Visual destination images of Peru: Comparative content analysis of DMO and user-generated photography

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ABSTRACT

With the arrival of new media and communication technologies in recent years, user-generated content (UGC) on the internet has increasingly been considered a credible form of word-of-mouth. Social media websites, such as Facebook, Flickr, and Panoramio, allow tourists to share their travel experiences with others by uploading travel photos online, an activity that has gained popularity among internet users. Unlike images created and projected by destination marketing organizations (DMOs), pictorial UGC reflects users’ perceptions of a destination. This study compared images of Peru collected from a DMO’s site and from Flickr, a photo-sharing website and identified statistical differences in several dimensions of these images. The study visualized these differences by constructing maps representing “aggregated” projected and perceived images of Peru, as well as maps of geographical distribution of the images.

1. Introduction

The importance of an attractive and unique destination image is indisputable. Numerous studies document the efforts of destination marketing organizations (DMOs) in researching, building, promoting, evaluating, and maintaining destination image. For a long time, destination imagery was controlled almost exclusively by a destination’s marketing organization (DMO). Materials produced (or induced, in Gartner’s (1993) terminology) by DMOs include brochures, guidebooks, postcards, video commercials, and most recently, destination websites and other online materials. Tourists, on the other hand, create their own materials about how they perceive destinations they visit by means of personal blogs, reviews, photography, and videos. With the developments of Web 2.0 applications, tourists have been presented with previously unimaginable opportunities to make their travel accounts truly public through media-sharing websites and social networks. Because non-promotional communications tend to affect destination images more than messages by DMOs and travel intermediaries (Connell, 2005), a situation in which DMOs lack direct control over images that are “out there” challenges destination promotion.

DMOs need to know what images dominate the internet and whether these images are consistent with the information projected by the destination itself, so that they can reinforce positive images or counter unfavorable images, if necessary.

Destination image research has been conducted since the early 1970s (Hunt, 1975; Mayo, 1973) and comprises hundreds of studies to date. However, meta-reviews of destination image research (Gallarza, Saura, & Garcia, 2002; Pike, 2002; Stepchenkova & Mills, 2010; Tasci, Gartner, & Cavusgil, 2007) have shown preferences of tourism researchers for assessing destination images using

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structured surveys of human respondents, mixed-methods approach advocated by Echtner and Ritchie (1991, 1993), and, more recently, textual data from blogs and websites. Much fewer studies have addressed visual representations of destination images.

This study comparatively analyzed pictorial materials produced by DMOs and by destination visitors who post their photographs on photo-sharing websites, such as Flickr. Peru was used as a case study destination for this empirical research. The analytical perspective for comparisons of the projected (DMO) and perceived (Flickr) images of Peru was the Urry's (1990) notion of hermeneutic circle of representation. The main analytical approach employed in this study was comparative content analysis and, to a lesser extent, semiotic analysis. The study proposed and tested a methodology that includes constructing maps of “aggregated” destination images using the DMO-controlled and traveler-controlled sources. The congruity of DMO and UGC representations of Peru was also tested by constructing maps of geographical distributions of collected pictorial materials.

2. Study background

2.1. Projected and perceived images

Photographs are means of “capturing” reality. From a DMO perspective, photographs are the result of an “active signifying practice in which media-makers select, structure, and shape what is going to be registered on film and further alter and edit what is eventually printed” (Hall, 1982: 64). From the travelers’ perspective, “slideshows and photographs are a common way to communicate personal trip experiences and perceived destination images” (Schmallegger, Carson, & Jacobson, 2010: 245). In words of Albers and James (1988: 136), “[p]hotographs are a medium through which people relate to visual images and make them their own.” In this paper, photos created and posted by travelers on photo-sharing websites are termed user-generated content (UGC), and destination images transmitted by the DMOs and UGC are referred to as projected and perceived images, respectively. Scholars have classified UGC as having qualities of word-of-mouth promotion (Crotts, Mason, & Davis, 2009; Yoo, Lee, Gretzel, & Fesenmaier, 2009) and, similar to accounts by eyewitnesses, UGC tends to be trusted by potential travelers. However, in research involving UGC, it is often impossible to verify a user's status with certainty (Lu & Stepchenkova, 2012; O’Connor, 2008; Puri, 2007). Therefore, the boundaries between projected (DMO) and perceived (UGC) images may be blurred.

The relationship between projected and perceived images is not entirely clear. Research guided by postcolonial theory (Said, 1978) does not identify a difference between the two image types, viewing destination images and their circulation as one Hermeneutic does not identify a difference between the two image types, entirely clear. Research guided by postcolonial theory (Said, 1978) and, UGC as having qualities of word-of-mouth promotion (Crotts, 2009; Yoo, Lee, Gretzel, & Fesenmaier, 2009) and, affecting tourists from previously acquired information from various sources, thus affecting tourists’ perceptions of destinations. These perceptions guide tourist’s gaze at a destination. Consciously or unconsciously, tourists look for scenes and images that replicate their existing perceptions. By capturing these images on camera, they close the hermeneutic circle of destination representation.

View from the lenses of the postcolonial theory, the notion of hermeneutic circle supports the view that rather than endorsing cultural understanding, tourism separates tourists and locals across traditional cultural divisions. It is especially relevant with respect to Western tourists (referred to as the Western ‘self’) visiting the Third World destinations, i.e., the “mysterious, exotic, sensual, splendid, cruel, despotically, sly, backward, and in decay/past its prime” (Caton & Santos, 2008: 10, referencing Said, 1978) ‘other,’ thus, contrasting the ‘self’ and the ‘other’ along a number of dimensions, or binaries, such as “modern/ancient”, “advanced/primitive”, and “master/servant,” to name just a few. Images perpetuated by travel advertisers often include depicting the ‘other’ as unchallenged, unrestrained, and uncivilized (Echtner, 2002; Echtner & Prasad, 2003). The unchanged aspect is thought to appeal to tourists’ search for authentic, set in the past visual experiences, such as images of archaeological ruins, old building, local residents in traditional attire, etc. The unrestrained aspect reinforces the need for escape and unleashing the ‘self’ in an exotic paradise of a destination. This type of motivation was termed by Gray (1970) as ‘sunlust’ and is often associated with the images of “sea, sun, and sand.” Finally, the uncivilized aspect appeals to the need to explore and discover and is often emphasized by the images of wild vegetation and indigenous people with body decorations (Caton & Santos, 2008).

