Instagrammatics and digital methods: Studying visual social media, from selfies and GIFs to memes and emoji

Tim Highfield

Digital Media Research Centre, Queensland University of Technology, Brisbane, Australia

Tama Leaver

Department of Internet Studies, Curtin University, Perth, Australia

Corresponding author:

Tim Highfield, Queensland University of Technology, GPO Box 2434, Brisbane, QLD 4001.

t.highfield@qut.edu.au

Tim Highfield is Vice-Chancellor's Research Fellow at Queensland University of Technology, where he is a member of the Digital Media Research Centre. His fellowship project is 'Visual Cultures of Social Media', and he is the author of *Social Media and Everyday Politics* (Polity, 2016). He is @timhighfield on Twitter and can be found at timhighfield.net.

Dr Tama Leaver is a Senior Lecturer in the Department of Internet Studies at Curtin University. His books including *Artificial Culture: Identity, Technolology and Bodies* (Routledge, 2012); *An Education in Facebook? Higher Education and the World's Largest Social Network* (Routledge, 2014); and *Social, Casual and Mobile Games: The Changing Gaming Landscape* (Bloomsbury Academic, 2016). He is @tamaleaver on Twitter and can be found online at www.tamaleaver.net.

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Visual content is a critical component of everyday social media, on platforms explicitly framed around the visual (Instagram, Vine), on those offering a mix of text and images in myriad forms (Facebook, Twitter, Tumblr), and in apps and profiles where visual presentation and provision of information are important considerations. However, despite being so prominent in forms such as selfies, looping media, infographics, memes, online videos, and more, sociocultural research into the visual as a central component of online communication has lagged behind the analysis of popular, predominantly text-driven social media.

This paper underlines the increasing importance of visual elements to digital, social, and mobile media within everyday life, addressing the significant research gap in methods for tracking, analysing, and understanding visual social media as both image-based and intertextual content. In this paper, we build on our previous methodological considerations of Instagram in isolation (Highfield & Leaver, 2015) to examine further questions, challenges, and benefits of studying visual social media more broadly, including methodological and ethical considerations. Our discussion is intended as a rallying cry and provocation for further research into visual (and textual, and mixed) social media content, practices, and cultures, mindful of both the specificities of each form, but also, and importantly, the ongoing dialogues and interrelations between them as communication forms.

Keywords: visual social media, Instagram, visual communication, digital methods

Introduction: The visual and online communication

In the wake of terrorist attacks in Paris, France in November 2015, amid reports from the scene, rolling coverage and speculation, social media users employed visual content as affective devices of solidarity and peace: Facebook profile pictures were temporarily overlaid with the French *tricolore*, while a modified peace symbol featuring the Eiffel Tower, designed by Jean Jullien, became a popular symbol of the international distress

following the attacks (Neyfakh, 2015). Days later, as the Belgian capital Brussels was the scene of a hunt for suspected terrorists, locals took to social media not to post updates of police movements and unease – but instead to post cat GIFs and images as a mechanism of solidarity and obfuscation, providing an update that they were fine without revealing anything about the operation at hand (Vale, 2015). At the time of writing, these are two recent examples in which visual social media have variously mixed the political and the mundane, the extraordinary and the everyday. Such cases illustrate how visual content on social media is not necessarily a set of selfies, food porn, memes, and GIFs, marked in their narcissism or frivolousness. Instead, visual social media content can highlight affect, political views, reactions, key information, and scenes of importance. The growing support for, and prominence of, increasing forms of visual content on established social media platforms like Twitter and Facebook, as well as spaces set up primarily around the visual like Instagram and Vine, establishes the visual as a critical concern for social media research.

