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Twitpic-ing the riots: analysing images shared on Twitter during the 2011 UK riots

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Introduction

Crisis events like natural disasters and civil disobedience can be intensely visual and it is often through images that we come to know and remember them. Photography has been a long-standing medium for the recording of such events, especially after the establishment of photojournalism during the early and mid-twentieth century. With the popularisation of

digital cameras in combination with the development of social media, large amounts of user-generated imagery is typically produced in response to crisis events and circulated within wider media ecologies. Of particular importance is the widespread use of camera phones with a networked capacity, making these devices not merely cameras, but ‘communication-connection device[s]’ (Cruz & Meyer, 2012, p. 214). This technology enables a wide range of bystanders to create images on-the-spot to either send to mainstream media organisations, upload to image-sharing platforms or share elsewhere online. In the London bombings (July 2005), camera phones were used by witnesses and people involved in the events to produce images that were posted online and sent to the BBC and *The Guardian* newspaper. It was also around this time that image-sharing site Flickr (founded in 2004) began to come to prominence as a platform for sharing images of crises, produced using camera phones amongst other devices (Lui, Palen, Sutton, Hughes & Vieweg, 2009). More recently Twitter has displaced Flickr in terms of its real-time image-uploading role (Burgess, 2011).

Research that includes discussions of images of crisis events on Twitter is already emerging and in part extends crisis communication research into online photo-sharing. For example, Murthy (2011) notes the uploading to Twitter of a picture of the US Airways jet that crashed on the Hudson River in January 2009, while Sarcevic et al. (2012) discuss image content in their study of medical Twitter users during the 2010 Haiti earthquake, noting that 85 percent of these users uploaded or tweeted links to images. In their analysis of the 2011 Pukkelpop festival incident in Belgium Terpstra, Vries, Stronkman and Paradies (2012) emphasise the immediate and after-the-fact evidential value of tweeted photographs. In contrast Reuter, Marx and Pipek (2012, p. 8) note that due to the collapse of the mobile phone network images could only be uploaded *after* a fatal incident killing 21 at the 2010 Love Parade in Germany. Bruns, Burgess, Crawford and Shaw (2012, p. 7, also see Burgess, 2011) note the importance of images in their research on the role of Twitter during the 2011 Queensland Floods, observing that one in every five shared links was to an image. In response to this literature we encourage further research that focuses on Twitter images as a subject in their own right.

Such work requires the development of new approaches to Twitter images, combining the discussion of their basic content with the study of other aspects of their function and meaning. This chapter is exploratory in nature and addresses these issues through examining image production and sharing practices on Twitter during the 2011 UK riots.

The riots began with a protest on 6 August 2011 over the killing by police of a young black man (Mark Duggan) in Tottenham on 4 August. This protest took a destructive turn when police vehicles and a Double Decker bus were set on fire and was followed by four further nights of confrontations with police, looting, and destruction of property across London and the UK. In the absence of an official enquiry into their causes, a ground breaking project, ‘Reading the Riots’¹ was established between *The Guardian* and a number of UK academics, including the current first and last two authors, to better understand the riots. As part of the project, Twitter’s role in the riots was investigated and 2.6 million tweets (donated by Twitter) were analysed. Because we worked with the same dataset based on a series of riot hashtags, images included in this chapter were subject to the same limitation. To partially overcome this, search engine Topsy was also used to compare image share frequencies beyond the confines of this dataset.

The next section describes the methods we used. We then move on to discuss the findings. We discuss a number of general findings followed by more detailed readings of a set of images in the ‘bus’ subcategory. We end the chapter with a brief conclusion drawing on a range of concepts we see as relevant for the further development of research in this area.

Methods

In order to distinguish images, we first identified all links in the dataset. A total of 10,001 unique, mostly shortened links were extracted, which had been shared 19,315 times during the four days. Links were resolved and coded as follows: (1) image sharing platform (2) video sharing platform; (3) social media platform; (4) mainstream media – riot coverage; (5)

mainstream media – other; (6) alternative media; (7) Blogs (included in Technorati top 100); (8) Blogs – other; (9) Websites – news focused; (10) Websites – other; (11) Spam; (12) Broken link.

We then organised the images into categories according to their basic denotative content following a conventional content analysis approach. All links pointing to image-sharing platforms were thus coded as follows: (1) police car (burning, attack, and aftermath); (2) bus (burning, aftermath, and altered image); (3) other vehicle (burning, attack, and aftermath); (4) building (burning, aftermath, before and after shots); (5) looting (in the act, aftermath, trophy shots); (6) screenshots (TV screens); (7) street scenes; (8) police; (9) arrests; (10) image of text (screen grab other than TV screen, sign, newspaper front page); (11) riot clean up; (12) unclear; (13) other; (14) excluded (not about riots, not single still image, broken link, image removed etc.).