While at a destination, tourists construct photographic images as compositions of the most salient destination attributes, and this practice is widespread on visual travel accounts (Albers & James, 1988; Day, 2002). Although it is plausible that potential visitors are influenced by projected destination imagery, experiencing the destination and producing accounts indicating that they have “been there and seen that,” means being exposed to the entire visual universe of the ‘other’, which may not have been adequately captured and represented in transmitted DMO images that shaped tourists’ perceptions prior to visiting the destination. In such a situation, the notion of the hermeneutic circle requires further empirical confirmation, and the question of congruity emerges in terms of DMO versus UGC photography, or projected versus perceived images. This study aims to examine whether the concept of the hermeneutic circle of representation has empirical support in the context of online destination representations.

2.2. Analysis of pictorial materials

Destination photography, whether produced by DMOs or UGC, communicates images that shape and re-shape travelers’ destination perceptions. There are two main components of a photograph, content and composition (Albers & James, 1988). Content refers to the appearances or signs captured in a photo in their totality. The way in which these appearances are linked to each other and presented to viewers constitutes the photo’s composition. Albers and James (1988) posit that in the pictorial materials that are analyzed in various domains, including tourism, redundancy in content and composition is often found. This redundancy is not simply random but is indicative of a convention and is used to construct a meaning. The meaning of a photograph can be constructed from two perspectives, metonymic or metaphoric. From the metonymic perspective, all signs presented on a photograph stand for themselves and are interpreted at face value. The metaphoric perspective, in contrast, is concerned with what the image signifies beyond mere appearances. All elements of a photograph are treated as symbols that collectively allude to a meaning that lies outside of the particular picture. A chrestomathic example of a metaphoric “reading” would be a picture of a rose, which could be classified as a plant or a flower or, in certain contexts, could symbolize romance or passion (Strinati, 1995: 125). The chosen perspective, metonymic or metaphoric, defines the methodological approach for analysis.

The analytical treatment of photographs may be quantitative and qualitative, with two broad groups of methodologies employed, content analysis and semiotic analysis, respectively. Content analysis has been used more often with textual content,
but pictorial material can also be content-analyzed: in cultural studies, imagery, including paintings, maps, videos, and even landscapes, is often considered as a form of ‘text’. Content analysis is attribute-based and is primarily concerned with quantitatively describing the appearance of certain themes and attributes in the collection of images, allowing the main focal themes in the pictures to be identified and their frequencies, co-occurrence, clustering, and other related issues to be recorded. Thus, content analysis considers a photograph a metonym, and treats its elements (i.e., signs and manifestations) independently, as stand-alone attributes. In other words, content analysis “breaks” a picture into a number of attributes (or categories) guided by what is depicted on a photo and takes these representations at face value. Classifying visual content within the metonymic paradigm raises the issue of manifest versus latent meaning, a familiar issue in content analysis studies of texts (Krippendorff, 2004).

Albers and James (1988), in their study of the relationship between photography, ethnicity, and travel, stated that in content analysis, which is dominated by positivist paradigm with its emphasis on quantification, several content categories have a tendency to be significant. These are subjects (e.g., number of people pictured, their age and gender), dress (e.g., everyday clothes or tourist attire), presentation (e.g., subjects pictured in an action or as a formal portrait and surroundings (e.g., studio, outdoor setting, or tourist attraction). These authors also stated that co-occurrences of focal elements in a photograph are an important factor in describing a dataset. Once a dataset is quantitatively described, it can be further analyzed from a temporal angle (when the pictures were taken), geographic angle (where the images were taken), or production perspective (who photographed and distributed the images).

Up to date, there have been several studies that tested Urry’s (1990) theory of “closed circle of representation” within the content analysis framework. These studies applied content analysis to photographs obtained by the tourists under the instruction of the researcher, the technique called the visitor-employed photography (VEP) (Garrod, 2008, 2009; MacKay & Couldwell, 2004). In a study concerned with the image of Welsh seaside resort of Aberystwyth, Garrod (2009) evaluated the visitors’ VEP photos and postcards of the city and found that the two samples of images had common features in terms of attractions captured in the images, locations from which these attractions were depicted, as well as the overall image composition. Another study by the same author (Garrod, 2008) compared the photos of visitors and residents of Aberystwyth; the interesting result was that both tourists and residents adopted the same way of “reading” the destination. The author speculated that these “readings” had been induced by the destination representations produced by the DMO. MacKay and Couldwell (2004) compared photos of a national historic site in the province of Saskatchewan, Canada, obtained using VEP, with images used in promotional effort at that time. Each of the three empirical studies confirmed to some degree the existence of Urry’s circle of representation; however, they registered differences in projected and perceived images as well.

