

RESEARCH ARTICLE



Nature on screen: The implications of visual media for human–nature relationships

The Instagrammable outdoors – Investigating the sharing of nature experiences through visual social media

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Handling Editor: Jamie Lorimer**Abstract**

1. Despite the growing popularity of Instagram as a medium to portray nature and the outdoors, there remains limited research available exploring its influence on people's experiences in nature. We investigate Instagram as a three-way negotiation between users, the platform's affordances and social norms associated with both Instagram use and outdoor experiences.
2. Moving beyond polarized, conceptual debates situating social media affordances within dystopias and utopias, we provide empirical insight from the lived experiences of everyday Instagram users reflecting upon their mediated outdoor activities.
3. We found that participants shared special moments, beautiful landscapes and happy memories while they struggled with notions of authenticity associated with these experiences. They perceived certain scenes as more 'Instagrammable' than others, and this led to sharing homogenous stories and visual representations of the outdoors.
4. At the same time, participants actively reflected on this standardization and aestheticization of the landscape and their experiences, and highlighted strategies to counter this, such as actively following voices normally under-represented in media portraying outdoor activities or posting pictures that were not 'polished'.
5. We conclude that to understand modern-day interactions with nature and move beyond purely theoretical discussions about the flaws or merits of social media, we need to look at users' own strategies that integrate visual social media into their outdoor activities, while taking into account how platform features and social norms contribute to the construction of these activities.

KEYWORDS

environmental communication, Instagram, mobile media technology, nature experience, outdoor recreation, photography, social media, sociomateriality

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1 | INTRODUCTION

Everyday life has become intertwined with mobile media technology (Castells, 2010). Smartphones and social media have created the opportunity to record and share many of our pursuits. Outdoor leisure is no exception as people plan, track, capture and share their activities in the outdoors via apps and social media (Carter et al., 2018; Shultis, 2012). However, the outdoors is also often seen as one of the few spaces where we can disconnect from the busyness of life and the technologies that come with it (Brown, 2015; Edensor, 2000; Michael, 2009). This has led to discussions in the media, in academia and in user communities on the influence of new technologies on our outdoor experiences (Arts et al., 2015; Shultis, 2012), with research into the lived experiences of users pointing to a complex interlacing of mobile media technologies and outdoor activities (Arts et al., 2021; Conti & Heldt Cassel, 2020; Gray et al., 2018; Shultis, 2015).

Media, and especially visual media, have for long time played a role in the social construction of outdoor experiences (Urry & Larsen, 2011), with landscape painting and nature photography influencing how we construct the outdoor landscape. In Western cultures, (natural) landscapes developed from mere background to a central theme in paintings from the 14th century onwards (Lemaire, 2007). An important influence on our present-day landscape imagery is the 19th century landscape artists who often portrayed landscapes as a rural idyll or the sublime, placing 'man' as a lone observer watching over the landscape (Smith, 2019). In the 20th century, both photography and leisure travel became more commonplace (Urry & Larsen, 2011) and visual representation became an increasingly important experiential realm, with media technology offering a way to capture the experience. Visual media have helped shape ideas on conservation and wildness, yet at the same time present themselves as allowing an unedited, direct view of nature (Adams, 2019; Bousé, 2000; Büscher, 2016). Adams (2005) suggests that most of our contact with nature is mediated, carrying ideologies on what nature is or should be. And while applications of technologies in the forms of games, text messaging or even GPS may be eyed with suspicion in outdoor leisure, photography has established itself as a culturally acceptable way of using technology in the outdoors (Bolliger et al., 2020).

Smartphones have widened the opportunities for photo taking and sharing, enabled by social network platforms, particularly Instagram which is focused on sharing pictures and videos. Poulsen (2018) points out that Instagram has made tools, knowledge and skills that were previously linked to professional photographers available to a wider public. This has influenced the visualization of the everyday, where images of leisure activities and personal experiences have become aestheticized through professional editing tools (Ibrahim, 2015). The popularity of visual social media platforms—evidenced by Instagram's one billion plus users active at least once a month, and its 500 million daily users (Dean, 2021; Instagram, 2020)—illustrates the importance of visual representation as images become '*an integral part of our identity construction, communication and sustenance of relationships today*' (Ibrahim, 2015, p. 43). A key difference between current social media platforms and previous mass media images of the outdoors is that social

media offer the opportunity for everyone to construct and tell their own outdoor story, increasing possibilities for diverse representations (Conti & Heldt Cassel, 2020; Gray et al., 2018). However, by the same token, social media can also reproduce pre-existing media images and representations of the outdoors (Büscher, 2013; Smith, 2019), reinforcing stereotypes and reducing and constraining diversity.

Taking the increased opportunities to communicate to a large audience as well as the influence of visual media on the social construction of the outdoors into account, we contend that visual media platforms such as Instagram will strongly impact on how we interact with the outdoors. However, research into these interactions is still developing and has mainly focused on popular accounts and hashtags (e.g. Gray et al., 2018; Smith, 2019), while the lived experience of the everyday user posting about their outdoor activities on Instagram has remained underexplored. Yet, with more than 500 million people using Instagram daily to communicate about their lives, it is within these interactions between everyday user and platform that we can find a greater understanding in both how the outdoors is experienced and how social media may influence this. In this study, we therefore investigate the interactions between Instagram users and the platform's features and how these interactions influence the users' own outdoor experiences.

2 | THEORETICAL CONTEXT

2.1 | Instagram-user interactions

Mobile media technologies blur the lines between virtual and physical spaces with which we interact (de Souza e Silva & Sutko, 2011) and create an augmented space where interactions online can influence actions offline and vice versa (Stinson, 2017). To understand how these spaces interlace, we take the concept of sociomateriality as our starting point. This concept, developed by Orlikowski and Scott (2008), is used both in organizational studies and information systems literature, to draw attention to the dynamic relationship between humans and technology and views both technology and user as active participants, mutually shaping each other and together driving action and experiences (Cecez-Kecmanovic et al., 2014; Jarzabkowski & Pinch, 2013).

To study sociomaterial entanglements, we have to take into account the technology, the user and the situated context in which those two come together (Bloomfield et al., 2010; Jarzabkowski & Pinch, 2013). Untangling the mutual shaping character of social media and its users requires an understanding of the actions a platform enables and constrains, how users creatively make use of these and what social obligations and assumptions play a part.

2.1.1 | Instagram's affordances

Based on Latour's idea that technologies carry 'scripts' (Latour, 1992), Verbeek (2005, p. 171) describes how technologies as

artefacts *'invite particular actions while discouraging others or even rendering them impossible'*. By design, technologies are 'inscribed' with particular purposes or affordances. This means that they interact with the user to enable particular actions while constraining others. Boyd (2011, p. 45) argues that social network technologies (including social media platforms) *'introduce new affordances for amplifying, recording and spreading information and social acts'*. Treem and Leonardi (2012) emphasize that offering visibility is key to social media, making our communications, connections, knowledge, behaviour and preferences accessible online. Boyd (2011) unpacks this visibility further by identifying four affordances that play a role: persistence (of online expressions, all our utterances becoming archived); replicability (of content, which can be copied, edited and (re)shared); scalability (potential of widespread visibility of content); and searchability (content can be accessed through search). These affordances can be studied by looking at concrete features and their interaction with user practices, but they also reveal insights into social dynamics and power structures on a more abstract level (Bucher & Helmond, 2018).

