Majority Report: Citizen Empowerment through Collaborative Sensemaking

Jesse Blum
Horizon Digital Economy Research,
University of Nottingham
jesse.blum@nottingham.ac.uk

Genovefa Kefalidou
Horizon Digital Economy Research,
University of Nottingham
genovefa.kefalidou@
nottingham.ac.uk

Robert Houghton
Horizon Digital Economy Research,
University of Nottingham
robert.houghton@
nottingham.ac.uk

Martin Flintham
Horizon Digital Economy Research,
University of Nottingham
martin.flintham@
nottingham.ac.uk

Unna Arunachalam
Horizon Digital Economy Research,
University of Nottingham
unna.arunachalam@
nottingham.ac.uk

Murray Goulden
Horizon Digital Economy Research,
University of Nottingham
murray.goulden@
nottingham.ac.uk

ABSTRACT

In the past crisis sensemaking activities have primarily been controlled by professional emergency responders and the media. Social media, however, has the potential to see a shift towards more grassroots and ad hoc citizen engagement. This paper sets out our vision and our progress in implementation of a new online platform called 'Majority Report', which aims to empower citizen sensemaking activities around crisis events. The concept is to facilitate citizen volunteers to draw together a range of digital media (photographs, Tweets, videos, etc.) to present stories of crisis events, and thus demarcate arguments about different understandings in terms of the temporal ordering of event narrative components and their relations to each other. Through collaborative usages of the platform, accounts may be improved by others, and variants may be presented and compared to challenge existing assumptions and beliefs.

Keywords

Crisis Informatics, Narrative, Sensemaking, Social Media

INTRODUCTION

When crisis events occur, reports may be fragmentary and unclear requiring the task of sensemaking (understanding what is happening, where and why) to be undertaken as rapidly as possible, and thereon throughout the time course of disruption. Until relatively recently, crisis sensemaking has largely been seen as a privileged activity to be undertaken by professional emergency responders and the media. However, in the digital era the balance of control of the sensemaking and crisis narrative spinning is increasingly shifting towards non-professional citizens who participate in 'a space of crisis' based around the virtual topology of the Internet (i.e. social media websites and Twitter hash tags), adding new international dimensions to stories of local events (e.g., Starbird & Palen, 2011; see also Palen et al., 2010).

Understood in this way, the use of ICT in crisis situations is an emergent behaviour amongst citizens, including people not physically present at the time of events, able to document, analyse and begin to make sense of crisis events. This activity is largely outside the control of official agencies and authorities, and proceeds with or without their involvement. Thorough analysis, however, demands consideration of provenance, agenda, and retrospective aggregation. Changing accounts of the death of Ian Tomlinson during the G-20 riots is a powerful example of emergent sensemaking from a variety of sources, whilst suggesting a new account of a particular event based on reports, and media captured by the crowd. Footage captured by chance spectators provided multiple, fragmented viewpoints of both the event and the surrounding context. This new media was harnessed by old media — in the shape of The Guardian newspaper — to refute the official account provided by the police. In contrast, following recent events regarding protesters being pepper-sprayed by police at protests, sensemaking took place in a more ad-hoc manner on online forums, with bystanders contributing eyewitness accounts, combined with online contributors adding links to videos and images that they believed provided additional context. We note that both these cases presented information and controversial understandings of what occurred contrary to and directly challenging the dominant official accounts.

The present paper describes the development of the 'Majority Report' platform for collaborative citizen sensemaking. Entailed in its design to date are considerations about how sensemaking occurs, how different arguments about the structure of crisis events can be represented, and wider questions of how the citizen may relate to the professional in a crisis situation.

RELATED WORK – SENSEMAKING AND ARGUMENTATION

Sensemaking definitions vary across different disciplines and are strongly dependent on the focus at hand. Russel et al. (1993) have considered sensemaking a searching process for a concepts representation which will then be encoded using available data in an attempt to answer particular questions. Dougherty et al. (2000), on the other hand, argues that sensemaking is a process for developing a common or shared understanding of emergent needs, acknowledging the importance of joint communication and dynamic identification of needs. From a phenomenological and socio-cognitive perspective sensemaking is initiated by strong social interactions amongst individuals (De Jaegher & Di Paolo, 2007), which formulate an iterative process between individuals' sensemaking and joint or participatory sensemaking stages. According to Savolainen (1993), the major activities of sensemaking are information seeking, processing, creating and using that information, clearly separating the notion of sensemaking (which is a process) from the notion of sense (which is the end product). At the same time, Watson (1995) has considered the act of rhetoric and argumentation a separate entity (or even an embedded one) from the sensemaking. Nevertheless, and despite the fact it has been applied mainly within research contexts, sensemaking constitutes a fundamental process occurring throughout our daily lives (Dervin 1983) while having applications across different domains such as research, learning, organisation planning, and many others.