As all texts, including visual images, imply certain meanings, these meanings are not fixed and are a subject to reader’s interpretation. Even the most detailed and comprehensive content analysis is unable to determine the “symbolic meaning of a specific set of pictorial appearances” (Albers & James, 1988: 147). Semiotic analysis considers the picture as a whole, and is concerned with investigating how the content and composition of a picture communicate intended messages through signs and symbols about the place or the object they depict. As an approach to communication, which focuses on meaning and interpretation, semiotics challenges the reductive transmission model that equates meaning with “message”, i.e., content. The semiotic analysis “treats each picture as a totality – marking the patterned relationships in its content, connecting these to parallel and contrasting structures in other pictures, and relating both to the written narratives that accompany them” (Albers & James, 1988: 147). Signs do not just “convey” meanings, but constitute a medium in which meanings are constructed. It is important to note that, in semiotic analysis, the meaning of a photograph by those who consume it can be different from the intended meaning of its creator (MacKay & Couldwell, 2004). Thus, the semiotic approach can be characterized as highly interpretive and dealing primarily with the latent content of the photographs; however, as was noted by Duriau and Reger (2004), the significance of latent content may be overestimates in certain contexts.

Urry’s theory has been tested with semiotic analysis as well. Guided by postcolonial discourse, Caton and Santos (2008) analyzed photos made by students on a study abroad cruise trip to a Third World country along the five dimensions: traditional/modern, subject/object, master/servant, center/periphery, and devious-lazy/moral-industrious. They concluded that the photos complete the circle of representation and conform to the sociocultural ideologies of Western power and dominance. Markwick (2001) analyzed Maltese postcard images and the contexts and complexity of its consumption through the theoretical lenses of tourist desire and motivation. The analysis included such perspectives as “sun and sea”, “wanderlust”, authenticity, and realism. The author identified the “complex circuits of consumption and production” (Markwick, 2001: 435) and highlighted the importance of the contexts in which these circuits operate. Finally, Jenkins (2003) used a combination of quantitative and qualitative approaches to determine whether Canadian backpackers in Australia, the group, which is supposedly different from mass tourists, followed the Urry’s notion. Photographs in brochures for backpackers and backpackers’ own photography of Australia were found to be part of a spiral of representation” through which the iconic images of Australia were perpetuated.

In a discussion of the preferred methodological approach to capture differences in projected and perceived images, all of above-mentioned issues were considered. Content analysis was selected as the primary method due to its ability to manage qualitative material in a systematic, verifiable, and replicable way (Krippendorff, 2004; Neuendorf, 2002). Although content analysis does not allow the same complexity and richness of interpretation as semiotic analysis does, it was judged adequate for the research purposes: comparing DMO and UGC image attributes and summarizing them into holistic visual representations of Peru. The researchers aimed to construct “aggregated” DMO and UGC destination images based on the methodology described in Li and Stepchenkova (2012), for which content analysis is a most suitable approach. It was also decided that once the similarities and differences between DMO and UGC photos were identified, further interpretation using the elements of semiotic approach would be employed.

2.3. Peru

The current research uses Peru as a case study. Peru is the third largest country in Latin America. It is becoming increasingly popular among American and European tourists due to the development and diversity of its travel offerings, which blend history, indigenous cultures, breathtaking scenery, and tremendous ecological diversity. With three geographic regions—the coast, the highlands, and the jungle, Peru is famed for having the world’s highest navigable lake (Lake Titicaca), the world’s highest peak in a tropical area (Huascaran), and the world’s deepest canyon (Colca...
Additionally, Peru is famous for its Inca civilization, the man-made world wonder Machu Picchu, the Nazca lines, and colonial churches (Peru Tourism Bureau, 2012). In addition to numerous tourism destinations within Peru, the country offers a variety of experiences for tourists who enjoy eco- and outdoor adventures, festivals and carnivals. Peru is home to 20% of the bird species and 10% of the reptile species in the world, and every year, more than 3000 festivals are celebrated throughout the country (Peru Tourism Bureau, 2012). In 2011, TripAdvisor, the world’s largest travel site, awarded Machu Picchu in Peru the “No. 3 Travelers’ Choice World Destination” distinction based on its destination popularity and favorability. According to TripAdvisor, Machu Picchu is a more desirable destination than Paris, France or New York City in the United States (TripAdvisor, 2012).

Growing numbers of tourists are attracted to events and destinations in Peru. According to Peru’s Ministry of Foreign Commerce and Tourism, during the period of 2005–2009, annual international tourist arrivals were increasing on average by 8% a year, reaching 2.25 million of international tourists in 2010 (MINCETUR, 2011a). Because tourism in Peru has high growth potential, Peru invests heavily in its tourism facilities and infrastructure. According to Peru’s official tourism site (www.peru.travel/en), the country currently has 7600 lodgings that offer 131,600 rooms and 229,900 beds to tourists. Ten airports in Lima, Arequipa, Chiclayo, Pisco, Pucallpa, Iquitos, Cusco, Trujillo, Tacna and Juliaca are ready for international flights, and Peru has more than 78,000 km of highways.

Following the improvements to Peru’s tourism facilities and infrastructure, in 2010, PromPerú initiated a promotional campaign in the U.S., the second largest market for tourism in Peru (18% of total market share, second to Chile, Peru’s neighbor nation, according to MINCETUR, 2011b). This promotional campaign aimed to draw more tourists from the U.S. not only to Peru’s most famous tourism destinations but also to all of Peru’s geographical regions. The goal of this campaign was to position Peru as a destination with diverse and rich tourism attractions, both natural and cultural.

3. Methodology

The study aimed to answer the following questions:

1. What are the dominant attributes of destination image of Peru, as presented through DMO and UGC visual content? Is there congruity between the DMO and UGC images with respect to the frequencies of pictured destination attributes? These questions are answered by applying the content analysis methodology to the collected DMO and UGC images of Peru and conducting the Chi-square tests on the attribute frequency data.

2. What are the overall, or holistic, DMO and UGC destination images of Peru? What are the major differences between them? What destination attributes tend to be pictured together in the images from each source? These questions are answered by constructing “aggregated” maps of Peru images using statistical analysis of co-occurrences of destination attributes.