Considering Instagram's features, Smith (2019) points out that the 'like' button affords users' reactions to posts, which 'fosters a dense web of connectivity' that in turn can create a sense of shared experience, as a user can see what their friends have liked. Moreover, these 'likes' also serve as a proxy for which posts are successful on Instagram. Helped by the scalability of the platform, certain posts will reach many users and may therefore influence how phenomena are being represented (Smith, 2019). Such affordances can be intentionally shaped by a platform's producers. Social media companies build on a rationality of commercialization (Büscher, 2016; Zuboff, 2019). Both social media companies and users with a large following (so-called influencers) are able to generate income from the widespread use of social media platforms through the commodification of their experience and the objects they refer to. This might incentivize users to share content they know will be successful in order to generate 'likes' (Smith, 2019). The scripts of social media platforms thus influence and alter information sharing processes and content, and thereby social representations, relationships as well as power structures and participation (Treem & Leonardi, 2012). While this might open opportunities for self-presentation, advocacy and increased social connections (Conti & Heldt Cassel, 2020; Gray et al., 2018; Murthy, 2012), it also means that certain voices can become disproportionately strong, and that the authenticity of stories can become disputed (boyd, 2011; Haider, 2016; Smith, 2019). What is afforded and how affordances are realized is a dynamic process, arising from user's interactions with the technology in their specific context, which determines how social media features are used in practice (Rietveld & Kiverstein, 2014).

2.1.2 | Users' motivations and self-presentation

Humans are creative in their use of technologies, making the interaction between technology and user context specific, temporary and

fragile (Bloomfield et al., 2010). How social media are integrated into someone's life depends, for example, on their motivations to use a platform. Various motivations have been attributed to Instagram use, including self-promotion, surveillance, documentation of life events, passing the time, entertainment and social interaction (Alhabash & Ma, 2017; Sheldon & Bryant, 2016). Users with different motivations will make use of affordances such as visibility, replicability and searchability in diverse ways. Studies on user interactions with social media platforms often build upon Goffman's (1959) idea of self-presentation, understanding the motivation to become involved in a platform as a desire to express one's identity (Aguirre & Davies, 2015; Gray et al., 2018; Schwartz & Halegoua, 2015). Social media create a co-presence of user and audience, which leads people to want to 'project a self' of who the user is as a person (Aguirre & Davies, 2015). Goffman's theory makes a distinction between a frontstage, where people manage a public performance, and a backstage, which involves more private interactions and is less orchestrated. The accessibility of the platform, which can be used at any time and any place, offers opportunities to not only present a frontstage image, but also to show the backstage of one's life. Yet, as the platform also affords persistence and scalability, rendering posts potentially accessible to everyone, forever, these presentations will most likely still be a curated view of the backstage (Murthy, 2012). This makes creating a post a cognitive process, influenced by collective ideas and social norms on both outdoor activities and social media, in which users actively negotiate their own goals, motivations and their beliefs on what the audience expects (Gray et al., 2018).

2.1.3 | Social norms and performativity

Not only the individual user, but also social groups and society more generally carry assumptions and norms related to the use of media technology, which influence the relationships between user and social media platform (Jarzabkowski & Pinch, 2013). While social media can be a stage for conscious self-presentation, there is also a level of performativity involved, where learned patterns and social norms influence usage (Lo & McKercher, 2015; Schwartz & Halegoua, 2015; Van House, 2011). Users' ideas on how to use a platform are shaped by norms about appropriate social media use and appropriate ways to explore the outdoors. Instagram's photo editing tools, for example, allow users to enhance their pictures but also raise questions about the (in)authenticity of representations and experiences (Germann Molz, 2012; Leppänen et al., 2015). Moreover, gender norms can play a role. Gray et al. (2018), for example, showed that in portraying their outdoor activities, many women tend to follow traditional (western) standards of beauty, posting 'manicured' pictures of themselves seemingly unaffected by their outdoor pursuit. The authors point out that this 'aestheticization' is something that the platform seems to promote. Yet, at the same time, it also offers a space where female outdoor enthusiasts can express their identity, thus giving a good example of how technology, user and social practices all interact to create the entanglement that construct social media.

2.2 | Interactions between online and offline experiences

The actual outdoor experience also influences how social media platforms are used. However, more importantly, the use of Instagram might reflexively influence what is experienced in the outdoors. Images can evoke strong reactions, intimacy and memories (Abbott et al., 2013; Pittman & Reich, 2016; Van Dijck, 2008); yet, they are also constructed by a long history of art and photography, shaping current motifs, styles and content (Smith, 2019). The representations of activities or landscapes are not a simple reflection of reality, but carry 'mentalities, ideologies and identities' (Alù & Hill, 2018, p. 1). Urry and Larsen (2011) capture this in the concept of the tourist gaze, describing the way people look at the environment as a learned skill that 'orders, shapes and classifies, rather than reflects, the world' (Larsen, 2006, p. 245). Taking and sharing pictures of the outdoors mediates the way we see and experience a landscape, as the landscape is given meaning through the representations that have been previously constructed by visual media (Despard, 2015). Raad's (2020) study on Americans' views of the mountains showed, for example, that people visit the mountains with an a priori sense of what they will see and experience, coloured by both their own memory and the representation of the landscape in visual culture. Photographs taken during leisure activities are therefore not necessarily a reflection of a world existing independently of the human gaze, as people seek out and photograph what they have already seen in other visual media. This pre-existing frame creates obligations to see and capture particular scenes or 'Kodak moments' (Urry & Larsen, 2011), or as Raad (2020) describes it: '*Media and images therefore affect the experience of a place both before and after it is visited. Viewing an image of a place before going there governs how someone sees the landscape. Upon returning home, visual reminders of the trip such as photographs influence how the place is remembered*' (Raad, 2020, p. 2–3).

While previously most of the images that influenced people were those publicized in magazines or outdoor guidebooks, social media have opened up the representation of the outdoors to everyone by merging 'technologies of visualization' with 'technologies of communication' (Germann Molz, 2012). Van Dijck (2008) registers a shift from using photography to document memories to using it as a way to get in touch, a tool for creating connections. As described above, this (everyday) communication involves self-presentation in a social context. For example, Instagram outdoor pictures often depict a similar motif, that of the 'promontory witness', where one or two individuals are gazing outwards, often from an elevated point, at an awe-inducing landscape (Smith, 2019). As popular images on Instagram are promoted (by Instagram's algorithm) to be shown more frequently, this motif is able to repeat itself as Instagram users start copying the style of the most successful photographs. This might lead to outdoor experiences being communicated in a homogenizing way, creating hegemonic stories (Smith, 2019). Yet, with a user-technology entanglement that is situated and relational, it also means that users

play an active role in building Instagram's content and can use the platform to imagine places, as well as themselves 'anew' (Conti & Heldt Cassel, 2020).

