Count)	Full (% of Posts)	Avid removed (Post Count)	Avid removed (% of Posts)
I. Natural Resources	Photo includes imagery of natural resources; text refers to a natural resource listed below.	205	45%	117	43%
<i>Themes include:</i> Wildlife, weather, waterfalls, rocks, plants, rivers, Lake Superior, inland lake, landscapes, insects, forests, coastline.					
II. Built infrastructure	Photos includes, or text references, an element of built infrastructure	70	15%	40	15%
<i>Themes include:</i> Roads (waysides, transportation corridors, streetscapes), recreation infrastructure (e.g. trails, boat ramps, bridges), historic sites, buildings (e.g. lighthouses, retail shops, restaurants) hotels, cabin or lodge.					
III. Human Subjects	Image or text containing or referring to a person.	66	14%	44	16%
<i>Themes include:</i> Self, recreation provider, pets, number of subjects in photo, family and friends, youth, mixed generation, adults					
IV. Outdoor Recreation	Photos depict and/or text includes a reference to participation in a recreation activity listed below.	51	11%	29	11%
<i>Themes include:</i> Visiting cultural and historic sites, swimming, scenic driving, rock collecting, recreation constraints, recreation substitution, picnicking, leisure at home, interpretation, visitor's centre, signs, museums, hunting, hiking, gathering wild plants (foods), fishing, creating art, contemplation, rock climbing, camping, campfires, boating, bicycling, ATV use.					
V. Affect	Text containing, 'awe', 'epic', 'best', etc. or 'horrible', 'worst', 'lame' etc.	39	9%	18	7%
<i>Themes include:</i> Include both references to positive and negative emotional responses.					
VI. Culture	Photo includes images and/or text references a cultural component listed below.	29	6%	22	8%
<i>Themes include:</i> Ojibwe (native American symbols or cultural references), food and drink, art					

Natural resources was the most dominant category present in the posts (45% of images included some natural resource). The most common themes under the natural resources parent category were water (one-half of all photographs coded with the natural resources category were also coded with 'open water', most often Lake Superior), forests, and rocks. Landscape-level photographs were also prominent, as well as photographs of waterfalls. The example photograph displayed in [Figure 4](#) illustrates the themes of water (Lake Superior) and rocks. Agate stones pebbling the shoreline, as well as the large stone bluffs surrounding Lake Superior emerged from our analysis as key components of the North Shore destination image. Additionally, the post shown in [Figure 4](#) captures a less dominant theme under the natural resources parent category, 'weather'.

Built infrastructure was the second most dominant category present in the posts (15% of images included built infrastructure). The most common themes of this category include buildings, lighthouses, and roads. Recreation infrastructure (e.g. trails, boat ramps, signs, camp sites or cabins) were less dominant, indicating that while these are known components of visitors' trips (the infrastructure upon which tourism depends), they are not dominant aspects of the North Shore destination image as conceptualized by the sample population. It is important to note that photographs that contained built infrastructure, which also may be consider a cultural resource (such as the lighthouse), were coded as both 'built infrastructure' and 'culture'; that is, codes for these or any other categories are not mutually exclusive. A photograph that captures an iconic North Shore lighthouse (built infrastructure and cultural resource) along the shoreline is presented in [Figure 5](#).

A similar proportion (14%) of photographs included images with people and/or animals. These human subject photographs had captions that most frequently contained references to family and friends. Additionally, adults were more prominent than youth (and pets less prominent than actual humans), and photographs containing one human subject was most common (no groups of five or more captured in the photographs). An example of human subjects as a component of North Shore destination image is displayed in [Figure 6](#). The caption of this photograph refers to watching the waves break on the shore; however, the photograph does not simply contain the water and shoreline but also includes two individuals occupying this space. The photograph demonstrates, that for many visitors, travel companions are an integral component of the destination image.



Figure 3. Example of photograph and caption with multiple themes present.