Mustafaraj, Finn, Whitlock and Metaxas (2011) remind us of a ‘vocal’ minority, compared to a relatively ‘silent’ majority in a ‘long tail’ data distribution. With this in mind, two sets of files, containing all image links shared more than once (n= 433, 4620 shares) and those shared only once (n=374, 374 shares) were kept separate. Both sets were double coded and inter-coder reliability was calculated using ReCal (Freelon, 2010). For the multiple shares Scott’s pi was 0.824 and 0.838 for the single shares, which are both satisfactory.

We then focussed on images of the burning bus. Looking at these led us to make further subdivisions within the ‘bus’ category and to think about how the images were produced and by whom, and how they functioned in relation to general ideas about photographic eyewitnessing. Particularly useful for our speculations on this subject was Cruz and Meyer’s (2012, p. 204) redefinition of photography as a ‘socio-technical network’, which for the burning bus images involves relationships between an event, technologies that enable the production and distribution of images of this event, and a set of meanings that relate not only to the event itself but also to the very practices involved with its visual representation. In

relation to the latter, it seemed important to think about long-standing and widespread cultural commitments to photography as a key medium through which the reality of significant events can be recorded and witnessed. We would suggest that such beliefs in the evidential and witnessing capacity of photography relate in general to what people believe they are doing when they use cameras to document their visible surroundings. With the widespread use of ready-to-hand camera phones, anyone can now potentially engage in photographic acts of eyewitnessing through the sharing of images of what they have seen (Mortensen, 2011a, p. 8; Mortensen, 2011b, p.63). This eyewitnessing is not necessarily informed by any sense of responsibility or moral position (Mortensen, 2011b, p. 72). Rather it is more likely defined by a desire to give a pictorial form to seeing as part of personal experience and to contribute to the online circulation of acts of seeing. Mortensen also suggests that in an age of hyper-mediation, there is a slippage from eyewitnessing as something that is direct to eyewitnessing as something experienced through mediation (2011b, p. 70). This can be related to the complex relationships between actual and virtual space involved with the production and distribution of Twitter images. Images of crisis events are made at one point in actual space and then uploaded to Twitter from where the images can be seen by multiple spectators located anywhere in the world. These spectators can then mark their own acts of eyewitnessing by retweeting the images.

Findings

In our corpus one in four shared links (26 percent) was a still image on an image-sharing platform, compared to one in ten that were videos (10 percent). Table 1 highlights the top ten most shared image links and shows how often they were shared in our database compared to Topsy. Significant discrepancies can be seen, for example: the second most shared image link in our database is a looter posing with his loot. Although the image was quickly removed, it

was widely shared: 303 times in our database, but more than ten times that according to Topsy (3,761 shares).

TABLE 1 Top ten image links

	Image URL	Description	Our corpus	Topsy
1	http://twitpic.com/623gp0	'The moment the bus went up in flames'	357	452
2	http://twitpic.com/62m6nx (removed)	'Tottenham looter may regret posing with his loot'	303	3,761
3	http://yfrog.com/kjg6vp	Carpet shop before and after fire (via Google maps)	218	236
4	http://www.flickr.com/photos/56312368@N04/sets/72157627372500124/	Tottenham Riots August 2011 – a set on Flickr	180	199
5	http://yfrog.com/gysv8fpj	Arrest of very young looter caught outside Subway	96	281
6	http://twitpic.com/6289b1	Carpet shop on fire (same as 3)	87	347
7	http://yfrog.com/kf4rlauj	Police car, its window smashed in with bricks	81	483
8	http://yfrog.com/z/kffpgozi	Carpet shop on fire (same as 3)	76	80
9	http://yfrog.com/h8mt9hlaj	HMV (record store) being looted	69	660
10	http://hashalbum.com/tottenham	A collection of Tottenham photos from Twitter	66	229