Technology, users, their social context and the outdoors all interact with each other to create the content and meaning of visual social media. The resulting effects are often painted in a negative light, with news articles discussing the overcrowding of places and unpreparedness in the outdoors as a result of Instagram, or the superficial experiences of 'Instagram travellers' (e.g. Cosslett, 2018; Pidd, 2020; Williams, 2019). In academic debate, mobile media technology evokes strong negative as well as positive reactions, theorizing technology use as either something curtailing authentic (outdoor) experiences, or affording the exploration of (outdoor) identities without boundaries (Conti & Heldt Cassel, 2020; Shultis, 2012). Yet, empirically, we know very little about how Instagram mediates users' experiences and vice versa. In our analysis, we unpack such sociomaterial entanglements, and look at how both criticisms and celebrations of Instagram are reflected in the actual experiences of users. We thus move beyond conceptual considerations towards an understanding of users' lived experiences.

3 | METHODS

Our qualitative study explored technology use by outdoor recreationists in Scotland. We collected data in three stages, each involving different individuals (Table 1).

With limited data available on the lived experiences of technology use in outdoor practices in nature, the initial stage of data collection included an exploratory study to understand the use of applications and people's personal attitudes towards involving mobile media applications in outdoor activities. The results informed a second stage of data collection, involving a further 14 participants who regularly performed outdoor activities such as hiking, mountain biking and nature photography. Participants often mentioned the importance of sharing experiences on social media, and the sharing of images through social media was prominent in many of the participants' outdoor practices. For the third stage of data collection, we therefore focused on Instagram, the social media platform that is particularly geared towards image-based content. In this stage, we interviewed an additional nine outdoor enthusiasts who used Instagram. In the first part of these interviews, photo elicitation helped us to explore Instagram images the participants themselves had posted. Each interviewee discussed three posts: (a) the most recent outdoor image that the interviewee had posted; (b) their post, related to the outdoors, that had received most likes over the last year; and (c) the participant's own favourite post about the outdoors. Participants were asked to describe what was happening in the picture, how they had taken the picture, why they decided to post it and what interactions they had with it after it was posted. The second part of the interview included more general questions on the participants' motivations to use Instagram, what they felt constituted an

TABLE 1 Data collection process

	Stage 1 Spring 2018	Stage 2 Winter 2018–2019	Stage 3 Spring 2020
Goal	Exploratory: technology use and personal attitudes	In-depth: smartphone use in outdoor activities	In-depth: Instagram use
Method	Semi-structured interviews	In-depth interviews and ethnographic observations	Photo elicitation interviews
Participants	11 participants: three children, four youth and four adults	14 participants (adults): five hikers, three mountain bikers and six photographers	Nine participants (adults)
Participant Selection	Convenience and snowball sampling, starting from researchers' networks	Convenience and snowball sampling, starting from researchers' networks, local Facebook groups and local walking groups	Convenience and snowball sampling, starting from researchers' networks
Criteria for selection	Sample to include a range of levels of engagement in outdoor activities and technology use	Engaged in at least one outdoor activity each month	Engaged in at least one outdoor activity each month; regular Instagram user but without large following (not an influencer)

'Instagrammable' picture, whether they used other social media and if there were differences in use and, in general, what the appeal of Instagram was for them.

All participants were recruited through convenience and snowball sampling, starting from the researchers' networks as well as outdoor clubs and social media pages related to different practices. Our data collection focused on participants who regularly took part in outdoor activities, and the analysis presented here includes all those participants who had an Instagram account that they regularly used (Stage 1: $n = 1$, Stage 2: $n = 2$ and Stage 3: $n = 9$). The time spent on Instagram differed between participants, particularly when it came to uploading content. Some participants posted content every week or a couple of times a month. Others used Instagram less regularly, but had periods where they frequently uploaded pictures. All participants looked much more often at posts of others (daily or weekly) than sharing content themselves. Some participants pointed out that it was difficult to estimate their use of social media, as they sometimes found themselves habitually scrolling through posts during idle moments. All of the participants had a personal Instagram account and did not communicate on Instagram in a professional capacity. Nevertheless, sometimes the line between professional and personal lives were blurred, and in some cases both were intimately linked to our participant's identity. For example, one of our participants was a part-time environmental educator, while another one worked as an ecologist. For these participants, what was experienced or learned professionally shaped what was posted about. None of the participants were influencers nor did they receive money for their social media activities. We also did not include Instagram users who only read posts without sharing content themselves. This allowed us to obtain insight into the experiences of those outdoor recreationists who use Instagram to a significant extent, but whose practices are not constrained by professional or commercial norms and needs. Our study thus offers an in-depth analysis of a small group of Instagram users' practices and experiences. While such an approach does obviously not generate generalizable findings, it does provide

detailed insights into the interactions between platform, user and social context.

The methodology was approved by the ethics committee of the School of Psychology of the University of Aberdeen (reference number: PEC/3870/2018/2 and PEC/3942/2018/8). Informed consent was obtained from all participants, and pseudonyms are used throughout this article when quoting participants to protect their anonymity. Separate consent was obtained to include the Instagram pictures in the Results section.

Data gathering and analysis followed an iterative-inductive process where coding and identification of themes occurred alongside the interviews and observations to inform each other (O'Reilly, 2012). To gain an initial understanding of the social media use of our participants, the process of sharing participants' outdoor adventures was divided into five stages (after Lo and McKercher's (2015) description of the posting process): (a) pre-production, in which participants decide where to go; (b) on-site production of their sharable materials (such as photographs); (c) post-production, where materials are edited; (d) distribution, where users decide what and how to share; and (e) reactions to the posts that have been put up on social media. While analysing the data, it became clear that user, platform and outdoor experience were continuously interacting and that the different stages of the posting process seemed to influence each other. We therefore decided to analyse this negotiated process of sharing experiences in depth, focusing on the entanglement of platform affordances, user self-presentation and motivation, and social norms (see Section 1). Each participant's transcript was coded to identify their motivations, what features of Instagram they used, how they selected their pictures and created their posts, how they integrated Instagram when practicing their outdoor activity and their opinions on using social media. For each participant, we then analysed how motivations, views on and use of Instagram features were related to each other. Based on this analysis we identified three striking aspects of Instagram–user–context interactions: (a) how to handle visibility and exposure; (b) conforming to versus resisting

aestheticization; and (c) influence of the interactions between user, context and Instagram app on actual outdoor experience. These themes are explored in the next section.

4 | RESULTS

4.1 | Platform feature-user interactions: Managing visibility, scalability and users' motivations

Collectively, our participants reported a multitude of motivations that informed their use of Instagram. Three motivations were repeatedly mentioned: (a) to keep in touch with friends and family; (b) to 'store' memories; and (c) to communicate about nature. Next to these explicitly mentioned motivations, posts allowed participants to perform their identity by showing themselves as an outdoor person doing activities they valued (e.g. horse riding, climbing, wild camping) and adding (inside) jokes in the captions.