Overall, the category of outdoor recreation was not prominent in the posts (11% of images explicitly included or mentioned outdoor recreation). This could be due to the difficult nature of capturing actual recreation participation (e.g. it is difficult, and potentially risky, to take photographs while

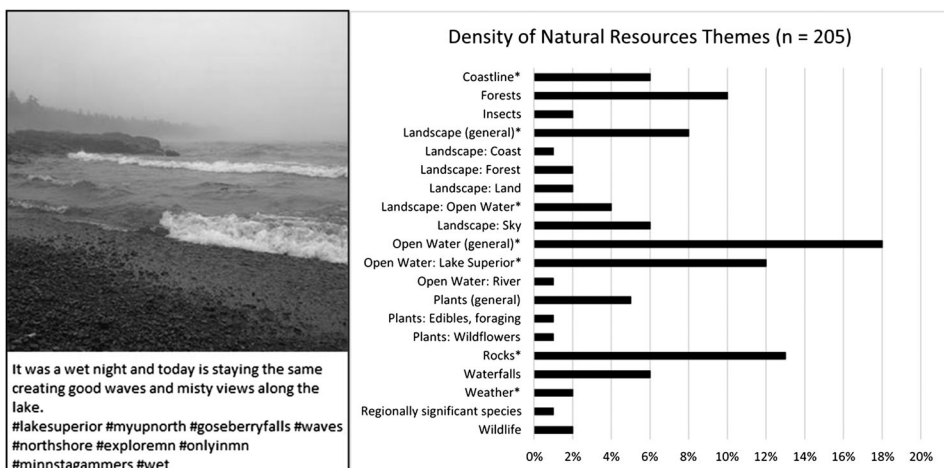


Figure 4. Example of natural resources photograph and caption, with chart of the natural resources category theme density. An * denotes natural resources themes that were applied to the example photograph on the left.

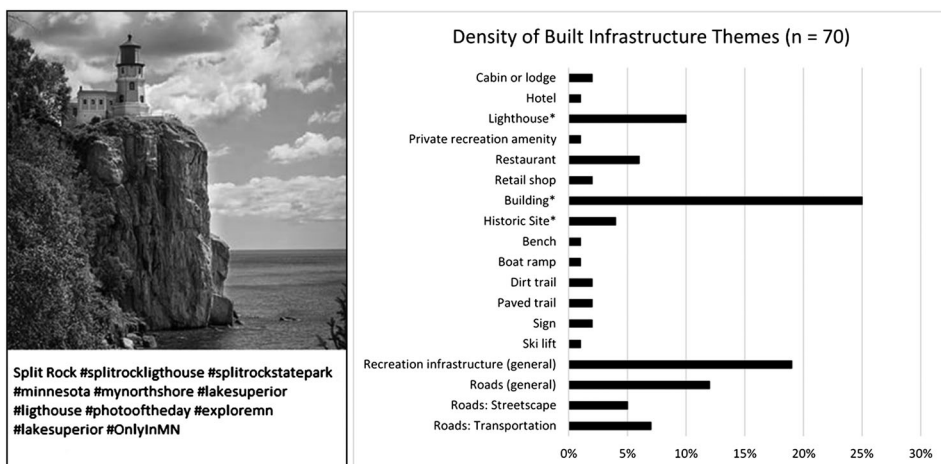


Figure 5. Example of built infrastructure photograph and caption and chart of built infrastructure theme density. An * denotes built infrastructure themes that were applied to the example photograph on the left.

fishing). For those photographs and captions that included elements of outdoor recreation, the most common themes were hiking and boating (particularly non-motorized boating such as canoeing and kayaking) and many of the photographs within the outdoor recreation category were representations of these pursuits. For example, an individual shared a photograph of a companion paddling a non-motorized boat (Figure 7). This photograph demonstrates that many photographs and captions coded as outdoor recreation were also coded with a human subject category; most often the photograph of outdoor recreation is not focused on the gear or outdoor recreation resource, but rather individuals sharing in the recreation experience.