A total of 3466 multiply shared riot images and 235 single shares were kept and included in the final analysis. Figure 1 highlights differences between these two data sets for the remaining 13 categories. Most notably, images of burning police cars were shared more in the multiples, as were images of the bus and especially of buildings. However, acts of looting, its aftermath or 'trophy shots' were more often single shares (19 percent compared to 12.2 percent). Images of TV screens were on the whole shared proportionately more frequently as single shares. Combining results (Figure 2), images of burning buildings, specifically of the Carpet Right in Tottenham, was the most shared category (794). They frequently showed 'before' and 'after' shots, often included in the same image, along with pictures of buildings on fire. One picture in particular is worth highlighting. The third most shared link (Table 1) is a 'before' image of the Carpet Right, using footage from Google Street View. This mapping technology gives users access to 360-degree, street-level imagery. The image includes, in the bottom right corner, the familiar graphic depiction of a person, allowing you to navigate the view you wish to explore. Although the Twitter user chose the viewing position and shared the image through Yfrog the original image data was created by one of Google's 'numerous

data collection vehicles' using their R5 'panoramic camera system' (Anguelov et al., 2010, pp. 32-33). This thus raises an interesting question about the production of the image and how we might consider the use of Google Street View photography and image appropriation more widely within crisis communication. The rest of this chapter focuses on the images in the second most shared category (545), the setting on fire of the Double Decker bus, which was also the subject of the single most shared individual image link in our dataset.

FIGURE 1 Multiple and single image shares according to image categories

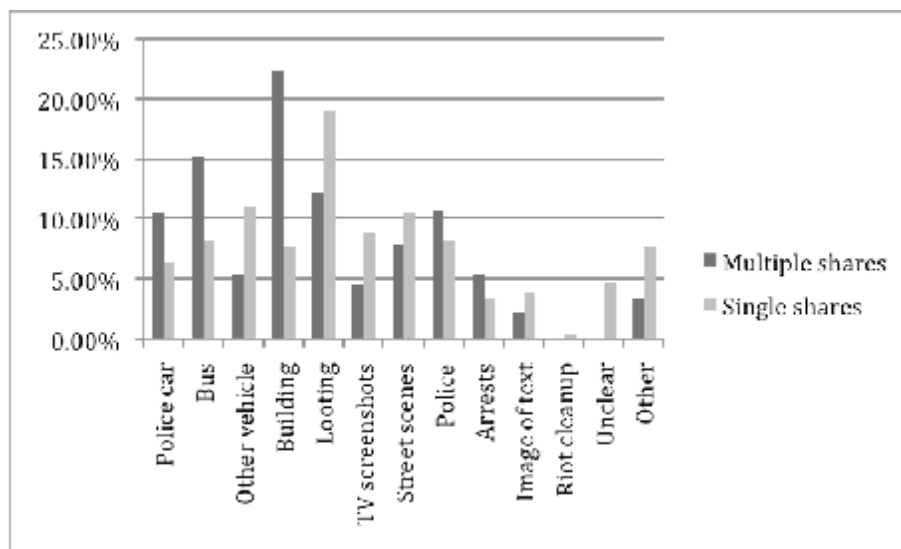
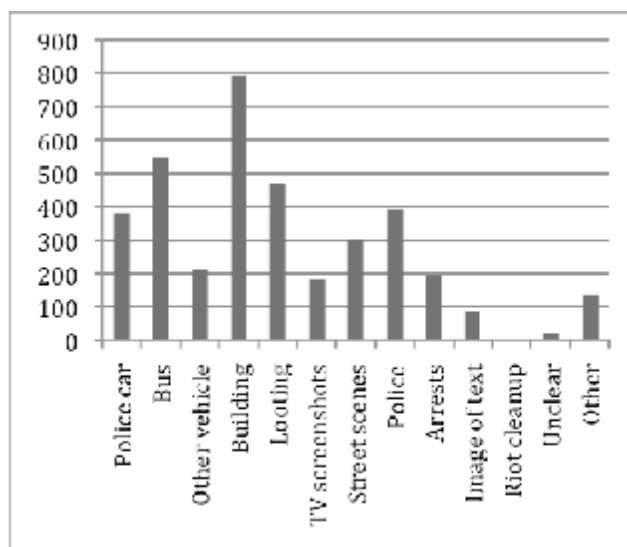


FIGURE 2 Total image shares according to image categories



The burning bus

To identify all bus images, links from the 'bus' category and those depicting the bus in TV screenshots were identified. The resulting 57 images were printed out and arranged on a wall (Figure 3) to inductively identify subcategories.