Apart from motivations to present their own stories, participants also used Instagram to follow people and topics that interested them. The visibility and searchability of Instagram made the platform a space to get to know other outdoor-minded people and be inspired by them. Some participants emphasized that it was especially valuable for them to follow people who represented diversity in the outdoors. They mentioned that it was still relatively uncommon to meet fellow female mountain bikers or climbers when they were out enjoying their activity, whereas on Instagram, they would find greater female representation. Following female (professional) climbers or mountain bikers and seeing their posts and achievements celebrated was reportedly experienced as inspiring.

Most participants mentioned multiple motivations, which were incorporated into a range of strategies of Instagram use. Some participants made their account public, while others chose to have it private. For those latter participants, their goal was to share with friends and family, and they did not see the point in sharing their personal stories with others. Some had started with public accounts but switched to private accounts along the way.

I think when I was younger it was a lot about, do I have a lot of followers, am I cool, am I popular. Whereas now it is more, I don't see the point of sharing my life with strangers, I don't see the point of collecting followers. It is more like, you are my friend, this is what I have been up to, I want to see what you are up to and that is about it. (Ella)

One participant had a public profile, yet actively managed her followers. She showed similar motivation to do this as those participants that had set their profiles to private:

Even if I am public, I try to control who is following me and who isn't. So if it is someone who is absolutely not related to any of my friends, I will just block them, but

at the same time it leaves the door open to friends of friends, or say professionals if they want to see [my] personal life (Sophia)

This suggests that for some of our participants Instagram was not just about generating likes or reaching a lot of people. While the platform afforded visibility, searchability and scalability that allowed content of one's day-to-day life to be visible to the entire world, users iteratively considered what Instagram had to offer, their own goals, motivations and the audiences they wanted to reach.

These considerations were clearly shown in our participants' use of hashtags. Hashtags can be used to link posts to a specific topic, event, place or theme. Other users can search for a specific hashtag, which will then show all connected (public) posts. These hashtags allowed our participants to follow topics that they were interested in but could, for example, also be used to find new outdoor places to go to. Some of our participants used hashtags to promote certain places or activities:

I think, looking at my hashtags I am often promoting Scotland somehow. I'd be like "look at this amazing country, look at this beautiful place we live in, get out and explore it, and enjoy it". (...) I guess sometimes it would be nice to think that people that would be googling like the North-West for example, might come across some of the photos and be like, "oh yeah that is a great spot to go. We should go". (Sienna)

Yet, other participants actively avoided adding hashtags as reaching a large audience was not why they used Instagram, or as Kirsten described it: '*I didn't want to feel like Instagram was something I was doing for other people, I wanted to feel like it was something that I was still doing for myself and primarily to show to my friends and family what I have been doing*'. Moreover, the promotion of places was concerning to some, who expressed anxiety about jeopardizing the remoteness and solitude of special locations by creating Instagram notoriety.

One participant mentioned using hashtags purposefully for specific posts, for example, to promote her work, while she did not tag more private posts. While hashtags were often used deliberately, for example to promote a place, business, activity or organization, participants also felt unsure how hashtags really worked, and why some seemed to generate much more exposure than others.

Hashtags is something that I actually have become better at, but I still don't fully understand them (...) I find that my pictures in general get fifty to sixty likes (...) But there has been a couple of posts that just have gone crazy (...) [one] was on the ferry to Orkney, the sky was really stormy but there is a rainbow and you can see all the fulmars and stuff. And it got loads of likes, and I was like, right okay, I wonder what it is that I hashtagged that's got more people to look at it. (Iris)

All these different strategies for handling public distribution showed that users did not simply look for maximum exposure or high numbers of likes, but considered different goals, motivations and the features that Instagram offered, to find practices that suited them.

4.2 | Norms and assumptions: Managing Instagram's aestheticization

Managing different considerations and ideas about what Instagram is or can do was also demonstrated in the way our participants selected their pictures. Uploading meant weighing up different functions of a picture: choosing an image that could make participants relive a moment, one that showed their family how they were doing, one that showed that they were an outdoor person or yet another image that would tell something about the outdoor landscape in Scotland. Our participants expressed similar reasoning on what kind of pictures eventually (should) end up on Instagram. First, these were pictures that showed happy moments. While some participants mentioned that they felt other social media, such as Facebook, allowed the sharing of more negative experiences, Instagram was more about aspiration and inspiration.

I suppose [Instagram] is a bit more aspirational than Facebook, like you would never post on Instagram that anything negative is happening. Instagram is all very much, this is something interesting, this is somewhere lovely I have been, these are my successes, this is my happy life, everything is going right, these are the activities that I did that worked. (Anne)

Instagram was, for our participants, focused on visually pleasing imagery, with all participants stressing that not every photograph could end up on Instagram, as they needed to have a certain aesthetic.

Only the best makes it on to Instagram, so whenever you look at it, it always looks nice and, the photos I like that there is different styles and different colours, but it is just very appealing to look at it. (...) most of the time, it is a beautiful photo. (Sienna)

A tension seemed to develop between adhering to this idea of what is a good Instagram image and wanting to use Instagram as a photobook, storing personal memories meaningful to the participants. This eventually meant that participants would mainly upload images of more extraordinary activities and less so of more generic or everyday activities. Some participants were aware of this and admitted that they knew the memories they were 'storing' were only of notable events, not necessarily representing their everyday life or whole identity.

I wonder if I judge it correctly, because I think sometimes I feel like I am very outdoorsy or people think I always am outside, because maybe I post it (...) [I

wonder] what do the other people get from me, based on my profile, and what do they not see. (Ella)

Participants reflected throughout the interviews on the ubiquity of these spectacular images, and some tried to tell some alternative stories with their picture. Kristen, for example, posted two pictures of a climb she had done, one portraying her climbing partner 'in action' and one of the ledge she was standing on. Talking about why she included this second picture (Figure 1) she mentioned:

Well, part of me wondered if you would be able to see the little seal that I'd befriended and I thought it would be nice if we get the seal in there, and the other part is that, I always feel like people on Instagram want to capture just the most beautiful part of the moment, but actually realistically, we were climbing on bird poo covered ledges, which is like a little bit grim and not everyone's cup of tea. So, I just kind of wanted a little bit of an antidote to the "look at this amazing climbing", but also "look I am here standing on a poo covered ledge with the numb toes, I can barely feel my fingers... so cold". So, I wanted to provide a balanced view of the situation I guess. (Kristen)