In her 1977 collection *On Photography*, Susan Sontag positioned photography as 'one of the principal devices for experiencing something, for giving an appearance of participation' (2005, p. 7). In 2015, the ubiquity of smartphone cameras and networked connectivity make Sontag's insights more relevant than ever, as the extraordinary and the everyday are captured in digital photographs and shared on a range of visual social media platforms (see also Hand, 2012). While platforms and apps such as Instagram, Vine, Tumblr, and Snapchat champion visual content, the visual has not suddenly become important overnight in terms of digital communication or identity construction. Even when primarily textual, online communication has a long history of integrating, supporting, and denigrating visual material in a variety of forms. In early email and newsgroup communication, visual material included the approximation of visual images using textual characters in ASCII art and the smiling and winking emoticons (;))

bringing emotional cues to text-only emails via basic approximations of facial expressions. The early Web was replete with the staple 'Under construction' icons, web ring imagery, and rotating GIF banners of Western internet cultures of the mid-to-late 1990s (see Eppink, 2014). Later came Flash animation and whole splash introduction pages, and then first generation Web 2.0 and social networking sites that encouraged the uploading of photographs (*e.g.* Flickr), hosting of shared images (Photobucket, DeviantArt), and eventually the uploading and sharing of videos (YouTube). The contemporary visual social media landscape replete with GIFs, selfies, emoji, and more is the latest iteration of networked communication with a long-running theme: we have always found ways to be visual online.

Yet as an object of research the visual has lagged behind the text-only aspects of online communication or the structural elements like hyperlinks. In terms of social media research the ease of accessing and analysing data from primarily textual social media like Twitter, and their APIs, has privileged particular types of study, focusing on the text of tweets, hashtags, and networks (Weller et al., 2013). The visual adds levels of trickiness to such analyses: first in accessing the images, videos, or other linked and embedded files, and then in studying them, which requires more individual intervention and interpretation than samples of 140-characters. Different disciplines offer different ways of examining and presenting the visual. Computational methods and big data analyses have enabled the large-scale exploration of social media activity, including the quantitative study of visual social media. Projects like 'Selfiecity', for instance, draw upon extensive datasets of visual content, in this case classifying selfies from several cities to identify trends around elements including gesture and pose (Manovich et al., 2014; Losh, 2015). Such projects mix computational approaches and the digital humanities, bringing together big datasets gathered from social media and cultural analysis. However, the resources used here (including the computational power to

scrape, process, and analyse large visual datasets) are not available to all. Other approaches from Internet Studies and related disciplines explore the practices, cultures, and content of visual social media users and platforms at smaller scale, and bringing in additional qualitative work to understand these phenomena.

Visual social media

In this paper, we argue that the ubiquity of the visual within everyday social media content and practices has led to (and been encouraged by) new technological capabilities and platform affordances, and that this is a critical part of online communication. Some prominent forms of visual social media have been studied as particular practices and cultures – see, for instance, the richly-detailed and growing literature on selfies (Frosh, 2015; Marwick, 2015; Senft & Baym, 2015; Tiidenberg & Gómez Cruz, 2015; Walker Rettberg, 2014; Wendt, 2014). But what of the visual more generally, of content and styles, of platforms dedicated explicitly to the visual, and of platforms that varyingly support and encourage photographic and visual communication? The visual is, after all, the key means for presenting and fashioning online identities, through profile pictures, everyday snapshots, created and curated media, and underpins a range of social media tools such as hook-up and dating apps, including Tinder and Grindr (Blackwell, Birnholtz, & Abbott, 2014; Miller, 2015). The image has great social and political power, too – especially the digital image, which can drive political acts and protests in a safer arena than publicly in person (Novak & Khazraee, 2014); or the documentation (recorded and streaming) of protests, of violence, or in far too many cases, police brutality (David, 2010; Shaw, 2013).

The cultural context for visual social media also highlights the need for research in this area, especially in response to moral panics and faux-outrage over certain practices including the apparent narcissism of selfie-taking, selfie-shaming (primarily of

women), the inconsistencies over what content is appropriate or not on social media, and the very real problems caused by visual material taken privately but shared publicly without consent (such as sexting and leaked photos; see Albury, 2015; Gabriel, 2014; Hasinoff, 2012). There is also the use of the visual in new ways for presenting news and commentary, through listicles of GIFs and looping Vine clips, and the political applications (including solidarity and protest) of altered profile pictures (Matias, 2015; Penney, 2015; Vie, 2014). Such visual content are not just social media artefacts, isolated and individual, but are surrounded by debates and discussions that take on political, legal, economic, technological and sociocultural dimensions.