FIGURE 3 Image wall



Credit: Farida Vis

During this process a number of things became clear: the TV screenshots were all from Sky News (mostly from live broadcasts), included a timestamp so that we could establish a timeline. The earliest Sky News image was recorded at 22:56pm, the last at 23:23pm, showing the various stages of the burning of the bus within this 27-minute window. A number of images ('smoking bus', 'bus consumed by fire', 'Call of Duty', and 'Other') were subsequently identified as cropped shots of these news images even though news organisation interfaces and logos were not identified and (TV) screens not readily visible at first. These

results highlight the value of seeing the images side by side in this way. In the Sky News screen shots we distinguish between those where the image clearly shows the TV itself, placing the viewing of the event within a domestic setting and those that are more likely a screen grab from a (tablet) computer screen where news was consumed online, making the location of viewing and screenshot production more difficult to identify. In these instances the image production and sharing could potentially have taken place on the same device. Table 2 shows the bus image categories, along with the total number of unique URLs identified per category, details of shares in our database and data obtained from Topsy. In some cases image categories concern identical content: for example for those labeled ‘bus on fire’ we found 13 instances of the same image. The Sky News images were not identical in content, but rather they all depicted the origin of the content, the live TV coverage. They were spread across 14 URLs, shared 64 times in the corpus, but 394 times according to Topsy. What is more, combined with the cropped TV screens, 123 of the bus image shares in our corpus are derived from live TV, which accounts for 20 percent of the bus category.

TABLE 2: Bus image categories

	Bus image category by name	Example URL	# unique image URLs	Our corpus	Topsy
1	Moment bus went up in flames	http://twitpic.com/623gp0	4	363	475
2	Smoking bus (air full of smoke)	http://twitpic.com/622qvx	11	40	140
3	Bus on fire (engulfed in flames)	http://twitter.yfrog.com/klkd3bzi	13	72	184
4	Sky News – TV visible in shot	http://pics.lockerz.com/s/127296239	4	6	11
5	Sky News – TV not visible in shot	http://twitpic.com/622k0g	10	58	383
6	Burning bus, police and crowd	http://twitpic.com/6240hq	2	6	18
7	Bus consumed by fire	http://twitpic.com/623a1c	2	7	8
8	‘Call of Duty’ (‘smoking bus’)	http://pics.lockerz.com/s/127295300	6	10	20
9	Aftermath (carcass of burnt bus)	http://twitpic.com/62ax23	3	41	154
10	Other	http://twitter.yfrog.com/h0d9uknj	2	2	9

Returning to the most shared image (Table 1), ‘the moment the bus went up in flames’, uploaded on Twitpic, the producer is a user called @Heardinlondon, whose website highlights a keen interest in amateur street photography. This user also has a Flickr ‘pro’

account and links to the same bus image on Flickr are also shared widely. On Flickr it is part of a set, 'Tottenham Riots August 2011', which contains 29 images for the nights of 6 and 7 August. The Exchange Image File data presented by Flickr, recording the device that produced the image, shows that nine images were shot on an Apple iPhone 3GS and 20 on a Canon Powershot 3X10 IS. Three images from this set also appear on Twitpic, two uploaded via email and one, 'the moment the bus went up in flames', directly onto the site, viewed 17,555 times at the time of writing. Two additional images appear on Twitpic, which predate the Flickr set, most probably the first two images of the riots this user took. The first Twitpic, of a line of police officers with police vans in the distance behind them, seems to confirm this in the text: 'Kids on the street in Tottenham have just told me this is revenge for the police shooting the guy in the minicab'. Cross-referencing these images between platforms enables us to begin to address the complexity of their production, uploading, and sharing. The Canon SLR camera used for most of the Flickr set controls the production of these images. They can be viewed on the device, but the camera cannot directly distribute them online. The images taken on the iPhone on the other hand are produced on the device, can be viewed there and digitally distributed through it, highlighting it as an all-in-one communication-connection device. We are thus dealing with different photographic practices that reflect the status of this person as not-simply a bystander, but as somebody adopting a self-conscious role as a reporter. A second set of Flickr images, 'Tottenham Riots, the morning after' contain 86 images, of which many are also shared through Twitpic, seems to further confirm this. Moreover, if we look at how these interlinked modes of sharing were received and discussed in tweets, what stands out is that the Twitpic link to the bus image is mainly retweeted and thus not much discussed, but that the Flickr one includes positive assessments of the photographs as 'reportage', 'excellent photojournalism', 'excellent photography and initial reporting'. Such comments affirm the relevance of recent discussions of 'citizen journalism' and the now fuzzy dividing line between those who are and are not seen as photojournalists when they take pictures of such events. It also affirms the existence of commitments to the value of photographic reportage as the documentation and eyewitnessing of reality.