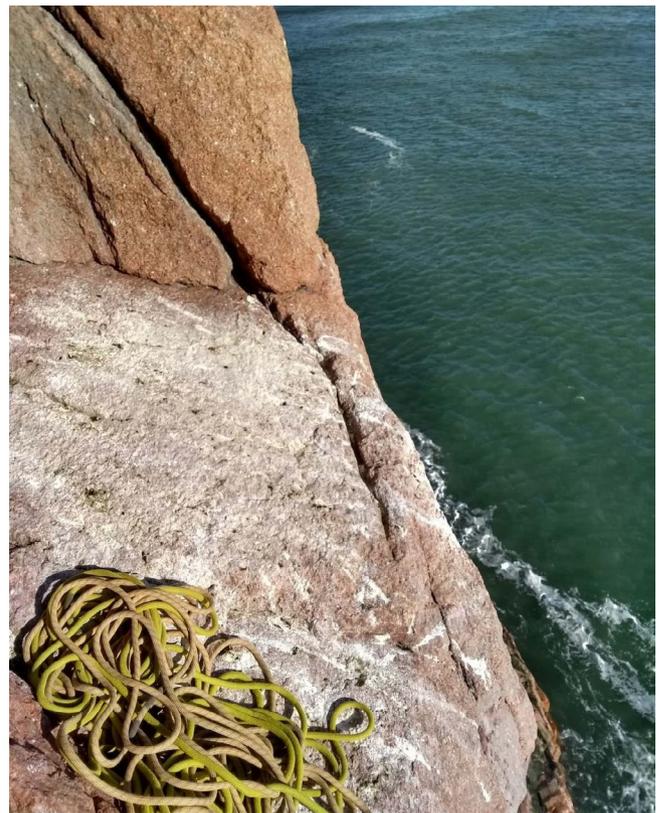


FIGURE 1 Kristen's picture, along with the caption 'A February adventure across red wall ft. poo covered ledges and numb toes. I even made friends with a seal 🐾'

While Kirsten emphasized her intent to show the unglamorous sides of climbing, the imagery as well as the caption still conveyed the spectacular nature of the climb.

Participants also reflected on the tendency of Instagram to only show the spectacular by stressing the need to allow for an element of 'realness' in their posts. There was a need to make sure that what was shown in a post accurately represented what was experienced. This meant, for example, that some did not like to edit their pictures, as they wanted the picture to reflect reality. Editing was explained as a way to better represent the experience, but not alter too much of the content.

I noticed that usually the goal with Scotland, unless it is a really good bright day, is to make it look slightly less grey.(...) I do think Scottish landscapes, while they are stunning, there is usually a bit more work done to the photos to make them look like that... (...) Sometimes you can make it look not real, and I don't like that. The more you edit, the more unrealistic it can look. And I think it is a stylistic thing, some people like the highly edited photos and the highly, highly filtered and it can look a bit like, other-worldly. Whereas I like there to be, like that realism in it. And it is just about enhancing as opposed to changing. (Sienna)

Instagram makes the editing of pictures relatively easy, with preset filters to choose from or the option to adjust brightness, saturation and other features with a simple slider. This was also noted by our participants, as some pointed out that Instagram filters allowed people to create their own Instagram style. Participants knew accounts that posted all their pictures with the same filter or colour scheme, although none of our participants would apply this to their own account. They also noted that many Instagram accounts they followed used compositions and themes similar to each other, where outdoor imagery often included a spectacular landscape, people engaged in outdoor sports or images of iconic wildlife. So, while all participants agreed that Instagram was a medium to share beautiful, inspiring images that were memorable for them, they also knew it was a very selective 'photo-book' that they created.

4.3 | Shaping the outdoor experience

Photography had been integrated in all our participants' outdoor practices, but there were differences in how much the sharing of these images was part of their activities while being outdoors. A couple of our participants stated that Instagram was an important reason to record their activity, or to go somewhere, integrating sharing through social media into their activities.

Quite often I take the pictures with Instagram in mind. So, I'll try and sort of think, you know if I am out or I wanna get some nice pictures, I wanna put these up

on Instagram, so I don't find that I am taking loads and loads of photos (...) if it is just like a scenic shot, I'll take one and that will be the one that I will put up on Instagram, maybe with like a little bit of a filter, but usually not much. (Anne)

These participants actively used Instagram to communicate about themselves, nature and their hybrid identities. The other participants all mentioned that they would go somewhere to do their outdoor activity, or for the experience itself, and Instagram was more of an afterthought, undertaken when back home, scrolling through the pictures and finding one that might be nice to post. Nevertheless, when scrolling through their Instagram posts and talking about particular images, it became clear that Instagram often already 'sneaked in' during their outdoor experience (Figure 2).

I sometimes try and refuse to stop [in Applecross] for a photo. [Girlfriend] likes to stop there for a photo and I'll be like 'nooo, everyone is taking that photo, let's go somewhere else' (...) I mean, I am very much... what is the word...hypocrite. So, it's like 'noo don't take a photo' but then I have taken photos of it myself. (Connor)

These practices were influenced by previous images of the same place or same activity shared in both mass and social media. Even if



FIGURE 2 Connor's girlfriend's picture, showing houses in Applecross, popular on Instagram

participants were aware of this influence, like Connor, they admitted they still would on occasion take the picture anyway. This repeating of the same motif was also demonstrated in the composition of the pictures, where certain frames of the landscape were recognized as 'Instagrammable' (Figure 3).

This photograph I would say is very Instagrammy because it uses blurring out of the foreground which is something that has become popular on Instagram (...) And then the really muted sky and the white muted pallet of the mountain and the sky is quite popular as well. so, it is quite a cliché shot there (...) I was thinking about blurring out the foreground, because that was something I had seen people I follow do. I was thinking about the big mountain behind the tiny house, and the element of scale. And I thought, if this turns out well, I will post it on Instagram. (Jack)

While—consciously or subconsciously—similar places and motifs were shared and visited, this also brought tension to some of our participants' Instagram use. These participants did not want Instagram to be on their minds while being outdoors, yet knew they took pictures because it would be something worth posting. They felt having to choose between enjoying the moment in nature or focusing on photographing the moment to share and store it on Instagram. And

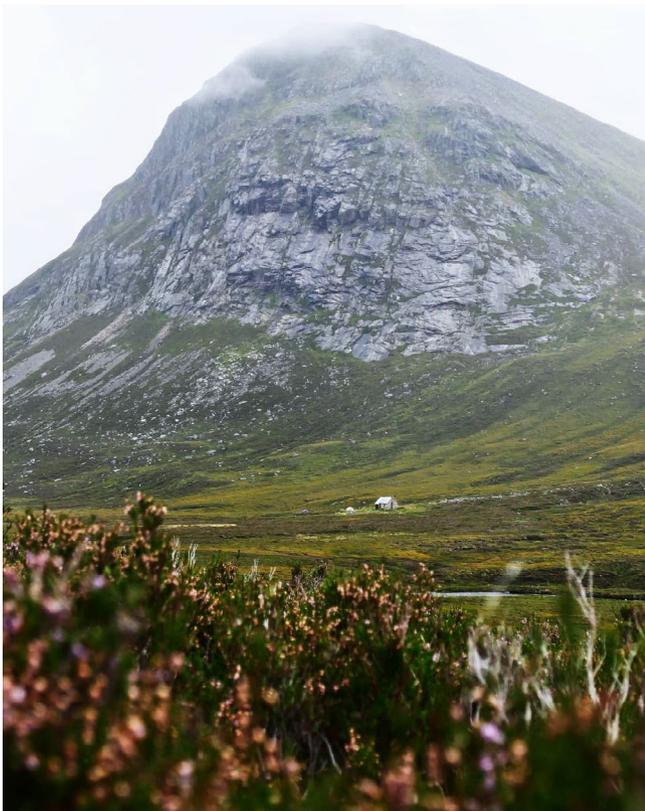


FIGURE 3 Jack's picture, he chose this composition of heather in the foreground and mountain in the background after he had seen it in other pictures on Instagram

while they appreciated Instagram and its opportunities to communicate and inspire, they felt outdoor experiences should be about being 'in the moment' and not having anything disturb you.