The visual is central to everyday life and social media practices, requiring researchers to broaden and diversify the way social media is examined and addressed. Tweets and statuses, as textual comments, offer one way of presenting information and opinion, which is not necessarily the same as that provided in images and videos, and the polysemy apparent here takes further levels when the visual is in concert with the textual. In this paper's exploration of methodological questions and challenges, we focus on considerations of visual social media specifically, rather than on how to analyse such content. There are extensive theory and studies about visual analysis, from painting to photography, and we can draw conceptually on this work in applying ideas to the contemporary, social media setting. For instance, Sontag's view that "what photography supplies is not only a record of the past but a new way of dealing with the present" (2005, p. 130), has clear implications for visual social media where the instant and immediate is privileged. Our argument here is rather on the need for additional critical considerations that arise from the vast scope of visual social media, its formats and functions, cultures and practices. The implications for digital media research methods, and especially in response to the 'computational turn' apparent in both doing and presenting media and communication research (see Berry, 2011), include the need

to bridge the capabilities of the computational and the cultural analysis of visual social media. In particular, there are important questions to be addressed around methodology, including coding visual data and dynamic data. There are also archival questions, and the challenges of collating datasets and carrying out analysis in light of different platforms' Terms of Use, for example. These contexts also raise evolving ethical concerns, including privacy, within internet research.

Instagrammatics

Our starting point is in studying Instagram, building upon and moving beyond established research methods for Twitter analysis (Bruns & Burgess, 2011; Bruns & Liang, 2012) to examine a primarily visual platform. The initial approach to Instagrammatics focuses on common social media elements (in this case, hashtags) to track and study Instagram activity, content, and practices (see Highfield & Leaver, 2015), and has potential applications to additional platforms given the presence of the hashtag (for different purposes and meanings) on Facebook, Tumblr, and more (see Rambukkana, 2015). This of course also uses a textual hook for visual content – particularly since our project commenced prior to Instagram's support for emoji hashtags – but text- and location-based queries handled by the Instagram API offer an automated approach to the myriad potential angles for studying Instagram, from its content to its users, cultures, and aesthetics.

In our research, we have focussed on Instagram content positioned around the notion of the 'ends of identity' (birth and death), by collecting images and videos posted using the #ultrasound and #funeral hashtags. Querying the Instagram API for a given hashtag returns textual metadata for relevant tagged content, including location coordinates, filter, comments, user information, and links to the media but not the media itself. An archival and methodological challenge here involves the study of visual

content when scraping and storing said content goes against a platform's own policies. Our initial analyses have concentrated primarily on the visual representations of ultrasounds and funerals, their experiences and construction in person and as social media events, and the associated, sometimes unexpected, forms that tagged content might take (from memes and image macros to advertising, to media unrelated to our research context but relevant to other meanings of funerals) (see also Gibbs et al., 2015). The textual is used here to support our analysis of the visual depictions and representations, and to clarify intent and context, for instance by identifying images taken from film and television. Yet Instagrammatics can obviously be extended to other elements of Instagram content and activity. Such extensions may use tools developed for research purposes, such as the Digital Methods Initiative (DMI) Instagram tools developed at the University of Amsterdam (DMI, 2015), and surfacing tools offering initial overviews of visual content based on tags (e.g. Websta.me) and location (e.g. Gramfeed.com). In our Instagrammatics workshops, we use these tools to highlight the diversity of topics, angles, and contexts that might be studied here, as participants bring their own research interests, personal practices, and ideas to the study of Instagram. Similarly, other approaches to doing research with and of Instagram include the large-scale, quantitative analysis of particular content forms, such as selfies, or media posted from specific locations (Hochman & Manovich, 2013), and interviews and observations from individual users or communities of interest (see also the work of Crystal Abidin, e.g. Abidin, 2014).