3. Which geographical regions of Peru are most often represented in the DMO and UGC images? Is there congruity between the DMO and UGC images in terms of the geographical distribution of various locations within the destination? This question is answered by constructing DMO and UGC maps of geographical regions represented in the collected photos.

3.1. Data collection

Projected images of Peru were defined as images represented by the official Peru tourism website, www.peru.travel. The website contains a photo gallery with images organized by 24 geographical regions of Peru and by six thematic categories. Because all thematic photos were included in the sets organized by region, only the regional sets of images were collected. In all, 530 DMO photos were downloaded.

The user-generated photography in this study was represented by the images from Flickr (www.flickr.com). Flickr is a website that provides hosting services for its members’ photos and videos, acts as a photo sharing and online community portal, and is widely used by bloggers to host images embedded in blogs and other social media (www.wikipedia.org). Flickr was created in 2004 and became widely popular, in part because it allowed users to instantly post photos from phones and PCs (Terdiman, 2004). In 2011, Yahoo!, which purchased the site in 2005, reported that Flickr had 51 million registered members, 80 million unique visitors, and more than 6 billion images (www.wikipedia.org). Compared to other popular photo-sharing websites, such as Picasa (picasa.google.com), Facebook (www.facebook.com), and Panoramio (www.panoramio.com), the authors found that the data on Flickr were more accessible for the purposes of this research. Because of its size, accessibility, and links to other social media, Flickr was selected to represent the UGC universe of Peru images in this research.

With respect to the Flickr sample, the data collection process was more complex. The researchers decided to collect the most recent images (those taken in 2010) and those tagged with the words “Peru” and “travel.” The “travel” tag was thought to indicate that images were posted by travelers rather than by residents of Peru. The Flickr search engine allows users to view only the first 4000 search results; however, the number of relevant images for Peru in excess of 23,000. Therefore, the researchers divided the year into seven periods to ensure that, for the purposes of sample selection, they obtained access to all Flickr images for that year (see Table 1). Because the number of photos within the seven periods differed, the researchers sampled the photos proportionally from each period, for a total sample size of 500. For sampling within each period, a systematic random sampling protocol with a randomly selected starting number was used, as described by Lohr (1999: 42).

To minimize technical errors in the data collection process, each Flickr image was associated with four numbers: (1) the final sample ID (from 1 to 500); (2) the number within a particular time period (for example, for January–February images, the number ranged from 17 to 3448; this number was obtained using Lohr’s procedure); (3) the page number within a particular time period (for January–February images, the number ranged from 1 to 164); and (4) the number of a particular photo on a page. These identification numbers were entered into an Excel file before downloading the photos to ensure a smooth data collection process.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Flickr sample.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jan–Feb</td>
</tr>
<tr>
<td>Number of photos</td>
<td>3464</td>
</tr>
<tr>
<td>Sample</td>
<td>74</td>
</tr>
</tbody>
</table>

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During preparation for data collection, it was noticed that the number and order of the photos on the Flickr pages changed slightly over time. Therefore, for each of the seven periods, the data collection was conducted on a single day, which typically took 4–6 h. A few out of focus or low resolution images were discarded during the sampling process and were replaced with the images that immediately followed the discarded ones. The entire process of data collection from Flickr was completed in two weeks. Table 1 provides a description of the Flickr sample.

### 3.2. Category development and data coding

The researchers employed content analysis for the selected DMO (530) and Flickr (500) images. A set of image categories for Peru was developed using a combined approach. Approximately 10% of the selected images were examined by both authors separately to identify the main destination attributes pictured in the photos (Glaser & Strauss, 1967; Neuendorf, 2002). The seminal paper by Echtner and Ritchie’s (1993) and research by Albers and James (1988) provided the theoretical grounding for category formation. In consecutive discussions, 20 categories were developed, that were believed to represent all essential features of the image of Peru, including Nature & Landscape, Traditional Clothing, Festivals & Rituals, and Wild Life (the full list is given in Table 2). All categories were clarified and refined by the authors through a few iterations of comparative coding and finally described in the coding guidebook with pictorial examples. Each photo was regarded as a single unit of content (Krippendorff, 2004; Neuendorf, 2002).

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### 3.3. Construction of “aggregated” image maps of Peru

Each image in the dataset was associated with up to four different categories or destination attributes. Preliminary data scanning showed that the dataset included many somewhat similar images, such as landscapes with archeological ruins or people wearing traditional closing while engaging in everyday activities.

The approach of constructing DMO and Flickr “aggregated” image maps of Peru followed a procedure specified in Li and Stepchenkova (2012). Each destination attribute has a certain probability of appearing in a DMO or Flickr image, calculated as the ratio of the frequency of that attribute and the respective sample size. If any two attributes a1 and a2 are independent of one another, the number of their co-occurrences is a random variable $f_{a1a2}$ that is

