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Philipp Wegerer
MCI-Management Center Innsbruck

Serena Volo
Free University of Bozen

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Visual Content Analysis of Instagram posts: The case of an Alpine destination

Philipp K. Wegerer¹ and Serena Volo²

¹MCI Tourism, Management Center Innsbruck, Austria.

²Faculty of Economics and Management, Free University of Bozen, Italy

Abstract: Image sharing on social media platforms offers freely available datasets for researchers to explore the role of user-generated visuals for value creation in tourism. Within this research it became apparent, that social media limit the DMOs ability to create and maintain a desired destination image. In this changing landscape, adequate methods are required to fully harvest the potential of visuals and to systematically analyze the compositional value and the associated meanings of images. This research explores selected images posted on Instagram with reference to the Alpine destination of Tyrol in order to analyze the congruity between user generated and DMO generated visuals. To reach this aim, the methodological principles outlined in the visual methods related literature are applied. The results are particularly relevant to advance visual research in tourism and to provide stakeholders with a more holistic understanding of their destination image identity.

Keywords: Instagram, DMOs, photos, images.

Introduction

The ubiquity of social media represents a contemporary trend in travel and tourism practice, and it is also a stimulating field for scholars interested in exploring visual methods. Indeed, image sharing on social media platforms generates huge datasets freely available for researchers to explore. Recent investigations outline the role of online photography for value creation in tourism (e.g.: Conti & Lexhagen, 2020) and the importance of user-generated visuals on destination image (e.g.: Acuti et al. 2018). In tourism research, recent studies use Instagram to collect visuals and explore a variety of issues. For example, metadata associated to Instagram photos have been used to track tourists' movements (Ma, Kirilenko & Stepchenkova, 2020); the role of Instagram influencers has been explored with reference to their growing marketing relevance (Yilmaz et al. 2020); and the effect of chroma, lightness and hue has been investigated to verify their effect on Instagram post popularity (Yu, Xie & Wen, 2020). Yet, the images themselves, with their compositional value and the associated meanings, have not been at the core of current studies. Adequate methods are required to harvest the potential of visual social media and to systematically analyze images (Volo & Irimias, 2020).

This research sets out to explore selected images posted on Instagram with reference to the Alpine destination of Tyrol to verify the congruity between user generated and DMO generated visuals. To reach this aim, the methodological principles outlined in the visual methods related literature are applied (Rose, 2012; Rakić & Chambers, 2012; Pink, 2013). The setting of the study was selected considering the relevance of the destination Tyrol in the alpine tourism market, the existence of an official destination management organization and the authors' familiarity with the destination. The results of this exploratory study are particularly relevant to advance visual

research in tourism and to provide stakeholders with a more holistic understanding of their destination image identity.

Literature Review

Social media has transformed the communication landscape becoming a major source of information for image dissemination for both tourists and destinations (Xiang, and Gretzel, 2010). Thus, destinations must identify appropriate analytics to better manage the knowledge that big data availability offers (Centobelli & Ndou, 2019; Volo, 2019). Empirical studies point out that social media activity of DMOs can positively influence destination image formation processes (Acuti et al. 2018; Sung-Eun et al. 2017) and increase the intention to visit (Neuhofer, et al. 2012). Within this research it became apparent, that social media limit the DMOs ability to create and maintain a desired destination image. The incongruences of destination images between induced, autonomous, and organic sources are also noticed (Mak, 2017; Irimiás & Volo, 2018; Marine-Roig & Ferrer-Rosell, 2018; Paül i Agustí, 2018; Ferrer-Rosell & Marine-Roig, 2020). Undeniably, destination image is a complex multifaceted construct not univocally seen by different destination stakeholders. Indeed, a growing number of studies contribute to a new destination image paradigm in which destination images must be understood as an amalgam of multiple actors and their uncoordinated posting activities (e.g. Nyangwe & Buhalis, 2018; Iglesias-Sanchez et al., 2020, Acuti et al., 2018).

To better grasp the contribution of social media to destination image, several recent studies propose novel perspectives using different data sources and methods, including big data analytics on online travel reviews and analysis of user-generated photography (Stepchenkova & Zhan, 2013; Marine-Roig, 2019). Recent research also includes Instagram with scholars focusing on understanding the role of Instagram in the destination image formation process. Studies have investigated different actors' role, such as tourists (Paül i Agustí, 2018), influencers (Yilamz et al. 2020), residents (Uchinaka et al. 2019) and other stakeholders. Methods vary from more quantitative analysis (Ma, Kirilenko & Stepchenkova, 2020; Yu, Xie & Wen, 2020) to qualitative based on visual interpretations and assessments (Conti & Lexhagen, 2020; Iglesias-Sánchez et al., 2020). Indeed, Volo and Irimias (2020) point out that Instagram offers research opportunities for both positivists and constructivists, and Conti & Lexhagen (2020) confirm the importance of adopting interpretive methodologies in studying Instagram photos.