A different type of eyewitnessing activity can be observed in the images of Sky News (and those derived from it). As discussed in the introduction, eyewitnessing in this instance involves a mediated and spatially removed relationship to the unfolding crisis event. One technology, live TV, allows for still image creation so that Twitter users can say and show: ‘This is happening right now!’ In a number of cases those uploading these screenshots are journalists, such as Jonathan Haynes from *The Guardian*, who uploads three different screenshots, the first at 22:56pm stating: ‘Here is the bus on fire in #Tottenham yfrog.com/kiqi4bxj’ (shared 12 times in our corpus; 139 times according to Topsy). His images were thought to be computer/iPad screen grabs, different from four separate images by other users where TVs are clearly visible. This image production suggests the value of this simultaneous, removed eyewitnessing and the significance of the turning of a live TV stream into a still, shareable image. This reminds us of the way in which John Berger notes the significance of the act of photography in general in terms of the statement: ‘*I have decided that seeing this is worth recording*’ (1972, p. 179, emphasis in original). As Berger observes, photography ‘is the process of rendering observation self-conscious.’ (ibid, p. 180) This observation is even more relevant when what is documented in the photograph is partly the status of the image-maker as a media spectator. Here the eyewitness is both a spectator of mainstream media news and an image-maker who utilizes the camera phone as a communication-connection device to produce images and distribute them through Twitter. The emerging literature on Twitter in relation to TV viewing and audience engagement through ‘second screen devices’ has so far predominantly focused on entertainment (Lochie & Coulton, 2012). Our study may have identified another significant activity specifically linked to breaking news and crisis communication that mobilises audiences around hashtags, but crucially also includes active image production of TV screens and the subsequent sharing of these on Twitter.

Finally, the ‘Call of Duty’ image is a reworking (‘meme’) of the ‘smoking bus’ image, which we suggest is a cropped TV screenshot, again implying a form of removed eyewitnessing. It

is reworked through the addition of a yellow banner representing police tape ('police line do not cross') starting from the bottom left, going diagonally across the image and ending three quarters up towards the top right corner. An additional text at the top states 'Call of Duty', with the words 'Tottenham Warfare' at the bottom, both in large white capitals. This reference to the popular video game series, *Call of Duty: Modern Warfare*, relies on the audience being familiar with the popular cultural reference, suggesting possibilities for first and third shooter action in the Tottenham 'war zone'. Such an image indicates that when dealing with Twitter images there is a need for approaches that are sensitive to intertextual relationships.

These different 'bus' subcategories have started to highlight the multiple ways in which images of the burning Double Decker bus have been made, uploaded, shared, circulated and discussed on Twitter. We briefly draw some conclusions below.

Conclusion

This chapter reports on an exploratory study of images that were tweeted during the 2011 UK riots, focusing primarily on the burning of the Double Decker bus on the first night. Our study considers the tweeting of different types of images. Many were produced through digital cameras at the scene of the event then shared via Twitter. Other images were appropriated in one way or another, such as the Carpet Right image and the 'Call of Duty' adaptation. The TV screenshots are in themselves key images of the event and we have pointed to practices of remote witnessing as well as how this might be related to the growing work on mobile 'second screen devices' in relation to Twitter. These different kinds of images attest to the multifarious ways Twitter users create and mobilise images as means of communicating their experiences and thoughts. This points to the need for the development of adaptable responses on the part of researchers interested in Twitter images. Future research will also need to deal with the changing online environment in which Twitter functions as a site for viewing images

directly uploaded to it through image-sharing services and as a hub for interaction with images located elsewhere. Such research will also need to deal with the different temporalities involved with these functions: sometimes Twitter images function as real-time mediations of crisis events and sometimes Twitter is a conduit through which images uploaded elsewhere can be viewed after-the-fact.

Our discussion dealing with photographic eyewitnessing also suggests continuities between Twitter images and longstanding discourses about the realism of photography. Relationships between digital imagining technologies, Twitter, and other online image-sharing platforms are complex and dynamic, but the enduring idea of the veracity of the photographic image is a crucial part of these dynamics. As Bernd Stiegler has pointed out, photographs continue to be taken as ‘visual reflections of reality’ and ‘[n]either the alterations photography is currently experiencing within various media nor digitalisation has changed any of this.’ (2008, p. 194) This suggests the need to address how the medium of photography as a set of historically generated practices and discourses informs the making and use of Twitter images and at the same time how Twitter contributes to the reconfiguration of photography as a socio-technical network. It is our position that approaches that deal with such considerations can only enrich examinations of Twitter images and open up the interdisciplinary context of Twitter research in new ways.

Endnotes

¹ See <http://www.guardian.co.uk/uk/series/reading-the-riots>

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