I think sometimes now, when I am in the outdoors I am more conscious of "is this a sharable moment?" And could I film this and could I put it on a story or a post. Which I don't really like as a consequence, because I think it is more about enjoying the moment and not being in the moment and thinking how you can convert it in an achievement later on. (Ella)

While participants might wish for a clear(er) separation between living an experience and communicating about it, their stories showed that with new media technology being accessible anytime, anywhere and portraying any place on earth, this had become virtually impossible. What was left for Instagram users was to mediate between activity, place, identity, audience and platform, resulting in a use that was uniquely personal yet often delivered images with a high degree of similarity. The outdoors was constructed through sharable memories of positive stories and spectacular experiences. While our participants went along with this narrative, they also actively tried to put out stories that were meaningful, real and might offer an alternative view of the outdoors. Some participants even went as far as to suggest they might end their Instagram use at some point as they did not feel comfortable with how invasive the photo taking and sharing process had become to their outdoor practices. These participants suggested they would move to other media, such as Flickr, that were less oriented towards visibility and more build as a virtual photo album.

5 | DISCUSSION

The Instagram posts in our analysis had undergone complex negotiation processes that involved the platform's functionalities as well as the user's identity, norms and personal preferences. The posts were used by our participants to achieve many different things: to assert their identity, to record memories, to educate or inspire, perhaps even to impress others. These motivations resemble those found in previous studies (Alhabash & Ma, 2017; Sheldon & Bryant, 2016). Some of these motivations were very clear to our participants, while others were more implicit in their description of their interactions with Instagram. Choosing whom to follow, as well as what to post, was part of establishing and performing their identity. Participants did not explicitly speak about this performative element themselves, but implicitly expressed the idea in their choices to promote diversity, their use/non-use of hashtags and their decisions around the kind of activities to portray. For example, some participants felt that a good outdoor citizen would not draw too much attention to places they visited, to prevent overcrowding. This shows how the platform's affordances, users' motivations and preferences, practice-related norms and shared beliefs on what Instagram should or should not be all interacted and highlights the complexity of such sociomaterial

entanglements. The ubiquitous presence of social media on participants' smartphones resulted in tensions between the use of Instagram and the outdoor experience they envisioned, as some felt that engagement with social media could become too important in their outdoor activity, which also raised questions about the authenticity of their experiences.

5.1 | Authenticity of experiences

According to our participants, sharing on Instagram required experiences that stood out, yet participants also wanted to remain true to their own encounters and portray a certain 'realness'. Participants felt uneasy with too much involvement in Instagram and did not want it to intrude on their outdoor activities. Historically, visual technologies seem to have mediated a relationship between use and place that focuses on detachment and (visual) consumption, rather than an embodied 'inhabiting' of the landscape (Germann Molz, 2012; Urry & Larsen, 2011). Posting on Instagram, then, can create a tension between capturing the appropriate views for social media and the embodied experience that participants sought when they were outdoors. Moreover, participants emphasized that although they acknowledged that Instagram would always show edited experiences, they felt it was important to make sure the experiences that they posted were all 'real' or 'genuine'.

Whether something is or is not 'real' or authentic is constructed by the values, norms and assumptions on what an outdoor experience should be, and these values are consequently reinforced by defining an experience as authentic or not (Germann Molz, 2012; Leppänen et al., 2015). Our participants aspired to a certain kind of outdoor experience, one where they felt connected to a place and enjoyed the moment. It is this understanding of an outdoor experience that now needs to be reshaped in a world where social media are omnipresent. Germann Molz (2012) shows in her analysis that mobile media technologies are connected to three common anxieties people have about 'losing' an authentic life: (a) the threat of misrepresenting reality; (b) the threat of disconnection; and (c) the threat of corporate commodification. In our data, we found ideas of misrepresentation expressed in the remarks on the use of filters and photo editing. Although there was no clear rejection of photo editing per se—some participants mentioned how it could help to make a picture reflect the moment even better—there was an emphasis on the need to ensure a level of 'realness' of the picture. This reflects Germann Molz, (2012) conclusion that people like their post to represent or evoke the feeling of the experience itself, which might—counter-intuitively—be facilitated by enhancing or editing aspects of the picture.

Perceived authenticity of outdoor experience is evaluated through the social norms established for both outdoor practices and technology use (Leppänen et al., 2015). The outdoors has been constructed, for example in romantic tropes particularly in relation to recreation, as a place to get away from the 'hustle and bustle' of daily life, to seek challenges or to (re)connect to nature (Edensor, 2000;

Kay & Moxham, 1996). Mobile media technologies, keeping people connected to precisely the 'hustle and bustle' they want to get a break from, can therefore feel out of place in the outdoors, invading on time and attention that 'ought' to be directed towards the outdoor activity and enjoyment of the moment (Brown, 2015; Shultis, 2012). However, mobile media technologies also offer opportunities to strengthen people's feeling of being connected. They allow people to share their experience with others, opening up places to include new narratives and diverse voices. That social media can be technologies of both 'connection *and* disconnection' (Germann Molz, 2012, p. 125 emphasis in original) was a thought that was also expressed by our participants, who used Instagram to connect to their family but also feared a disconnection from the outdoors.

When it comes to the threat of corporate commodification, social media are undeniably linked to commercialization processes (Büscher, 2016). The rationale of social media platforms is to keep people scrolling as long as possible, with algorithms choosing those posts that perform best (Tribe & Mkono, 2017). This can threaten the ideas of authenticity as people might start constructing posts that they know will perform well, and construct—or simulate—their experience accordingly (Germann Molz, 2012). However, for our participants this seemed to be less of an issue, perhaps because many of them had decided to make their profile private, and therefore did not seek public, or even commercial, success themselves. Nevertheless, as we will see, a commodification rationale embedded in the technology might have influenced our participants in more subtle ways.

5.2 | Aestheticization and homogeneity of stories

The interactions between platform features, users and social context also shaped the ways in which the outdoors was portrayed. There seemed to be a general level of agreement on the kind of pictures that were 'Instagram-worthy': a good quality picture of a beautiful landscape or special moment. Social norms and assumptions of what Instagram was for, together with the influence of Instagram's algorithm to highlight particular outdoor representations, resulted in a common understanding of what an Instagrammable composition was. While the internet can afford new communities to be built and diverse stories to be posted, from the spectacular to the mundane (Germann Molz, 2012; Ibrahim, 2015), social media platforms are also scripted within a neoliberal rationale (Büscher, 2016; Zuboff, 2019). Previous research on Instagram posts and the way users create them showed a tendency to produce standardized posts, where users conform to perceived norms and structure of social media (Conti & Heldt Cassel, 2020). While Instagram, on the one hand, allows people to adopt a personal style by offering a large variety of filters and editing options, the visibility of other people's posts leads to people copying each other's style, creating 'consistent aesthetics' following standards set by mass media (Smith, 2019, p. 9, see also Gray et al., 2018). At the same time, most of our participants did not see personal branding as their prime motivator; they posted for friends and family, not in order to become influential. Although

the output of our participants might be less staged or managed than the posts of influencers, the way they posted was still in line with shared norms of Instagram as a place to show exceptional, beautiful and happy moments.