### Table 2

<table>
<thead>
<tr>
<th>Categories</th>
<th>DMO (N = 530)</th>
<th>DMO (%)</th>
<th>Flickr (N = 500)</th>
<th>Flickr (%)</th>
<th>Total (%)</th>
<th>Chi-square</th>
<th>p-value $^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature &amp; Landscape</td>
<td>217</td>
<td>40.9</td>
<td>206</td>
<td>41.2</td>
<td>423</td>
<td>41.1</td>
<td></td>
</tr>
<tr>
<td>People</td>
<td>175</td>
<td>33.0</td>
<td>153</td>
<td>30.6</td>
<td>328</td>
<td>31.8</td>
<td></td>
</tr>
<tr>
<td>Archaeological Sites</td>
<td>115</td>
<td>21.7</td>
<td>92</td>
<td>18.4</td>
<td>207</td>
<td>20.1</td>
<td></td>
</tr>
<tr>
<td>Way of Life</td>
<td>62</td>
<td>11.7</td>
<td>106</td>
<td>21.2</td>
<td>168</td>
<td>16.3</td>
<td>17.017</td>
</tr>
<tr>
<td>Traditional Clothing</td>
<td>69</td>
<td>13.0</td>
<td>44</td>
<td>8.8</td>
<td>113</td>
<td>11.0</td>
<td>6.888</td>
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<tr>
<td>Architecture/Buildings</td>
<td>58</td>
<td>10.9</td>
<td>40</td>
<td>8.0</td>
<td>98</td>
<td>9.5</td>
<td></td>
</tr>
<tr>
<td>Outdoor/Adventure</td>
<td>52</td>
<td>9.8</td>
<td>45</td>
<td>9.0</td>
<td>97</td>
<td>9.4</td>
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<tr>
<td>Wild Life</td>
<td>40</td>
<td>7.5</td>
<td>36</td>
<td>7.2</td>
<td>76</td>
<td>7.4</td>
<td></td>
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<tr>
<td>Art Object</td>
<td>36</td>
<td>6.8</td>
<td>18</td>
<td>3.6</td>
<td>54</td>
<td>5.2</td>
<td>5.278</td>
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<td>Tourism Facilities</td>
<td>32</td>
<td>6.0</td>
<td>21</td>
<td>4.2</td>
<td>53</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Urban Landscape</td>
<td>22</td>
<td>4.2</td>
<td>24</td>
<td>4.8</td>
<td>46</td>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>Domesticated Animals</td>
<td>16</td>
<td>3.0</td>
<td>26</td>
<td>5.2</td>
<td>42</td>
<td>4.1</td>
<td>3.129</td>
</tr>
<tr>
<td>Plants</td>
<td>9</td>
<td>1.7</td>
<td>29</td>
<td>5.8</td>
<td>38</td>
<td>3.7</td>
<td>12.153</td>
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<tr>
<td>Festivals &amp; Rituals</td>
<td>30</td>
<td>5.7</td>
<td>6</td>
<td>1.2</td>
<td>36</td>
<td>3.5</td>
<td>15.175</td>
</tr>
<tr>
<td>Leisure Activities</td>
<td>17</td>
<td>3.2</td>
<td>19</td>
<td>3.8</td>
<td>36</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>9</td>
<td>1.7</td>
<td>20</td>
<td>4.0</td>
<td>29</td>
<td>2.8</td>
<td>4.982</td>
</tr>
<tr>
<td>Country Landscape</td>
<td>9</td>
<td>1.7</td>
<td>8</td>
<td>1.6</td>
<td>17</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Transport/Infrastructure</td>
<td>7</td>
<td>1.3</td>
<td>9</td>
<td>1.8</td>
<td>16</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>Tour</td>
<td>14</td>
<td>2.6</td>
<td>2</td>
<td>0.4</td>
<td>16</td>
<td>1.6</td>
<td>8.453</td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
<td>2.6</td>
<td>31</td>
<td>6.2</td>
<td>45</td>
<td>4.4</td>
<td>7.798</td>
</tr>
</tbody>
</table>

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* $^a$ df = 1 in all tests.

* $^b$ Results significant at 0.1 level are shown.

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Table 3 (continued)

<table>
<thead>
<tr>
<th>Category and its share in the Description combined sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art Object (AO) — 5.2</td>
</tr>
<tr>
<td>AO includes folk art, museum art, modern art, or street art, reflecting Peru ancient or modern culture. Close-ups of arts and crafts produced by local people are coded as AO.</td>
</tr>
<tr>
<td>Tourism Facilities (TF) — 5.1</td>
</tr>
<tr>
<td>TF includes eco-lodges, camping, and ski resorts. Images of hotel rooms are coded as TF. Trolley-cars and tour boats at a pier or on the river/lake are coded as TF.</td>
</tr>
</tbody>
</table>

Figure 1. Map of Peru constructed for the DMO sample (A) and Flickr sample (B). The number of actual and expected co-occurrences of AO and TF were significantly different at the 0.05 significance level. The test statistic, z-score, was calculated as the difference between the number of actual and expected co-occurrences of AO and TF divided by the standard deviation of AO. The test statistic was compared to critical z-score from a normal (0, 1) distribution, which, for a non-directional hypothesis at the significance level of 0.05, is 1.96 (Ritchey, 2007). Larger (in absolute value) z-scores would indicate that the independence of the two images is unlikely. Large and positive z-scores indicate a positive statistical association between the two attributes, whereas large (in absolute value) and negative z-scores indicate a negative association, meaning that respondents tend not to include a particular pair of attributes in their photos.

4. Results

4.1. Attribute frequencies: chi-square analysis

The entire dataset was coded by the second author of the paper. Chi-square analysis was conducted to statistically compare the frequencies of the categories for the DMOs and Flickr samples to determine congruity between the projected and perceived images across all categories. For the top three categories, Nature & Landscape, People, and Archaeological Sites, no statistical differences were detected between the DMO and Flickr samples. Statistical differences were found for nine out of 20 categories (see Table 2). Overall, the DMO pictures tended to feature more Traditional Clothing, Festivals & Rituals, Art Objects, and Tour attributes, whereas Flickr users posted more images depicting the Way of Life, Plants, Domesticated Animals, and Food destination attributes. This finding indicates that the travelers are more interested in how Peruvian people live their everyday lives, whereas the DMO focuses on promoting the distinctive Peruvian culture, traditions, and art.