Consequently, a considerable amount of research has been focused on creating tools for supporting dialogical reasoning and argumentation such as Bruggen et al.'s (2003) Computer-Supported Argumentation Visualisations (CSAVs) for cognitive aids, Carr's (2003) CSVAs for teaching and Cocklin's (2005) dialog mapping and 'live' CSAVs for collective intelligence. More recently, sensemaking has been suggested as a methodology for ISCRAM research, with emphasis upon information processing aspects of crises situations, and acknowledging its practical value in crises response and management research (Muhren et al., 2008). Despite the ongoing interest in the notions of sensemaking, there are limited tools developed for sensemaking. The majority of the existing tools focus on crime investigations and on argumentative storytelling (Bex et al., 2007). There is, however, a lack of sensemaking tools that employ web-based media information.

Sensemaking of crisis events has long been reviewed and investigated under organisational management and military operations contexts, mainly due to notions of ambiguity present at crisis incidents. Research within these fields often emphasises the importance that enactment, adaptability, collaboration and controversies play in crisis events (Patriota, Gond & Schultz, 2010). Furthermore, sensemaking offers new avenues for inquiries that can directly feed into policy-making and crisis management improvement (Gephart, 2007). Therefore, it becomes important to explore ways that modern technology and Social Media can facilitate enriched understandings of crisis situations employing collaborative, enactment and adaptability elements within a crisis enquiry and sensemaking process. The 'Majority Report' platform aims to offer this facilitation alongside with the ability to accommodate controversial opinions and argumentations.

MAJORITY REPORT PLATFORM FOR CRISIS EVENT SENSEMAKING

'Majority Report' is an online platform to allow the public to usefully contribute to all aspects of documenting and understanding events. The platform is informed by notions from media sharing sites such as Pinterest [1] and ideaMÂCHÉ[2], but designed with the intent to explore how users collectively organise, curate and make sense of large collections of media about crisis events, and to document the underlying narrative, informed by observations of professional practice.

As shown in Figure 1, we see three distinct roles involved in sensemaking processes for crisis events that members of the public may adopt. These roles include (i.) *Inspectors* who define the bounds of events; (ii.) *Contributors* who provide media and witness statements, constructing rich, yet agnostic archive of grounded evidence; (iii.) *Investigators* who conduct sensemaking activities, provenance verification and narrative construction in order for the public to arrive at a broad consensus of understanding regarding the event. Our service aims to support ad-hoc communities that form around events engaging with these activities, from on-the-

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[1] http://pinterest.com

[2] http://ideamache.ecologylab.net

ground participants and bystanders, to interested 3rd parties gaining an understanding of what transpired.
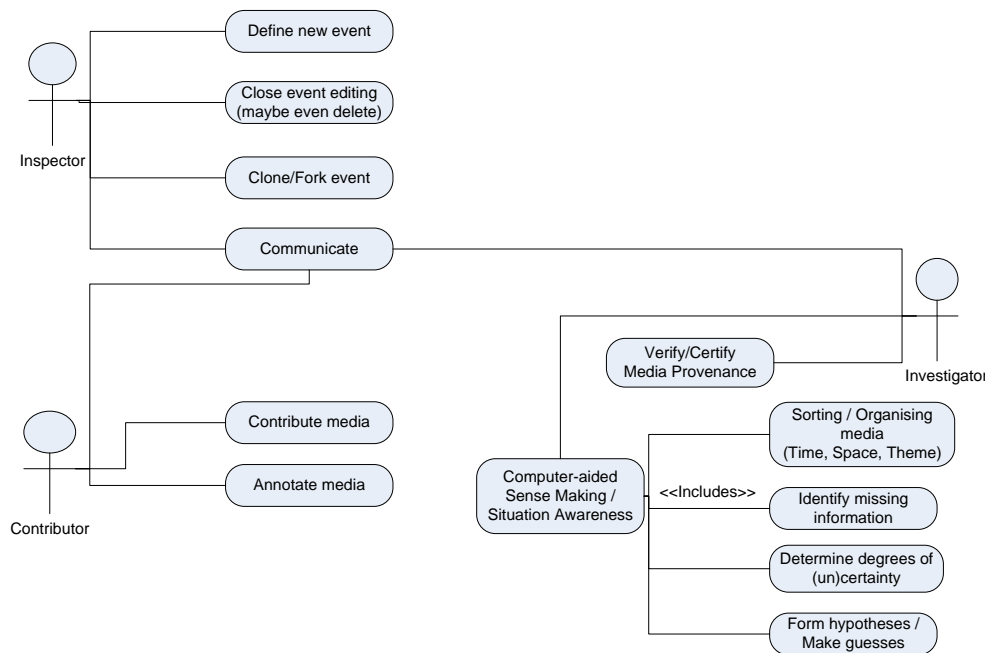