However, Low et al. (2020) showed that Instagram also allows for more diversity and empowerment of voices. In their research on the portrayal of women in the outdoors, they found that the posts on Instagram showed diverse ways of being outdoors, where women portrayed themselves as active participants, emphasizing 'exploration, strength and courage, and "growing" through achievement and self-fulfilment through overcoming challenges' (Low et al., 2020, p. 19). Our participants were sensitive to these diverse voices, keen on including different perspectives in the people they followed. Moreover, some participants tried to show the more mundane or unpleasant side of their experiences, thus adopting strategies to counter aestheticization. Yet, while the images displayed diversity of who participated in outdoor activities, when it came to the outdoor places themselves, the imagery was still very traditional. Participants chose to post extraordinary hikes, rides or climbs, stunning views or recognizable places, which were shaped by participants' norms of what an Instagrammable landscape looked like. Despite diversity in motivations, anxieties and strategies to use Instagram, the final posts were rather similar.

6 | CONCLUSION: INTERACTIONS, REFLECTIONS AND STANDARDIZATION

The entanglement between platform features, users' aims and social norms reinforce themselves by what Urry and Larsen (2011) call a 'hermeneutic circle' of viewing places: places are interpreted by a frame set by previously seen content—the 'collective imaginary' (Lo & McKercher, 2015). This influences what people see and capture when outdoors. Our participants were aware that certain activities, landscapes or places, portrayed in a particular way, would be more 'Instagrammable' than others, and thus contributed to the standardization of the collective imaginary. At the same time, they also highlighted strategies that would help to break this circle, such as following diverse voices or posting pictures that were not necessarily polished. Participants actively reflected on how their Instagram use affected them. The influence of mobile media technology and visual representations could thus be better described as 'double hermeneutics' (Giddens, 1993), where use influences practice, but reflection on and understanding of its impact will influence use again.

In conclusion, our study shows the need to understand the diverse and complex interactions between technology, users and their social context. Instagram users are agents who interact both with other agents as well as with materials and structures in what could be termed sociomaterial entanglements (Section 2.1). Despite the complexities of these interactions, Instagram seems filled with sets of similar pictures of the outdoors, showing a standardized representation of nature and human outdoor experiences. In an iterative process, our participants considered both their experiences, which

were embodied and personally meaningful, and what they felt was Instagrammable often ending up sharing uniform stories and visuals of the outdoors. While participants stressed the importance of diverse voices being presented on social media, the outdoor landscape had come to be portrayed in a rather standardized way. Looking forward, our study suggests that human–technology–nature interactions might empirically be more ambivalent, dynamic and complex than often assumed in conceptual analyses, and underscores the importance of an understanding of these interactions grounded in the users' perspectives.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHORS' CONTRIBUTIONS

Irma Arts conceptualized the study; provided the methodology; and carried out investigation, formal analysis, writing the original draft and visualization of results. Anke Fischer, Dominic Duckett and René van der Wal supported the conceptualization of the study and methodology; wrote, reviewed and edited the draft; and carried out study supervision.

DATA AVAILABILITY STATEMENT

The data on which this research is based are archived on secure servers at the corresponding author's institution. In order to preserve confidentiality and research participants' anonymity (as promised in the context of the participants' informed consent), the data are not made publicly available.

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REFERENCES

- Abbott, W., Donaghey, J., Hare, J., & Hopkins, P. (2013). An Instagram is worth a thousand words: An industry panel and audience Q&A. *Library Hi Tech News Incorporating Online and CD Notes*, 30, 1–6.
- Adams, T. E. (2005). Phenomenologically investigating mediated nature. *The Qualitative Report*, 10, 521–532.
- Adams, W. M. (2019). Geographies of conservation II: Technology, surveillance and conservation by algorithm. *Progress in Human Geography*, 43, 337–350.
- Aguirre, A. C., & Davies, S. G. (2015). Imperfect strangers: Picturing place, family, and migrant identity on Facebook. *Discourse, Context & Media*, 7, 3–17.