Culture was a less dominant category (6% of Instagram posts included images or references to cultural components). Culture was conceptualized and operationalized through themes of art, food, and drink, and Native American culture. Among these components, photographs of food and drink were most common, such as the example photograph displayed in Figure 8. North Shore visitors' destination image includes the art, food, and culture of the place they visit; however, these themes were less dominant than physical attributes of place. Photographs, such as the one displayed in Figure 8, demonstrate that visitors' images of the destination's food culture

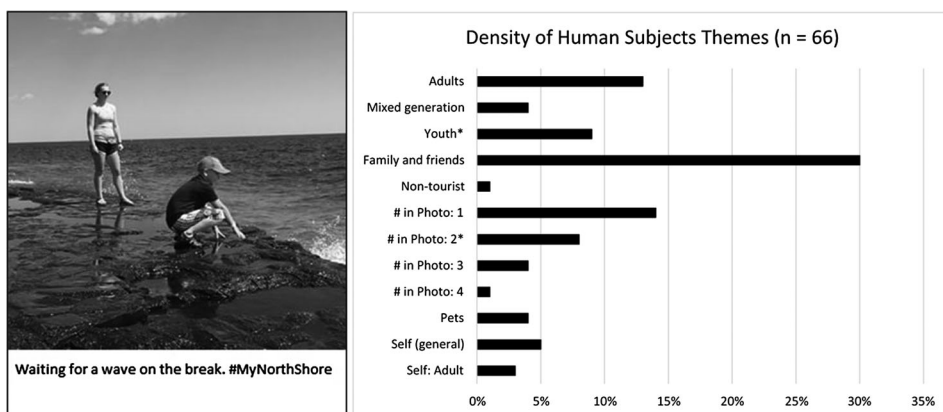


Figure 6. Example of human subjects photograph and caption and chart of human subject theme density. An * denotes human subject themes that were applied to the example photograph on the left.

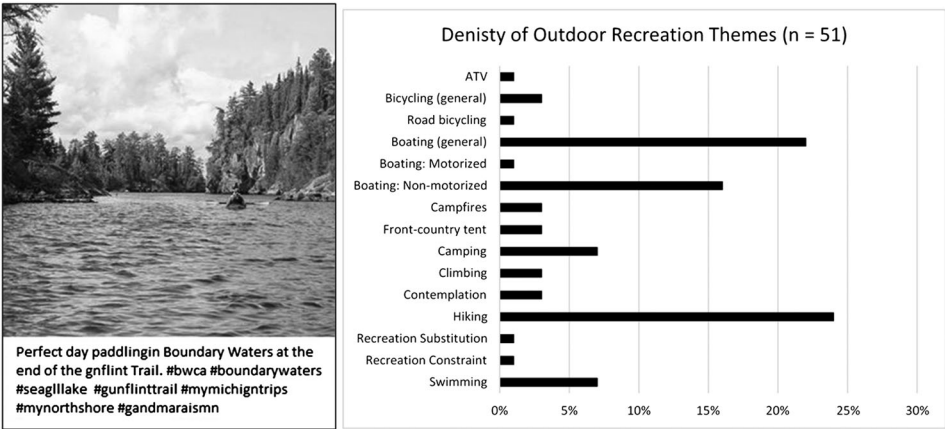


Figure 7. Example of outdoor recreation photograph and caption and chart of theme prominence in the outdoor recreation category. The photograph on the left was coded using the parent category outdoor recreation, however, none of the themes were applied. Other themes were applied including natural resources and human subject themes.

are focused on local, unique offerings. Captions of images classified as cultural namely included referencing the food or drink item (e.g. #worldsBestDonuts or #cheeseCurds).

Affect was also less prominent (9% of posts were coded for instances of positive or negative emotion); it was captured through captions and additional hashtags associated with the photographs visitors posted to Instagram. Positive affect was much more dominant than negative affect (with less than 5 captions being coded as negative affect, such as the latter part of this quote: ‘We had a beautiful hike to the north end of the Superior Hiking Trail today. The view was 270°, but hazy. Hot as hell’). For example, positive affect is demonstrated in the caption to the photograph displayed in Figure 9, which reads ‘certainly a good way to start off my day!’ Other examples of positive affect included: ‘Idyllic weekend #mynorthshore!’ ‘Within this place–this whole lakeshore as far as I have explored–there is a special kind of serenity. Anxieties, concerns and worries fade into nothingness ...’ and ‘Grand Marais is incredible! There’s so much beauty in our own backyard, and I will surely be back soon’. Such captions indicate that destination image inherently includes the emotional ties to a space, which emerge even from a study grounded in understating the physical attributes of place.