While Instagram encourages photographic content, presented (until 2015) as a square image and filtered using numerous artistic options, and particular forms like selfies attract prominent coverage in popular media, our workshops also underline the use of other forms of visual communication by Instagram users. These are as both media object, through artwork, memes, videos, collages, infographics, inspirational

quotes and poetry presented through images, and as conversational elements like emoji. This content is often shared across other platforms, or has its equivalents and comparisons in other, related forms. A key part of a platform-specific approach like Instagrammatics, then, is the ongoing consideration of the app itself: its development and evolution, the changes in access and user capabilities. For instance, since our first data collection in early 2014, Instagram has introduced new associated apps, including Layout and Boomerang, which offer functions for which previously users had to employ third-party apps (collaging images and creating their own GIFs). Among other innovations, it has also enabled users to edit their captions after publication, introduced new filters and display and publication options, and supported emoji hashtags. To study social media is not just to study users and networks, content, information, and interactions: it is to study the platforms and their contexts, their affordances and changes, including with relation to other social media platforms.

The visual beyond Instagram

Our exploration of Instagrammatics is predicated upon Instagram users employing and responding to particular devices in their content-sharing which are, if not unique, then at least highly specific to the platform. It is crucial to note how social media users are active on multiple platforms, how content and information move and morph across platforms, and practices on one platform may shape those on another (at the individual and the structural levels), as argued by Driscoll and Thorson (2015). The extended social media context – along with wider personal, cultural, and environmental factors – is an essential consideration for Instagrammatics, and for other social media research. At the same time, though, what is possible on Instagram is not the same as on Twitter, Facebook, or Tumblr: there are practices and communities on one platform which might not be present on the other, or which have originated in one space and appeared in

others with cross-posting and the popularisation of behaviours. This can be seen on Instagram through such features as the aesthetics of the available filters, the privileging of instantly sharing information, and the creation of hashtag tropes in response to these (whether used sincerely or ironically) such as #nofilter and #latergram. Such options might be available elsewhere, the content might be shared on other social media, and the hashtags might get used in other spaces (including for other purposes), but they have a particular meaning on Instagram.

Our initial focus on Instagram is then intended as a starting point for approaching and interrogating visual content across other platforms, whether using similar methodological foci like hashtags or not.[1] Memes are not restricted to one platform or template, for instance, and indeed their historical trajectory, contested popularity, and cultural implications as meme creation became accessible and not 4chan-only has been discussed in depth (Miltner, 2014; Shifman, 2014ab; Phillips, 2015). Repositories like imgur and Giphy are used for both sharing and popularising images and GIFs, and as sources for media embedded in posts and reuploaded on other platforms. Our means for interrogating visual content on social media, then, requires analytical flexibility – where datasets include user photographs, appropriated memes, GIFs, and other media – and investigative capabilities. Tools like Google's Reverse Image Search offer some ability for researchers to locate image sources (including relocating images shared elsewhere, now under broken links). Potentially, Google's Cloud Vision API (launched in December 2015) provides visual analysis options, albeit with the obvious caveat of data being shared and processed through Google.

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[1] Further tools developed by the DMI, including the Tumblr tool, have hashtag searches as options, which can be useful for a consistent departure for multi-platform research – while noting, of course, the different structural and individual uses and non-uses of hashtags.

The visual aesthetics of social media can complicate attempts to discover authorship, or determine 'authenticity'. Questions of self-representation, of performance and the authentic/inauthentic self are ongoing concerns for social media research more broadly, and are raised by individual media objects too. For instance, Instagram filters enable publication of pictures which are not the same as the original captured photograph (just as analogue photographs could be retouched and filtered). The question of an 'authentic' image on Instagram is perhaps less artistic concern and more aesthetic contest on the platform (#nofilter). However, there are contexts, including photojournalism, where artistic editing of social media content has greater implications (see Alper, 2013; Borges-Rey, 2015). Other visual trends, such shitpics and the idea of 'internet ugly' (Douglas, 2014; Feldman, 2014), blur this further by layering and editing other images, creating new, deliberately ugly memes that mess with their established cultural and structural conventions (and with social media cultures).