4.2. “Aggregated” image maps: attribute co-occurrences analysis

The “aggregated” map of Peru constructed for the DMO sample is shown in Fig. 1. Only 15 categories with frequencies of 3% or higher (cf. O’Reilly, 1990) are included. The three most frequent destination attributes, Nature & Landscape, People, and Archaeological Sites, are represented by larger shaded bubbles. Other 12 categories are represented by smaller white bubbles. The link between bubbles, if present, is accompanied by two numbers: the number of co-occurrences of the two attributes represented by the bubbles and a respective z-score (explained in Section 3.3). Only links with positive z-scores higher than 1.96, which indicate a positive association between the two attributes, are shown. For
example, the number 26 at the link between Nature & Landscape and Tourism Facilities means that there were 26 photos in the DMO sample that were coded into both of these categories. The expected co-occurrence number is 13 (not shown). The number 3.61 in the parentheses, the z-score, is greater than 1.96, meaning that the actual co-occurrence is statistically larger than the expected one, that is, these two categories had a tendency to appear together in the DMO images. The solid-line links between the bubbles indicate statistically significant co-occurrences of ten or higher. The dashed lines indicate statistically significant co-occurrences with frequencies less than ten. There are no links between the three largest bubbles, meaning that the most frequent images of Nature & Landscape, Archaeological Sites, and People were not positively associated statistically. In fact, there is a negative association (not shown) between the Archaeological Sites and People categories: the actual and expected co-occurrence numbers are 13 and 38, respectively, and the z-score is −4.2. This means that the DMO images contain these two attributes much less frequently than would be expected. Overall, it seems that the DMO map has two clusters of attributes. The first one connects Nature & Landscape with People through the Outdoor/Adventure, Tourism Facilities, and Tour attributes. The second cluster is formed by the People, Traditional Clothing, Way of Life, and Festivals & Rituals attributes.

The “aggregated” Flickr destination image map is somewhat simpler. It depicts the 15 most frequent destination attributes of Peru with frequencies of 3% and above (the category Other (6%) is not included). The three most frequent attributes are Nature & Landscape, Archaeological Sites, and People. The actual and expected co-occurrence numbers are 13 and 38, respectively, and the z-score is −4.2. This means that the DMO images contain these two attributes much less frequently than would be expected. Overall, it seems that the DMO map has two clusters of attributes. The first one connects Nature & Landscape with People through the Outdoor/Adventure, Tourism Facilities, and Tour attributes. The second cluster is formed by the People, Traditional Clothing, Way of Life, and Festivals & Rituals attributes.

4.3. Geo-maps: representation of Peru regions

Geographical distribution maps of the DMO and Flickr photos were constructed using ARC GIS software. Although all DMO photos were associated with a particular region, only 398 images in the Flickr sample specified the location where the photo was taken by means of an attached tag, picture title or short commentary. The authors used these descriptions as well as their own familiarity with the country (the first author had been to Peru) to assign locations to some of the Flickr images. The final geo-maps (Fig. 3) used 100% of the DMO images and 84.6% (423 photos) of the Flickr images.

In the DMO sample photos were distributed somewhat evenly between 24 regions of Peru. Each region had from 1% to 8% of all photos with an average of 3%, with the exception of Cusco (13%). In the Flickr sample, the provinces of Cusco (52%), Arequipa (13%), Puno (10%), Lima (9%), and Ica (8%) were the most popular. These provinces comprise the so-called Gringo Trail (http://adventures.
worldnomads.com/destination/168/itinerary/23.aspx), the route through Peru that is popular with American tourists. The route includes the following attractions and places of interest: (1) Lima – the city, coast; (2) Ica – Paracas wildlife reserve, Nazca lines; (3) Arequipa – Santa Catalina monastery, Colca canyon; (4) Puno – Lake Titicaca, Uros, and Taquile islands; and (5) Cusco – the city, Sacred Valley, and Machu Picchu.

5. Discussion

5.1. DMO and user-generated photography

The projected and perceived images of Peru were analyzed using content analysis as the main technique, followed with statistical comparisons of the obtained frequency data: chi-square
tests of Peru destination attributes that appeared on the photos and co-occurrences analysis on these attributes. Using the frequency counts of attribute co-occurrences, the authors summarized the DMO and Flickr photographs as “aggregated” maps and also constructed maps showing geographical distribution of images for each sample. These quantitative analyses were supplemented by elements of semiotic analysis when the researchers identified “iconic” images of Peru. The notion of “iconic” is understood here as being widely recognized and reproduced across a range of media (cf. Hariman & Lucaites, 2008). The following discussion of the study results, which attempts to answer the question whether the projected and perceived images of Peru differ or converge in the same hermeneutic circle of destination representation, uses the postcolonial theory (Said, 1978) and the theory of tourist motivation (Gray, 1970) as reference points. The discussion is focused on (1) the most frequent destination attributes of Peru identified in this study; (2) attributes where significant differences were found; and (3) the images of those Peru regions that were the most heavily represented in the photos, namely, Lima, Ica, Arequipa, Puno, and Cusco.

By the combined DMO and Flickr count, three most frequent attributes of the Peruvian image were Nature & Landscape, People, and Archaeological Sites. There were no statistical differences between the DMO and Flickr samples with respect to frequencies of these three attributes (Table 2). However, the maps (Figs. 1 and 2) indicate that travelers do tend to picture archaeological sites as part of the Peruvian natural landscape. The iconic image of Machu Picchu (Cusco region) — the sweeping vistas of archaeological ruins in a mountainous landscape — was repeatedly “produced, projected, perceived, propagated and perpetuated” (Jenkins, 2003: 324) in both DMO (38 photos) and Flickr (43 photos) samples. In several cases, even the angle from which the complex was photographed was the same (Exhibit 1a and b). Interestingly, images of the Nazca lines (Ica region), which are heavily promoted by the DMO, made a distinctive group in both samples but lacked the exactness of reproduction on the Flickr side. The authors would speculate that the reasons include the enormous size of the Nazca lines, the need of special equipment to capture them on a photograph, and lack of observation towers in the area. While there are tours that offer a plane ride over the Nazca lines, such tours are expensive. Nevertheless, due to their distinctive shapes and colors, collectively, the Nazca lines can be considered the iconic images of Peru.