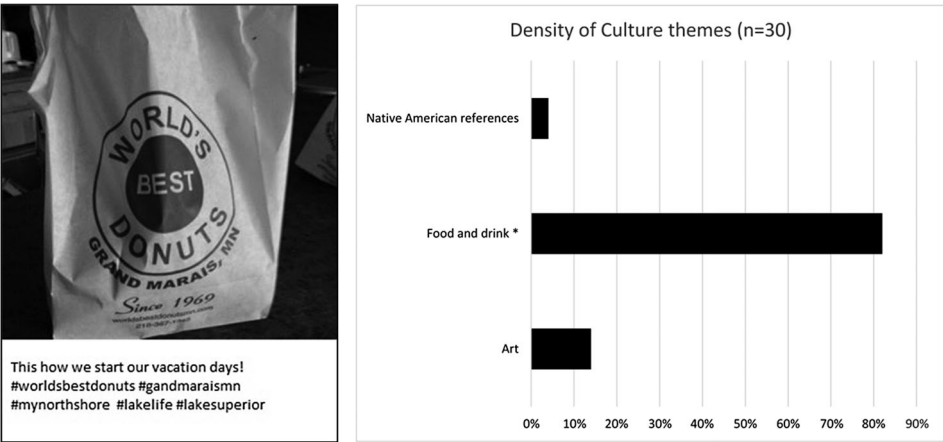


Figure 8. Example of a culture photograph and caption and chart of culture theme density. An * denotes culture themes that were applied to the example photograph on the left.

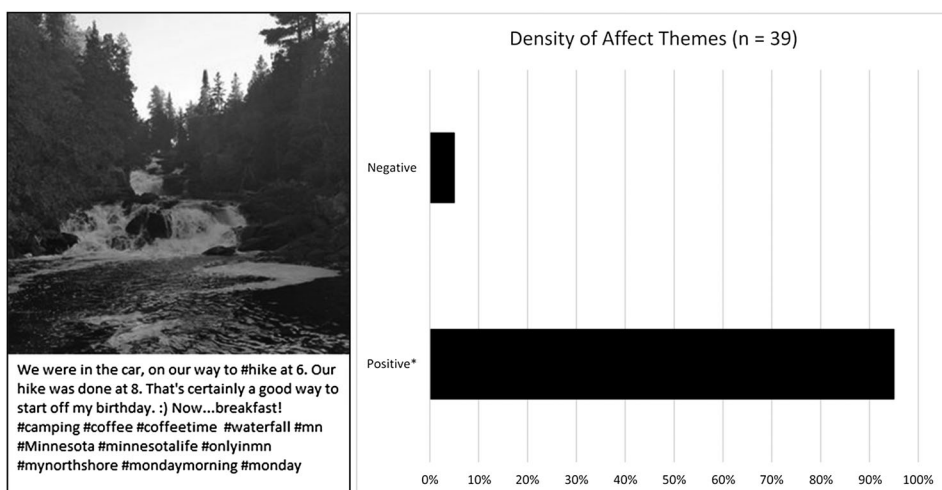


Figure 9. Example of a caption demonstrating affect and chart affect theme density. An * denotes the affect theme that was applied to the example photograph on the left.

Discussion

This study demonstrates the feasibility of qualitatively utilizing social media data as a rather rapid and low-cost process to determine the key components of North Shore visitors' destination image and subsequently inform place-based management and marketing. Other studies, such as Taylor et al. (1995), that couple VEP data with more in-depth qualitative content (e.g. photo logs) have illustrated that a physical characteristic's persistence in photographic data may be a more reliable indicator of unconscious elements of visitors' destination image. As such, our study expands current methodological approaches to understanding important place-based characteristics in regional tourism destinations by accessing and analyzing readily available UGC posted to social media platforms.