Image editing and faking, including the use of Photoshop and similar editing software, is an established component of visual social media, for meme creation and deliberately misleading material alike. Photoshop memes and templates involving visual juxtaposition and composition, such as Texts From Hillary, Pepper Spray Cop, and McKayla Is Not Impressed, variously offer humour and commentary, with often very obvious clues that this is not an actual scene being depicted (Anderson & Sheeler, 2014; Bayerl & Stoynov, 2014; Leaver, 2013). The deliberate and malicious fakery apparent in response to breaking news, unrest, and crises, though, offers commentary in a form that may place blame on innocent groups, inaccurately represent them, or claim particular events are taking place when they are not. When plausible (or aimed at an audience that is receptive to their apparent truth), these images can spread widely before any correction is made (and without the correction being spread in the same way – which of course is also apparent for text-based rumours and misinformation). Such

images have been apparent following recent cases of Baltimore, Maryland, in early 2015 (mac Suibhne, 2015), and following the Paris terrorist attacks of November 2015 (Bolton, 2014). This is not an altogether new phenomenon (Frank, 2004), but the new element is the scope and scale, and potential for immediate spreadability, for such material. These concerns are enabled through the instantaneous publication of social media, and the ubiquity of devices and data connections (in Western contexts, at least), especially given the importance of visual reports from crises and disasters, and the affective value of the visual (Hjorth & Burgess, 2014; Vis, Faulkner, Parry, Manykhina, & Evans, 2013).

The visual is critical to story-telling and meaning-making, and on social media this variously incorporates the original image, the edited and collaged media, and the appropriated visual. This latter category includes the use of pre-existing media items, applied in new and unrelated contexts as signifiers of particular emotions, opinions, punch lines, and reactions. For example, reaction GIFs drawn from popular film and television isolate and repeat moments of action or dialogue (whether a wink or a nod, a gasp or a laugh, to more extravagant actions) which can be used as an individual's response to a previous post or another's claim. Such loops have applications for fandom, both in highlighting key moments in perpetuity in their original form and as remixes, mashups, and visual fanfic (Thomas, 2013; Petersen, 2014). Their use extends to entirely new contexts, from the social to the political. The listicle approach to publication, popularised by BuzzFeed, of presenting [n] items on a particular theme, illustrated with GIFs for each item, has brought increased visibility to such applications of visual media. These intertexts do not necessarily need the observer to be familiar with the source to understand the new construction: just as one did not simply have to have seen *The Fellowship of the Ring* to use that image macro template (Figure 1), a user does not have to have seen *30 Rock* to get the sentiment behind Liz Lemon (Tina

Fey) high-fiving a million angels or to use the relevant GIF (Figure 2). However, additional levels of meaning or significance may also be apparent to those who are familiar with the relevant source texts, as well as the social media cultures and contexts in which they have found the appropriated loop. Similarly, while such items might originate in repositories such as imgur or on platforms like Tumblr, where communities around fandom and identity make extensive use of the visual, these media are continually employed in other settings, shared as is and reused for purposes beyond the intent of the creators of source text or GIF version.
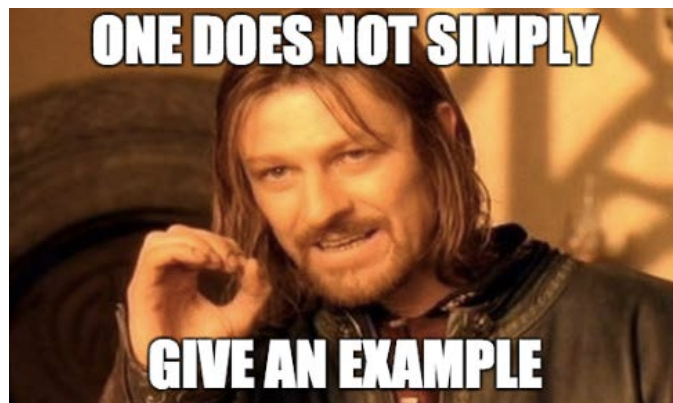
Figure 1: Example of the 'One does not simply' meme, created with

MemeGenerator

Figure 2: Screenshot of GIF featuring Liz Lemon 'high fiving a million angels'

