Connective visual mapping: A methodological approach to analysing Instagram data

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This paper offers reflections on the use of an original method for analysing visual social media data – what I term ‘connective visual mapping’ - utilised during my two-year platform study of Instagram. Connective visual mapping is a platform-specific method that addresses the nuanced and dynamic site of the networked image and its environment, using a number of digital tools to collate and analyse data. It involves macro mapping of tag data and micro mapping of specific examples and profile connections within the platform interface. My study focused on the case of the 2017 Manchester Arena attack, where I analysed image post data from two broad event hashtags – PrayForManchester and ManchesterAttack - on the day after the incident, May 23, 2017.

Few methodological approaches and research tools geared towards visual social media exist for three main reasons: firstly, connective media research has primarily focused on text-centric platforms such as Twitter; secondly, because of the functional restrictions related to commercial platforms like Instagram (Highfield and Leaver, 2015); and thirdly, as a result of the nature of visual content itself (Bleiker, 2015). Instagram as a site for user engagement with terror attacks in particular has been overlooked, as research tends to focus on Twitter (e.g. Frey, 2018, Smyrnaios and Ratinaud, 2017, Burnap et al., 2014, Eriksson, 2016). I therefore found it necessary to develop ‘connective visual mapping’ to address the dearth of research methods for Instagram. I used this method in tandem with qualitative content analysis (Schreier, 2012), as it provided additional detailed and platform-specific context that the coding of categories alone could not cover.
Connective visual mapping

The name of the method includes “connective” and “visual” to demarcate the context of visual social media, drawn from van Dijck’s term “connective media” (2013). The inclusion of “mapping” highlights the macro and micro processes of this method, which aim to provide both broad and specific contextual details during the data collection and analysis. By addressing the platform-specific perspective, my method sought to address the limitations of content analysis, about which it has been argued that content analysis “fragments” content, thereby removing it from its contextual meaning (Rose, 2011:88). Connective visual mapping therefore seeks to follow the “natural logic” of Instagram (Caliandro and Gandini, 2017:62), by acknowledging everyday user practices, and the way common social media markers such as hashtags perform different functions on Instagram compared to platforms such as Twitter.

Following Highfield and Leaver’s platform approach of “Instagrammatics” (Highfield and Leaver, 2016), I adopted the two most-popular event-specific hashtags as the central anchor points around which to collect data for the study. I then began a process of investigating suitable tools for collecting Instagram data. Several existing studies of Instagram rely on methods of data gathering through querying Instagram’s public Application Programming Interface (API (e.g. Leaver and Highfield, 2018, Mahoney et al., 2016). However, at the time of data collection, February to April 2018, Instagram announced it would retire the existing API (Constine, 2018), which was fast-tracked following parent company Facebook’s Cambridge Analytica scandal (Kleinman, 2018). This meant that Instagram began immediately restricting third-party access to its API, severely limiting data collection options (Constine, 2018, Schroepfer, 2018).

While backend platform policy changes often go unnoticed by users and researchers, they inevitably affect the methods of studying these environments (McCrow-Young, 2020). To address the challenge of Instagram’s API restriction, I chose to collect data from Instagram using the desktop application Picodash\(^1\), previously ‘Gramfeed’. Third-party applications like Picodash are primarily targeted at business users; however, some have been successfully utilised as surfacing (Locatelli, 2017) and collection tools (Zappavigna, 2016) for Instagram research. As a filtered search application, Picodash allowed me to easily survey data for any given keyword, hashtag, location or date\(^2\). I requested a custom export of metadata for the two hashtag streams, received as a .csv file from Picodash.

\(^1\)www.picodash.com

\(^2\)At the time of data collection, Picodash offered a custom export service for larger amounts of Instagram data. This export was delivered as .csv files for each hashtag, and included several fields as metadata (e.g. post ID number, link, time created, date created, username). Due to Instagram’s API restriction in 2018, third-party application functionalities were restricted.

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Using the data export, I began the macro and micro mapping processes, using a number of digital tools to both collate and analyse the data. Macro mapping involved the analysis of tag data, specifically hashtag and account tag data, in order to gain an understanding of “platform vernaculars” (Gibbs et al., 2014), such as everyday user practices of tagging. Micro mapping involved close analysis of specific examples of interest, by tracing profile connections and links within the platform interface as well as image connections through additional tools such as reverse image search.