Related to our first research objective of *determining the key components of destination image*, the key components of North Shore visitors' destination image include natural resources, built infrastructure, and human subjects. The dominant categories and themes identified in our study are consistent with existing research that demonstrates natural resources are an important component of destination image (Lin et al., 2007). In particular, the abundance of water-based features (i.e. waterfalls, rivers, Lake Superior, inland lakes, coastlines) has also been found in other studies using VEP to understand visitor preferences (Taylor et al., 1995). A somewhat novel component of water features was the emergence of weather as theme in North Shore visitors' photographs. The wet, misty weather along the North Shore in summer, when many other locales are experiencing hot and dry conditions, is characteristic of the region and its destination image. The prevalence of coupled characteristics, such as natural and built resources, can be important to destination image (and the underlying place meanings assigned to these spaces) as these are the settings where interaction and engagement occur (Amsden et al., 2010). Additionally, human subjects have also been found to be a primary component of destination image (Michaelidou et al., 2013). Michaelidou et al. (2013) determined that the common appearance of human subjects in visitor photographs is likely related to visitors' desire to capture participation and interaction during a recreation experience.

Regarding the second objective of *informing place-based management and marketing*, it is important to note that while the methodology of assessing visitors' destination image to inform place-based management and marketing may be transferable, the specific findings or recommendations are likely to be destination specific. For example, our findings suggest that destination management organizations in the North Shore region can enhance visitors' exposure to the physical attributes of the region by promoting opportunities for both land and water-based recreation experiences,

creating events against the backdrop of area trails and main streets, and encouraging tourism activities that emphasize bonding between families and friends. Yet, previous research has documented impacts that detract from visitors' experiences, such as litter, erosion, and vegetation damage (e.g. Chin, Moore, Wallington, & Dowling, 2000). As such, the natural resources that dominate a destination's image – specifically, the water and forest resources in the case of the North Shore – should be carefully monitored and, if necessary, managed to conserve threatened resources. Other dominant themes, such as key elements of built infrastructure that also convey a destination's cultural heritage (e.g. historic buildings such as a lighthouse), will also need consideration in tourism planning efforts. Previous research demonstrates that unnatural elements of built infrastructure in nature-based tourism regions may negatively impact visitor experiences (Bullock & Lawson, 2007) and changes to the character or integrity of cultural resources could alter visitors' connections to those assets (Adger et al., 2011).

Our results also demonstrate how a qualitative analysis of social media data that reveal visitors' destination image, can be used to enhance destination planning and marketing. For example, Yung et al. (2003) found that place names can be a successful place to start conversations regarding the political meanings of place. Extending this same logic, planners can capitalize on the power of images in place-based management (Allen et al., 2009; EPA, 2002) by displaying visitor derived images of a place to elicit conversation during public planning processes in tourism destinations. Additionally, as destination image is related to satisfaction and intention to revisit a destination (Assaker & Hallak, 2013; Chen & Tsai, 2007; Lee et al., 2014; Prayag & Ryan, 2012), a deeper understanding of the key components of destination image can inform the refinement of marketing materials, such as developing a destination image that delivers key attributes and elements of recreation experiences identified by visitors themselves. In the case of the North Shore, we suggest highlighting the key attributes of place and experiences into marketing materials, such as highlighting family bonding on the shores of Lake Superior, hiking with a companion to a remote waterfall, scenic driving to cultural sites, and tasting the local flavours at North Shore restaurants.

Our study suggests that UGC analysis can provide an extension of what Lew (2017) considers to be organic place-making, specifically one that includes the perspectives of visitors themselves (i.e. enabling a more tourist-oriented form of destination image). However, we also suggest replication or extension of our work to include residents' perspectives of place. Swinney et al. (2012) and Lew (2017) argue that successful place branding initiatives should be co-created between both community leaders and community residents and incorporate tourists' perspectives of place, rather than traditional top-down approaches to place-making and place-based marketing efforts. As such, tourism providers should consider key physical attributes and recreational characteristics to create the intangible images of place from the perspective of both residents and visitors; our study suggests that UGC has the potential to provide this through qualitative analysis of UGC.