Methodological questions with visual social media

Visual social media then raise questions around copyright and authorship that become quite fuzzy, and which require consideration in the development of digital media research methods. In addition to appropriating existing texts, there are appropriations of appropriations, remixes of remixes, and more. To say that copyright is a contested issue in networked culture is radically understating the case. Questions of copyright, creativity, transformative works, fair use, and fair dealing are seemingly an inescapable part of the circulation of visual material online (Lessig, 2005, 2008). The fact that social media operate within many different national legal settings is another complicating factor. For example, in the US fair use exceptions of copyright law often hinge on how far a new work transforms an existing piece (to what extent the resulting piece is demonstrably new and innovative), while Australian law does not take this into account. When studying visual social media, these multiple national and legal frameworks can all come in to play as content spreads across networks and platforms. Memes based on image macros – text overlayed on the same image – might arguably be transformative and thus fair use in some contexts, but not in others (Milner, 2013). For researchers, even in banal circumstances, the legality of everyday practices often needs to be taken into account when designing studies and considering ethical implications. Given that many instances of visual social media exist in the grey areas of legality (even if the risks involved may be extremely small), this must be considered in researching the area.

As visual social media has expanded to include live-streaming apps such as Periscope, additional layers of copyright complexity arise. When viewers live-stream television events, they may circumvent payment (such as sharing subscription television material) or upset scheduling plans. The latter includes where major sporting events are initially broadcast at a delayed time in particular countries (see Leaver 2013). Such

instances may be subject to copyright claims, even when apparent value has been added, such as commentary from the Periscope account holder.

Beyond research design, copyright is one of a number of challenges in terms of visual social media archives and records. Copyright claims over a particular piece of music, or film clip, could render entire collections of memes or videos invisible on particular platforms. For example, many of the popular 'Hitler reacts' video memes, which add humorous subtitles to scenes of an angry Adolf Hitler from the 2004 film *Downfall* (Gilbert, 2013), were subject to a copyright claim by the film's copyright holder, Constantin Films (Crowell, 2010). While the claim was debatable, the clips disappeared from many platforms for a period of time, effectively removing them from accessible archives. Furthermore, many visual social media tools situate visual material as conversational rather than archival. In some cases, such as Snapchat, visual material is deliberately ephemeral – by default the images and videos are deleted after a short period (from a user perspective, at least). In privacy terms, not archiving conversational visual social media by default is probably a positive move, avoiding many unintended consequences of persistent media, but from a research perspective it necessitates alternate approaches to access and analyse practices involving such platforms and material.

Platforms like Snapchat, as well as other visual social media forms, also raise questions around temporality. For more ephemeral media like Snapchat, the visual is ostensibly shared fleetingly, and if a screenshot is not taken by the viewer then it is gone forever – although Snapchat's own affordances and policies have changed over time to include the option of sharing previously-recorded media and to confirm the storage of user content on Snapchat servers (Snapchat, 2015). The promise, or intent, of ephemerality though may place different import on communication through Snapchat, as disposable and brief visual text messaging for instance, than on the constructed visual

presentations on other platforms (see also Ekman, 2015). For other platforms, the experience and visual depiction of time is an important consideration for user practices and for the media itself. The promotion of 'in the moment' sharing through Instagram, for instance, has seen user cultures developing in part in response to the view of non-instantaneous posting as undesirable, explicitly clarifying after-the-fact publication with captions and hashtags like #latergram or #latepost. This comes with notable exceptions, of course, including the shared nostalgia encouraged by Throwback Thursday (#tbt), but even here, while the past is encouraged it still needs to be clarified as not current.