- Alhabash, S., & Ma, M. (2017). A tale of four platforms: Motivations and uses of Facebook, Twitter, Instagram, and Snapchat Among College Students? *Social Media + Society*, 3, 2056305117691544.
- Alù, G., & Hill, S. P. (2018). The travelling eye: Reading the visual in travel narratives. *Studies in Travel Writing*, 22, 1–15.
- Arts, I., Fischer, A., Duckett, D., & Van der Wal, R. (2021). Information technology and the optimisation of experience – The role of mobile devices and social media in human-nature interactions. *Geoforum*, 122, 55–62.
- Arts, K., Van Der Wal, R., & Adams, W. M. (2015). Digital technology and the conservation of nature. *Ambio*, 44, S661–S673.
- Bloomfield, B. P., Latham, Y., & Vurdubakis, T. (2010). Bodies, technologies and action possibilities: When is an affordance? *Sociology*, 44, 415–433.
- Bolliger, D. U., McCoy, D., Kilty, T., & Shepherd, C. E. (2020). Smartphone use in outdoor education: A question of activity progression and place. *Journal of Adventure Education and Outdoor Learning*, 21, 1–14.
- Bousé, D. (2000). *Wildlife films*. University of Pennsylvania Press.
- boyd, d. (2011). Social network sites as networked publics: Affordances, dynamics, and implications. In Z. Papacharissi (Ed.), *A networked self. Identity, community, and culture on social network sites* (pp. 39–58). Routledge.
- Brown, K. M. (2015). Leave only footprints? How traces of movement shape the appropriation of space. *Cultural Geographies*, 22, 659–687.
- Bucher, T., & Helmond, A. (2018). The affordances of social media platforms. In J. Burgess, T. Poell, & A. Marwick (Eds.), *The SAGE handbook of social media*. SAGE Publications Ltd.
- Büscher, B. (2013). Nature 2.0. *Geoforum*, 44, 1–3.
- Büscher, B. (2016). Nature 2.0: Exploring and theorizing the links between new media and nature conservation. *New Media & Society*, 18, 726–743.
- Carter, S., Green, J., & Speed, E. (2018). Digital technologies and the biomedicalisation of everyday activities: The case of walking and cycling. *Sociology Compass*, 12, e12572.
- Castells, M. (2010). *The rise of the network society: Economy, society and culture*. Wiley-Blackwell.
- Cecez-Kecmanovic, D., Galliers, R. D., Henfridsson, O., Newell, S., & Vidgen, R. (2014). The sociomateriality of information systems: Current status, future directions. *MIS Quarterly*, 38, 809–830.
- Conti, E., & Heldt Cassel, S. (2020). Liminality in nature-based tourism experiences as mediated through social media. *Tourism Geographies*, 22, 413–432.
- Cosslett, R. L. (2018). *Instagrammers are sucking the life and soul out of travel* [Online]. The Guardian. <https://www.theguardian.com/commentisfree/2018/jan/17/instagrammers-travel-sri-lanka-tourists-peachy-backsides-social-media-obsessed>
- de Souza e Silva, E., & Sutko, D. M. (2011). Theorizing locative technology through philosophies of the virtual. *Communication Theory*, 21, 23–42.
- Dean, B. (2021). *Instagram demographic statistics: How many people use Instagram in 2021?* [Online]. Backlinko. <https://backlinko.com/instagram-users#how-many-people-use-instagram>
- Despard, E. (2015). Photographic social media, designed landscapes and urban, place-based visibilities: In search of friction. *Journal of Aesthetics & Culture*, 7, 28242.
- Edensor, T. (2000). Walking in the British countryside: Reflexivity, embodied practices and ways to escape. *Body & Society*, 6, 81–106.
- Germann Molz, J. (2012). *Travel connections: Tourism, technology and togetherness in a mobile world*. Taylor & Francis Group.
- Giddens, A. (1993). *New rules of sociological method*. Polity Press.
- Goffman, E. (1959). *The presentation of self in everyday life*. Doubleday.
- Gray, T., Norton, C., Breault-Hood, J., Christie, B., & Taylor, N. (2018). Curating a public self: Exploring social media images of women in the outdoors. *Journal of Outdoor Recreation, Education and Leadership*, 10, 153–170.
- Haider, J. (2016). The shaping of environmental information in social media: Affordances and technologies of self-control. *Environmental Communication*, 10, 473–491.
- Ibrahim, Y. (2015). Instagramming life: Banal imaging and the poetics of the everyday. *Journal of Media Practice*, 16, 42–54.
- Instagram. (2020). *About us* [Online]. <https://about.instagram.com/about-us>
- Jarzabkowski, P., & Pinch, T. (2013). Sociomateriality is ‘the New Black’: Accomplishing repurposing, reinscripting and repairing in context. *M@n@gement*, 16, 579–592.
- Kay, G., & Moxham, N. (1996). Paths for whom? Countryside access for recreational walking. *Leisure Studies*, 15, 171–183.
- Larsen, J. (2006). Geographies of tourist photography: Choreographies and performances. In J. Falkheimer, & A. Jansson (Eds.), *Geographies of communication: The spatial turn in media studies* (pp. 243–261). Nordicom.
- Latour, B. (1992). Where are the missing masses? The sociology of a few mundane artifacts. In W. E. Bijker, & J. Law (Eds.), *Shaping technology/building society: Studies in sociotechnical change*. MIT Press.
- Lemaire, T. (2007). *Filosofie van het landschap*. Ambo.
- Leppänen, S., Møller, J. S., Nørreby, T. R., Stæhr, A., & Kytölä, S. (2015). Authenticity, normativity and social media. *Discourse, Context & Media*, 8, 1–5.
- Lo, I. S., & McKercher, B. (2015). Ideal image in process: Online tourist photography and impression management. *Annals of Tourism Research*, 52, 104–116.
- Low, T., Miller, M., Doran, A., & Hardwick, L. (2020). Women's outdoor adventure experiences on Instagram: Exploring user-generated content. *Annals of Leisure Research*, 1–25.
- Michael, M. (2009). The cellphone-in-the-countryside: On some of the ironic spatialities of technonatures. In D. F. White, & C. Wilbert (Eds.), *Technonatures* (pp. 85–104). Wilfrid Laurier University Press.
- Murthy, D. (2012). Towards a sociological understanding of social media: Theorizing Twitter. *Sociology - the Journal of the British Sociological Association*, 46, 1059–1073.
- O'Reilly, K. (2012). *Ethnographic methods*. Routledge.
- Orlikowski, W. J., & Scott, S. V. (2008). 10 Sociomateriality: Challenging the separation of technology, work and organization. *Academy of Management Annals*, 2, 433–474.
- Pidd, H. (2020). *Warning to 'Instagram hikers' at Peak District plane wreck site* [Online]. The Guardian. <https://www.theguardian.com/uk-news/2020/nov/20/warning-to-instagram-hikers-after-rescues-at-uk-site-of-plane-wreck>
- Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior*, 62, 155–167.
- Poulsen, S. V. (2018). Becoming a semiotic technology – A historical study of Instagram's tools for making and sharing photos and videos. *Internet Histories*, 2, 121–139.
- Raad, D. R. (2020). The power of collective vision: Landscape, visual media, and the production of American mountains. *Journal of Cultural Geography*, 38, 102–122.
- Rietveld, E., & Kiverstein, J. (2014). A rich landscape of affordances. *Ecological Psychology*, 26, 325–352.
- Schwartz, R., & Halegoua, G. R. (2015). The spatial self: Location-based identity performance on social media. *New Media & Society*, 17, 1643–1660.
- Sheldon, P., & Bryant, K. (2016). Instagram: Motives for its use and relationship to narcissism and contextual age. *Computers in Human Behavior*, 58, 89–97.
- Shultis, J. (2012). The impact of technology on the wilderness experience: A review of common themes and approaches in three bodies of literature. In D. N. Cole (Ed.), *Wilderness visitor experiences: Progress in research and management, 2011 Missoula, MT* (pp. 110–118). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

- Shultis, J. D. (2015). "Completely empowering": A qualitative study of the impact of technology on the wilderness experience in New Zealand. In A. Watson, S. Carver, Z. Krenova, & B. McBride (Eds.), *Science and stewardship to protect and sustain wilderness values: Tenth World Wilderness Congress symposium, 2013 Salamanca, Spain* (pp. 195–201). U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.
- Smith, S. P. (2019). Landscapes for 'likes': Capitalizing on travel with Instagram. *Social Semiotics*, 1–21.
- Stinson, J. (2017). Re-creating wilderness 2.0: Or getting back to work in a virtual nature. *Geoforum*, 79, 174–187. <https://doi.org/10.1016/j.geoforum.2016.09.002>
- Treem, J. W., & Leonardi, P. M. (2012). Social media use in organizations: Exploring the affordances of visibility, editability, persistence, and association. *Communication Yearbook*, 36, 143–189.
- Tribe, J., & Mkono, M. (2017). Not such smart tourism? The concept of e-lienation. *Annals of Tourism Research*, 66, 105–115.
- Urry, J., & Larsen, J. (2011). *The tourist gaze 3.0*. SAGE Publications Ltd.
- Van Dijck, J. (2008). Digital photography: Communication, identity, memory. *Visual Communication*, 7, 57–76.
- Van House, N. A. (2011). Personal photography, digital technologies and the uses of the visual. *Visual Studies*, 26, 125–134.
- Verbeek, P. P. (2005). *What things do*. Pennsylvania State University Press.
- Williams, S. (2019). *Icelanders tire of disrespectful Instagram influencers* [Online]. BBC News. <https://www.bbc.co.uk/news/world-europe-48703462>
- Zuboff, S. (2019). *The age of surveillance capitalism: The fight for the future at the new frontier of power*. Profile Books Ltd.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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