Limitations and research needs

The destination image of a specific cross section of North Shore visitors (i.e. those who use social media) was presented here to illustrate the feasibility of using social media data to inform destination image and place-based marketing and management. This specificity limits the generalizability of our findings as the themes presented here pertain to that narrow section of individuals represented by North Shore summer 2015 Instagram users. For example, there is concern about the 'social and spatial representativeness' of UGC data, as many Instagram users are between 18–29 years old (van Zanten et al., 2016). Additionally, as other researchers utilizing UGC have identified, there are some individuals who will not be inclined to post, such as those who are participating in a hands-on experience such as fishing and can or would not use their phone to capture an image in that moment (e.g. Wood et al., 2013). UGC should be integrated with other data during destination planning or marketing efforts; it can be used to identify the key attributes of place that can be assessed through more generalizable research designs and methods. It is important to note that, despite its limited

generalizability, the methodology developed here could provide relatively rapid, reliable, and low-cost assessments of key attributes and sentiments of a place for destination branding efforts. For tourism destination managers who capture and plan to analyze large volumes of photos, methods such as Mechanical Turk (an online marketplace that is commonly used for image analysis, e.g. Tifentale & Manovich, 2015) may reduce the time required for analysis.

Another limitation of this methodology is the lack of two-way communication between researchers and participants, which limits the ability to draw inferences into the deeper meanings photographs hold for visitors. While reducing researcher influence may enhance the validity of the study in some ways (e.g. what visitors posted was not influenced by researcher presence), there was also no way to affirm with participants the researchers' interpretation of the photographs and text. However, our analysis presented was thematic (i.e. to categorize prevalence of physical attributes) and was not designed to capture the underlying meaning of those places and attributes; as such, communication of the deeper, underlying meanings of the photographic context and associated text was not the purpose of our study. Our coding of affect within the associated textual content of Instagram posts emerged during our coding process. Future studies are needed to explicitly examine the ability to assess place meanings within social media posts, particularly as the prevalence of social media expands and as new platforms emerge. Additionally, we see the need for comparative studies that utilizes UGC alongside traditional photo-elicitation (e.g. Kerstetter & Bricker, 2009) or volunteer-employed-photography (e.g. Dorwart et al., 2009) methods to further assess the limitations and strengths of these unique methodologies.

Lastly, we see the importance of longitudinal analysis of UGC from social media platforms. Ongoing studies of key place attributes that hold meaning and enhance experiences are needed to explore how changes in a region's natural and cultural resources influence the destination image visitors' capture and share with family and friends. In some cases, in an area impacted by climate change, 'solastalgia' may occur, a term that describes the human responses to changes in their physical environment, such as psychological stress, and the subsequent shifts in the way individuals identify with a place (Higginbotham, Connor, Albrecht, Freeman, & Agho, 2007, p. 246). At the same time, it is likely that new destination images will emerge that convey new people-place relationships. Studies such as this can inform more resilient tourism management. We suggest that UGC can be used by tourism providers to monitor changes in destination image and visitors' relationships with the destination. With data that are consistently geo-tagged, destination managers may also track spatial patterns of visitor movements and destination image over time.

Conclusion

We have demonstrated that qualitative analysis of social media data can be used in place-based research, particularly in assessing the dominant components of destination image. Our study builds on previous studies which have used reflexive photography to understand physical characteristics of tourism destinations (e.g. Cahyanto et al., 2013). UGC is a readily available data source that is imagery-focused and represents a population that is not typically captured through traditional research methods, as survey participants tend to be older while social media users tend to be younger. Specific to the Instagram platform, users tend to be younger, identify as a racial/ethnic minority, and live in urban areas (Pew, 2016) and these voices may represent a novel or primary market segment, depending on the destination. Social media users may be too young to participate in traditional methods for collecting data related to destination planning and marketing efforts (interviews, surveys, focus groups). In addition to a youthful perspective, social media users also represent a growing body of outdoor recreationists that seek opportunities for nature viewing and photography, as wildlife observation and nature photography are the fastest growing outdoor recreation trends (in total participants and in participation days; White et al., 2016). While the majority of UGC based studies utilize a quantitative research design (Antoniou, Morley, & Haklay, 2010; Brando & Bucher, 2010; Feick & Robertson, 2015), we demonstrate how UGC can be used to qualitatively explore the

themes of destination image using social media posts, which can inform place-based management and marketing.

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