Methodological considerations of temporality also need to respond to visual social media that reject or work beyond traditional ideas of timelines, of definite start and end points (Maeder & Wentz, 2014; Poulaki, 2015). Animated GIFs, Vine clips, and media created using apps like GiphyCam or Boomerang, create meaning and effect in part through looping. The 6 second length of Vine clips is extended into perpetuity by looping, while GIFs offer opportunities to isolate emotions, underline humour, and break sequences into key moments. Time is not a defined constant for all viewers of this content. A user might watch a Vine loop once, twice, or leave it running for dozens of iterations, taking different meaning and significance from it. Similarly, these media are used for a wealth of different purposes, from demonstrating fandom to creating or subverting expressions of identity (see Ash, 2015; Cho, 2015). Further cultures of remixing and user-generated content play with time further, looping media to the limits of what YouTube has variously allowed for uploaded video content (from 10 minutes to 10 hours and beyond), and slowing down and speeding up this same content for further effect. Finally, there are media which are experienced live but which do not necessarily persist (and which might not offer a rewind function if joined late). The live-streaming of protests, game sessions, artistic creations or talks, through Twitch, ustream, Periscope, Meerkat, and more, demonstrates further ways in which visual social media

(and related practices and platforms) are integrated into everyday life, yet which do not offer easy means of recording and analysis. With other platforms also adopting streaming, such as Facebook's Live Video feature, further consideration is required of this dimension to sharing and broadcasting through visual social media (and its applications to new contexts, including news and politics).

A further methodological question concerns the multiple levels of meaning of the visual, and how platforms support and display this. This includes the polysemic nature of visual media such as memes, but also how a visual object might have different symbolism when employed in different ways. For example, emoji are not treated as simply straight visual representations of facial gestures, food, flags, or animals, but have their own connotations individually and in combination. The eggplant, peach, and taco emoji, for instance, can represent their respective foodstuffs, but are also stand-ins for parts of the body not featured in their own emoji: the penis, the butt, and the vagina (Bonnington, 2015).[2] The symbolism here has also meant that emoji are used for content and communication not necessarily endorsed by platforms, with the eggplant being placed on Instagram's list of banned hashtags and not searchable on the platform (Griffin, 2015); although, at the time of writing, this was only the solo eggplant, with multiple eggplants in a hashtag, along with other combinations, still present in search results. In addition to sociocultural conventions of emoji use, as with other visual media there are issues of representation, accessibility, and diversity surrounding the media itself – for instance, the lack of racial diversity and inequality in representation through emoji prior to 2015 (Tan, 2015). Emoji are also affected by both the Unicode Consortium, the body which creates and standardises emoji, and by the devices used. Users on Android devices may see emoji in slightly different forms to iOS or Windows

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[2] This is using the official Unicode set: other developers have created emoji that are explicitly of vaginas, for example (Dusenbery, 2015).

users, and users who have not updated their software will see question marks or empty spaces where unsupported emoji might be. For research methods and analysis, this raises a range of questions relating relevant to perception and interpretation, including for methods drawn from different disciplines: what can be seen by different users (e.g. those posting and those reading the content)? How does content featured in API-derived datasets differ from the same content seen in its original context? What is missing? What is missing but not perceived? What is seen but not supported in data collection or analysis processes?

Ethics and visual social media

In concert with methodological concerns, there are a number of ethical questions around analysing visual social media platforms. Privacy is a particularly complex terrain. For example, the shifting privacy settings and practices on Facebook make it difficult to be certain that visual material shared publicly by individuals was definitely intended to be visible to the entire web (boyd, 2008; boyd & Hargittai, 2010). For other platforms such as Instagram, where users either have public or private accounts, the question of privacy ostensibly appears more straight forward. However, even with Instagram there are actually far more nuances in terms of whether an image is actually completely private or shared publicly in some fashion (Highfield and Leaver, 2015). In part, this complexity can be illustrated by situating Instagram, like most visual social media apps and platforms, as always evolving in both technical, policy and ownership terms (see Table 1). Instagram began as an app only available on iPhones, with a very small userbase, no access for non-mobile users, and run by an independent private company. Over the next five years Instagram grew to have apps on all popular mobile devices, official and third-party web interfaces, 400 million users, and most significantly, is now owned by Facebook. While some earlier users may have experienced Instagram as a relatively

small community, and thus relatively private, the changes to the platform over time

have made Instagram visual media far more public even if, at a technical privacy level,

nothing has changed. In this context, it may be more useful to move away from the

binaries of public or private, and consider whether the act of researching surfaces

material that would otherwise had little attention and whether amplifying that material

through research and research reporting has the potential to do any harm.