**Macro mapping**

The macro tag mapping process involved first collating all hashtags and account tags from each image post within the dataset. I adopted a combination of automated and manual approaches using the Picodash metadata export, which was manually supplemented by a research assistant using the platform. While the hashtag data was largely available as metadata from the Picodash export, it needed to be supplemented with manual extraction taking into account vernacular practices by Instagram users. For example, the hashtag metadata only extended to hashtags within caption text, whereas Instagram users commonly supplement their post captions by adding a comment with a list of hashtags. Therefore, the research assistant loaded each post in the dataset into the platform interface, checking for hashtags in comment fields and adding these to the Excel matrix if they appeared. The collation of account tag data was extracted through the same manual method, as account tags commonly appear within the live image and therefore cannot be extracted automatically as metadata.

Having collected the tag data, I created an overview of tag practices across the dataset, identifying the average numbers of hashtags and tagged users per post, as well as the number of unique hashtags in the dataset. I then processed the tag data by creating two master lists of hashtags and account tags within the dataset, ranking them according to number of times used. From these lists, I created visualisations using a wordcloud generator tool, Wordle. This visual mapping using Wordle was useful for illuminating patterns in the tag data, particularly the most-widely adopted tags, and aided in understanding how popular tag practices intersected with responses to violent crises.

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3‘Account tag data’ refers to other Instagram usernames tagged within images and captions by the user
**Micro mapping**

The micro mapping process involved flagging examples of interest and taking note of recurrent visual and textual patterns such as matching or highly similar images. These flagged examples allowed for a further mapping of repeated visual elements and close analysis of specific image posts and their accompanying text. I used two micro mapping processes to analyse these data points, firstly exploration of user profiles and connections within the platform itself, and secondly conducting image searches using the online tools.

First, the process of platform exploration centred on identifying initial examples as anchor-points and then following platform elements to provide further context for analysis, such as profile links, live links and tags. This allowed for an observation of vernacular practices within their intended context, as part of the platform itself, aiding in further familiarisation with the data. Following this, I used additional tools to capture and preserve relevant platform details, such as screenshot tools, as well as manually noting patterns of interest. These micro mapping approaches can be likened to aspects of digital ethnography (Pink, 2016) or netnography (Kozinets, 2015) in that they involved following digital traces within a specific online environment. While this process built on digital ethnographic elements of immersion within digital spaces and amongst data as it was intended, it did not involve interviews via the platform with participants, as this was beyond the scope of my research aims.

The second aspect of micro mapping involved identifying repeated visual elements for analysis. After noting recurrent visuals across the dataset, such as illustrated quotes, I performed a series of reverse image searches. These were conducted primarily through TinEye and Google reverse image search, and provided insights into the popularity of specific corresponding images, as well as revealing additional patterns. As these reverse image tools collate instances of the time, date, and number of times an image has appeared online, they were useful in tracing similar images beyond the case. For example, the reverse image tracing provided additional context regarding links between multiple contemporary terror attack responses, allowing for an understanding of how this specific case related to its global context. However, as with many of the digital tools I used here, particularly a wide-reaching service such as Google, I acknowledge that these are commercial services with their own policies, raising ethical implications for research projects (see, McCrow-Young, 2020).

**Concluding remarks**

Conducting research in a commercial space such as Instagram, which continues to make technological and policy changes, necessitates adopting a platform-specific approach such as...
connective visual mapping, which takes into account the shifting context of the platform’s development. Where a method such as content analysis is able to address the images themselves, the addition of connective visual mapping provides macro and micro insights into their context. The method acknowledges the technological functionalities of the platform, such as its algorithms, as well as the particular user ‘language’ or “platform vernacular” (Gibbs et al., 2014) it encourages. Although Instagram presents a number of challenges for researchers, such as access (McCrow-Young, 2020), further transparent methodological discussions are needed in order to develop novel approaches that can applied to any number of cases. Visual social media’s ability to fuse “the political and the mundane, the extraordinary and the everyday” (Highfield and Leaver, 2016:48) highlights the importance of continuing to understand the myriad practices, patterns and affordances of a space like Instagram.

References