Methodology

This study develops a visual content analysis on the destination Tyrol using an established, rigorous and explicit methodological approach (Rose, 2012). The primary analytical aim was to compare the destination images created on the official DMO account on Instagram, with the destination image created by stakeholders (residents, tourists, private tourism businesses). Data includes images from the official Tyrol DMO account (@Tirol) and from the Instagram hashtag (#Tirol) over four months covering the period November 2019 to February 2020, and in this case voluntarily excluding the Covid-19 lockdown pictures. The dataset was obtained crawling publicly available posts on Instagram using the software PPT and building specific queries related to the data needed for this study. The collected data consisted of link URL and date. Initial pre-processing consisted of assigning identification codes and basic data cleaning and organizing. Videos were excluded from the scope of this research and thus removed from the dataset. With respect to posts with multiple pictures only the first picture was included in the dataset. The total dataset consisted

of two sets of pictures, one from the official account and one from the hashtag. In total, the official DMO account @visitttyrol consisted only of 443 posts in the timeframe considered. Whereas the dataset had 134,310 posts associated with the hashtag #Tirol. The sampling process is in line with past research employing visual content analysis for Instagram posts (Smith et al., 2012; Rokka & Canniford, 2016). Both samples were screened for unrelated postings, missing or broken links and these posts were excluded from the analysis. As an analysis of the entire data set was not possible, a random sampling procedure was developed and applied to both sub-sets of data (@Tirol and #Tirol). The data sub-sets obtained were checked for plausibility and verified in terms of the distribution for the timeframe considered.

Coding categories were developed according to past research (Rokka and Canniford, 2016), researchers' knowledge of the destination, and through an open coding process of the first ten images. A number of additional coding categories emerged in the course of the analytical process. These categories were subsequently added to the coding procedure. Table 2 summarizes the coding categories used in this study.

Table 1. Coding of visual posts

Elements	Categories and subcategories
<i>Material</i>	Attractions: <i>mountain, snow, nature, food</i> Humans: <i>human presence, faces, smiles and number of humans</i> Winter Sports: <i>ski infrastructure, skiing Tyrolian huts, ski slopes</i> Weather: <i>sunny, cloudy, other skies</i> Location: <i>on the mountain, in valley, indoor, outdoor, city</i>
<i>Expressive</i>	Bodily expressions: <i>romantic, happiness,</i> Intangible heritage: <i>festivals, heritage events, carnival, traditions,</i> Partying: <i>celebration, friendship, family</i> Relaxation: <i>wellness activities, outdoor relaxation spaces and relaxing opportunities</i>
<i>General feeling</i>	Romantic nature Powerful nature Solitude
<i>Genre</i>	Postcard-like Artisan/Photographic style Selfies/Portraits/Close-up

A total of 100 posts in the sample (50 posts for #tyrol and 50 posts for @visitttyrol) were then analyzed according to the presence or absence of the elements and intercoder reliability was verified. The frequency of the material and expressive elements in the visuals served as the basis for the interpretation process of the visual data. In this final step of analysis, data was approached in an iterative process of moving back and forth between theory and data, looking for communalities and differences between the visual elements.

Results

The extensive analytical interpretation process led to the following results.

Material elements

The analysis revealed that *mountains* is a dominant visual element found in about two-thirds of the images (@visittyrol 33 and #tirol 39). The category *snow* revealed a similar pattern (@visittyrol 32 and #tirol 41), so did the third visual element *nature* (@visittyrol 19 and #tirol 35). As expected, the alpine landscape is depicted through the visual elements of snow, mountains, peaks and a relatively untouched landscape. A first difference emerged in the representation of the material element *food* (@visittyrol 1 and #tirol 13). This stark difference shows that food, dining activities and practices are not associated with the destination Tyrol in the analyzed Instagram posts.

The content analysis revealed a nearly even distribution of *humans* (@visittyrol 19 and #tirol 26). However, the way humans are typically represented differed significantly. A detailed look into the data revealed that the DMO typically portraits humans from the back, not easily visible and rarely showing their faces. In contrast, the hashtag contained more faces some of which were smiling, and in most cases the person was the central subject of the image.