Images of Machu Picchu, the Inca Trail (also present in both samples with obvious similarities in content and composition), and the Nazca lines appeal to tourist desire of ‘wanderlust,’ which was defined by Gray (1970: 93–94) as “the desire to exchange the known for the unknown, to leave things familiar and to go to see different places, people, and cultures or relics of the past in places famous for monuments… and contributions to society.” These images also evoke the notion of unchanged (Echtner & Prasad, 2003); however, ancient ruins are balanced in both samples by the photos of more modern buildings and architecture, transportation and infrastructure, tourism facilities, etc. As follows from the frequency analysis of relevant categories (Table 2), the DMO and Flickr users perceive the country’s place along the “modern/ancient” dimension somewhat similarly.

The category frequency counts (Table 2) point out that in the Flickr photos, the Way of Life, Domesticated Animals, Food, and Plants destination attributes are overrepresented, whereas the Traditional Closing, Festivals & Rituals, Art Object, and Tour attributes are underrepresented, compared to the respective categories in the DMO sample. This finding indicates that travelers are more interested in how Peruvian people live their everyday lives (Fig. 2), whereas the DMO focuses on promoting the distinctive Peruvian culture, traditions, and art (Fig. 1). A closer look at the DMO photos coded into the People, Way of Life and Traditional Clothing categories, that make a distinctive triangle on both maps, often reveal “picture perfect” local people clad in clean bright clothes or people doing traditional crafts in a scenic landscape. Flickr users, on the other hand, are less concerned with perfection, their images are more down-to-earth and realistic; they often feature Peruvian people in contemporary dress and in everyday life situations and surroundings.

Markwick (2001) points to the tourist’s desire to experience a commonplace, everyday, and authentic life of the local people. These experiences can be “front stage”, i.e., highly visible, taking place primarily in the public areas, and “back stage”, i.e., confined to the private spaces. Since travelers, in general, do not belong to the “social fabric” of the host community, their experiences with authentic are primarily “front stage.” A good example of the “front stage” treatment is DMO’s photos that picture tourists and local hosts doing farm work, milking a cow, or trekking with llamas on the Inca trail (Exhibit 2a). These images intend to give visitors a glimpse in the everyday life of Peruvian people and demonstrate the role of traditional animals like llama in Peruvian culture. (On a side note, in the Flickr sample, llama and alpaca are more likely to be photographed solely, as symbols of Peru and destination image icons.) The desire for authentic, “back stage” perspective of the host community in the Flickr sample become apparent through the images of closed doors of Peruvian homes, people sitting next to their houses with the doors open, and even people inside their houses. Exhibit 2b presents an Uro woman cooking in her own home on Uros islands. Uros is a group of floating islands on Lake Titicaca (Puno region) made of dried totora reeds that can be reached by a 20-min boat ride from Puno. Colorful images of the islands in the morning sun, when the first boats arrive to Uros, local people in very distinctive dress are an iconic theme with similarities in both samples. It is interesting to observe how “back stage”
experiences become “front stage” when Uru people demonstrate to tourists how the islands are made and let them have a peek inside their houses.

Despite the obvious interest of the travelers in the everyday activities of Peruvian people, there were few photographs in the Flickr sample that depicted both tourists and locals in the process of meaningful interaction, for example, on the market, in the streets, at a festival, or on a farm. The maintained distance on the part of the travelers was suggestive of the Western tourist viewing the “other” as different and alien. Pictures that captured poor living conditions of the local people reinforced the “under-developed” aspect of the destination. However, no binary master/servant was evoked in the pictures, nor any photograph in the data depicted local people in sexually suggestive poses and roles, a finding that runs contrary to what has been reported in research on the Third World destinations.

The “sunlust” aspect of tourist motivation is typically associated with mass tourism and all-inclusive “sun and sea” vacation; it is focused on the “body” and often interpreted as the desire to escape to the tropical paradise and rejuvenate the self. While Peru does make one of the best surfing spots near Lima, its shoreline is not particularly welcoming for bathing. Therefore, the bodily dimension of “sunlust” is transformed as a search for outdoor activities and adventure: hiking, trekking, biking, mountaineering, rafting, windsurfing, and eco-tourism. As Outdoor/Adventure, Leisure Activities, or Tourism Facilities attributes associated with the “sunlust” dimension of the image are concerned, no differences between the samples were found.

There are large disparities in the numbers of DMO and Flickr photos coded into the Festivals & Rituals category, with 30 (5.7%) and six (1.2%), respectively. The official travel website of Peru promotes 140 annual festivals in various regions of the country. The timeframe of many festivals is short, often a day or two. During the peak season of May to July (~50% of all photos on Flickr), only 40 festivals (29%) around the country are scheduled. Of these 40, only 15 are held in the provinces comprising the Gringo Trail. Thus, disparities between the two samples in the number of photos in the Festivals & Rituals category point to a “scheduling issue”: tourists’ chances of attending a festival or carnivals during a trip to Peru are not very high, unless their primary goal is to attend festivals. In terms of promotion of this colorful Peruvian tradition, the DMO should consider focusing on one or two festivals in the Arequipa, Puno, or Cusco regions during the shoulder or off-peak seasons.