Table 1. Instagram Timeline	
6 October 2010	Instagram app launched via Apple's App Store
12 December 2010	1 million registered users
3 August 2011	150 million photos uploaded
September 2011	10 million registered users
3 April 2012	Instagram releases Android version
9 April 2012	Facebook purchases Instagram for $US1 billion
26 July 2012	80 million registered users
16 August 2012	Instagram Photo Maps launched
5 November 2012	Instagram Profiles for the Web launched
5 December 2012	Instagram removes ability for photos to appear as 'cards' on Twitter
17 December 2012	Instagram Alters Terms of Use
18 December 2012	Instagram reverts to previous Terms of Use after public backlash
26 February 2013	100 million active monthly users
20 June 2013	Instagram adds video (15-seconds maximum)
10 July 2013	Instagram adds native web embedding for photos and videos
6 September 2013	150 million users
12 December 2013	Instagram Direct messaging service added
24 March 2014	200 million users
26 August 2014	Instagram/Facebook release Hyperlapse app via Apple App Store
10 November 2014	Instagram enables photo caption editing after posting
10 December 2014	300 million users, 70 million photos & videos shared per day
24 March 2015	Instagram/Facebook release Layout app via Apple App Store
27 August 2015	Instagram adds native support for portrait/landscape (non-square) photos/videos
1 September 2015	Instagram overhauls Direct with threaded comments and 'send to'
22 September 2015	400 million users (75% of those outside the US)
22 October 2015	Instagram/Facebook launch Boomerang looping video app

These ethical questions abound given the highly personal content that might be featured within visual social media. As with other social media communication, there are practices that are intended to be visible to some groups (using a particular hashtag, for instance) but which might not be considered as potentially viewable by a wider audience (or seen as potential research subjects). Visual content might also reveal additional information about an individual than tweeting, including background details not necessarily considered by the user when posting but which are visible to other users. When something is shared with an audience, and is thus ostensibly public from a research ethics point of view, there is still a need for responsible treatment by the researcher (including in presentations and publications). This is especially apparent in cases where highly personal visual content is illicitly taken, shared, and employed without consent (whether posted online with or without consent), including creepshots, revenge porn, stolen personal images, and the appropriation of personal images for new, and undesired, contexts (Burns, 2015; Tiidenberg, 2015; van der Nagel, 2013; van der Nagel & Frith, 2015; van der Nagel & Meese, 2015). Similarly, these questions are applicable when the visual is seen as problematic not by the users posting it, who view it as mundane or artistic, but by the platforms and other users (and thus the media might be flagged and taken down; see Crawford & Gillespie, 2014): this includes content featuring breastfeeding and menstruation, and which have generated their own visual responses and activism both towards platforms and wider social norms (Boon & Pentney, 2015; Olszanowski, 2014).

Conclusion

Visual social media content is an important part of everyday activity on platforms from Facebook to Vine, Twitter to Tinder, through profile pictures, memes, information-sharing, and affective imagery, and employed to respond to any number of topics. The

large-scale and automated analysis of textual social media activity has generated detailed studies into platforms like Twitter, but this is not the whole story of how a platform is used. Meaning and intent are shown by multiple levels of visual and textual content on social media, highlighting the digital and cultural literacies of users and the tropes, affordances, and practices apparent on different platforms. Developing approaches to track and study the visual as widespread social media form, including across platforms as content is shared and reappropriated, is a necessary undertaking for a critical understanding of social media use. As we become increasingly visual in our social media communication, it is imperative that the visual and the mixed social media content and cultures are similarly featured in social media research, building on the related work carried out in computational sciences, digital humanities, and Internet Studies. In this paper, we have raised questions and provocations for social media research, whether focused on the visual or not: while we have not provided answers to these questions, these are critical considerations for a key part of online activity, and for methods in tracking and analysing such communication. These methodological, conceptual, and ethical considerations are variously applicable to other social media content, of course, too: they are of particular importance to the visual because of the increased support for such media by different platforms, the ubiquity of devices like smartphones for capturing and sharing this content, and communication practices which involve visual media alongside, or instead of, text.

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