The third material category was winter sports which is one of the most relevant attractions of Tyrol hosts a number of high-profile winter sport resorts. The findings show that *ski infrastructure* was underrepresented in both data sets (@visittyrol 3 and #tirol5), but nearly half of all images were coded *skiing* (@visittyrol 23 and #tirol 22). Interestingly, the DMO posted the typical *Tyrolian huts* quite often (@visittyrol 13 and #tirol 5) and underrepresented *ski slopes* (@visittyrol 4 and #tirol 17).

The analysis of posts with respect to *weather* revealed a variety of winter skies. Concerning the location, two-thirds of the images (@visittyrol 35 and #tirol 33) were taken *on the mountains* and consequently the majority of the pictures were taken *outdoors* (@visittyrol 39 and #tirol 49), whereas pictures taken in, or representing, cities or villages were a minority (@visittyrol 5 and #tirol 3).

Expressive elements

The first expressive element was *romantic*, no traces of romantic were found. The element of *happiness* was identified mostly in the users' posts (@visittyrol 5 and #tirol 15). The pictures showed few instances of *intangible heritage* (@visittyrol 5 and #tirol 2). Similarly, images showing *celebration* (such as party or après-ski), *friendship* or *family* were more or less absent in the data. The *relaxation* element was present in both (@visittyrol 20 and #tirol 8), the DMOs presented mostly wellness activities, outdoor relaxation spaces and relaxing opportunities during or after mainly outdoor activities.

General feeling emerging from the photo

Images categorized as *romantic nature* appeared almost equally in the two sources (@visittyrol 26 and #tirol 31) showing untouched alpine peaks, snowy winter landscapes, still lakes nestled between mountains, in-short various expressions of the romantic idyllic image of the Tyrolean Alps. The analysis also showed the presence of the second element of nature, *powerful nature* (@visittyrol 19 and #tirol 11), this comprised images of dramatic scenes with wind, snow or clouds, dramatic perspectives, dramatic peak or rock formations. A third category that is tightly linked to

the powerful representation of nature is *solitude*, represented with a very high number of images (@visittyrol 37 and #tirol 30). Solitude was especially present for the DMO images. Solitude represented images in which no humans, no human object or influences, were visible. Images in this category include sunsets in the middle of winter peaks, lonely, deep snowy forests, but also empty restaurants, ski-slopes with only one person, slopes only one ski track, a lake without waves and only one boat visible.

Genre of the photo

The *postcards* genre was identified in many posts (@visittyrol 33 and #tirol 20). The presence of the second genre *artisan* (@visittyrol 23 and #tirol 21) showed high image compositional quality, whereas limited was the presence of *selfies*.

Conclusion and Discussion

The role of Instagram in creating and promoting a destination brand has been recently acknowledged and the active role of the multiplicity of users recognized (e.g.: Conti & Lexhagen, 2020; Iglesias-Sanchez et. al, 2020; Volo & Irimias, 2020). This study contributes to this line of research by comparing Instagram user and DMO generated visuals of Tyrol. The systematic visual analysis of posts allows stakeholders to gain a more holistic understanding of: (a) the destination image identity portrayed, and (b) the different layers of users' contribution to its image creation. Additionally, from a methodological perspective this research offers structured outline and an open-coding process useful to visually analyze the content of vast set of images.

The overall findings show a moderate degree of congruity between user and DMO generated visuals. Following established visual research approaches, a clear focus on the images allows to isolate crucial elements present in visuals. The comparison between the material and expressive elements allows to better identify similarities and differences. In the case of Tyrol, two elements seem to distinguish users and DMOs visuals: *humans* and the relative features or actions portrayed and *food* with its contextual presence. On other elements, the results highlight the congruity of the visuals, showing the relevance of the destination's attractions: *mountains*, *snow* and *nature*. The assessment of the generic feeling and the genre shows that DMOs approach Instagram posting in a more detached way but yet have distanced themselves from portraying perfect landscape or post-card like images, thus getting closer to a more spontaneous user perspective. This study advances visual research in the field of tourism and it encourages further investigations of the representation of nature for tourism destination marketing purposes.

Given the exploratory nature of this study, no interpretation can be given to the effects of the visuals on users. Indeed, the reactions to the content, genre and emotions induced by posts ought to be investigated in future research. Finally, different destinations on the Alpine region should be investigated to strengthen the coding and to verify the plausibility of these results.

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