Peru is a country that is famed for being home to a diversity of animals and plants. Photos of birds on ocean cliffs in the Paracas reserve (Ica region) or condors in the Colca canyon (Arequipa region) are very recognizable images in both samples and can be termed iconic. Although the frequency of the Plants category was significantly higher in the Flickr sample (6.6%) than in the DMO sample (1.7%), overall, the total counts were relatively low, with no iconic images. There is also a distinctive group of Flickr photographs capturing nicely prepared restaurant food (e.g., ceviche) and plentiful of fruit and vegetables on the street markets; however, the food aspect of the destination is not fully developed in the DMO sample. Finally, the DMO and Flickr photographs also differed significantly in the Other category: the lower counts in the DMO sample indicate that the DMO photos are more structured and planned, whereas the Flickr photos experience a larger amount of “noise” (i.e., irrelevant material). This finding was somewhat expected.

5.2. Methodological issues and further research

From a methodological perspective, this exploratory study examines the feasibility of deriving “aggregated” destination images from pictorial content on the web. The proposed approach of constructing maps of large pools of visual data allows comparisons of the destination’s projected and perceived images. The approach makes it possible to identify “common” or “typical” visual images by placing the most frequent destination attributes and significant links between them on the map. For example, a “typical” DMO image of Peru would be one that pictured people in traditional or festive costumes participating in a festival (Fig. 1). To the authors’ best knowledge, this is the first study to apply a methodology of mapping pictorial data in destination image research.

The results in this study were obtained using quantitatively oriented content analysis as an analytical tool. Studies on photo elicitation showed that interpretations of image producers and receivers are often different and that the intent of the producers of images cannot be reliably gauged (MacKay & Couldwell, 2004). Quantitative content analysis, which treats a photograph as a metonym rather than a metaphor, circumvents this issue and derives as much meaning from the photos as can be reliably obtained through the category coding and follow-up statistical procedures. As Pullman and Robson (2007) pointed out, analytically, photographs are analogous to verbal content. Therefore, three “rules” for developing categories apply: categories should be (1) exhaustive; (2) exclusive (i.e., they should not overlap); and (3) analytically interesting. Rule (2) is not mandatory, but if it is not met, it may complicate the statistical analysis (Weber, 1990). For the
purposes of this research, the authors consider a picture a unit of content that can have several prominent features. The authors were most interested in the “overlap” of these features because this overlap allowed the authors to calculate the co-occurrences of these features and to construct “aggregated” destination images. Thus, each picture was treated as a survey respondent who provides up to four answers about destination’s most prominent features, for example, Nature & Landscape; Archaeological Site, People, Traditional Clothing. A large enough number of co-occurrences of two particular attributes allow a conclusion of their statistical connection in the photos. With respect to rule (1), the relatively small number of images that were classified into the Other category indicates that the coding scheme was indeed exhaustive. With respect to rule (3), the developed categories allow the interpretation of the photos along the dimensions identified by the relevant theories.

This research used a relatively large sample size for the study of visuals (cf. Garrod, 2009; Jenkins, 2003; Jutla, 2000): 530 DMO images and 500 Flickr images. For instance, Garrod’s (2009) study used a sample of 164 photographs and an unspecified but “comparable” number of postcards. Jenkins (2003) used 17 travel brochures with an unspecified number of photos. In this research, the authors required a larger sample size to reliably estimate the probabilities of various destination features appearing in the images. Li and Stepchenkova (2012), who constructed perceptual maps of images of the U.S. as perceived by Chinese travelers, used a sample size of 1600 but with the verbal data. When deciding on a sample size in content analysis, there is always a trade-off between accurate and reliable frequency data for statistical analysis and the manpower needed to complete the study. In this study, however, once the categories had been developed and tested (a lengthy procedure indeed), the coding itself was speedy and relatively simple.

The researchers also note that the DMO image pool is a “census” of all photographs from the photo gallery page on the DMO website, whereas the Flickr pool of images is a sample. The authors took great care to randomize the sample (see Section 3.1) to obtain an image pool that was representative of all photos on the Flickr site. In retrospect, this study could have adopted a modified approach, similar to the one described by Tussydjah and Fesenmaier (2009): these researchers selected only those YouTube videos about New York City that had received at least one comment from viewers. The adoption of a similar requirement for the Flickr photos might have resulted in a sample with stronger persuasive power. For future research a data collection procedure that combines both randomization and commentary features should be seriously considered. Another direction of future research is the construction of “aggregated” destination image maps as perceived by travelers from countries with different “cultural proximity” to a destination (Kastenholz, 2010; MacKay & Fesenmaier, 2000). Various degrees of cultural distance can be ensured by using profiles of UGC users that indicate the country of residence. Knowledge of the relationship between visitors’ cultural backgrounds and their perceptions of a destination will help destination DMOs to more effectively market their tourism offers in culturally different target markets.

6. Conclusion

This empirical study has methodological, theoretical, and practical implications. Due to an increasing relevance of visual communication and a growing number of visualizations in online media, quantitative generalization about these visuals is an important methodological question. This study conducted a comparative analysis of DMO and Flickr images of Peru to assess the level of congruity between the projected and perceived images of this destination. The study found a number of similarities and differences in representation of the destination, thus, lending partial support to Urry’s (1990) theory of hermeneutic circle of destination representation. Some of the binaries of the postcolonial discourse were detected, pointing out to the cultural distance still existing between Western tourists and the destination. Overall, the DMO side tends to present a well-rounded image of Peru by giving “voice” to all of the country’s regions and focuses on the natural beauty of the country, its archaeological heritage, customs, traditions, and art. While on the Flickr side all of these themes are present, the UGC photography also reflects tourists’ strong interest in how Peruvian people live their lives and their everyday activities. To answer this call, DMO may consider expanding on existing ethnographical attractions or engaging in new ones, especially in the regions with the heaviest visitation volumes. Currently, Peru provinces of Cusco, Arequipa, Puno, Lima, and Ica are more heavily presented by UGC exemplified by Flickr photographs and may contribute disproportionately in shaping the overall destination image of Peru.

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References


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