Figure 1. Majority Report Actors and Use Cases

Fundamentally, the 'Majority Report' platform provides the public with a mechanism to produce collective reports about events. These reports are underpinned by a model, as shown in Figure 2, containing a dossier of media items about the event, a narrative description of the event, and two types of provenance records. First order provenance records are used to record origin metadata about the media items (mediums), such as the photographer that took a particular picture, or the date, time, and location of a witness statement. Second order provenance records store metadata about the composition process of the reports, including all contributions (such as uploads, edits, and annotations) of the various users.
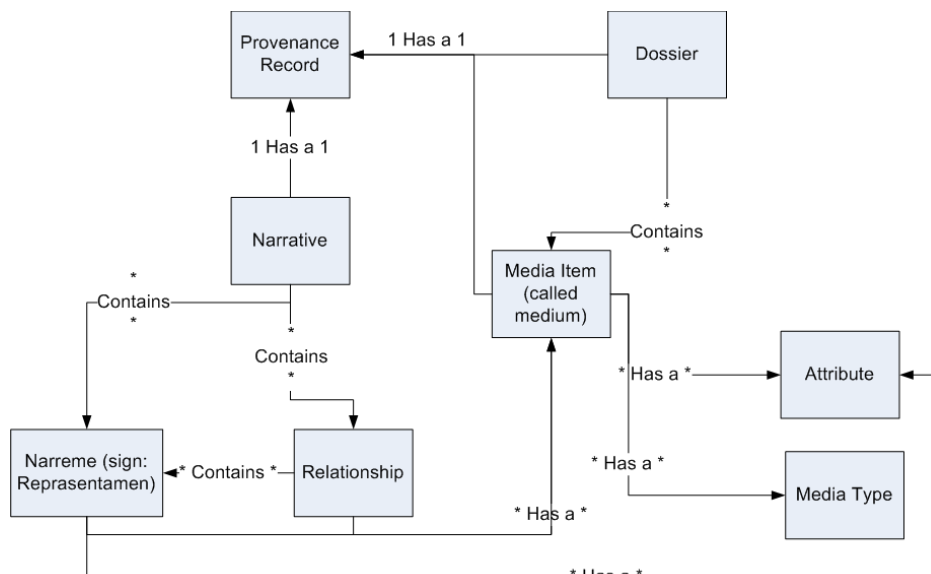

Figure 2. Majority Report Model

Instances of the service provide central online resources where links to media around events are collated and made visible. Media may be distributed; both in time and location, and sense making processes involve a variety of forms of user interaction. As such we support multiple methods of contributing media and sense-making via alternative View/Controllers (VC) pertaining to common reports about each event. As shown in figure 4, we provide VCs for direct media library insertion, map views, timelines, narrative graphing, and a freeform view. Importantly 'Majority Report' allows users to contribute their own relevant documentation from sites such as

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Figure 3. Majority report interface for multimedia management[6]

Flickr[7], Youtube [8], or Twitter[9], to add images, individual frames, video clips, and textual accounts from their own recollections or understanding.

Figure 3 is a mockup of the 'Majority Report' platform. The interface shows a number of different crisis events that can be selected from the left menu. When a crisis is selected, the main area displays tabs for its media, map, narrative, and timeline. In Figure 3, the media manager is displayed for a crisis event story around a tsunami. This interface supports real-time reactive insertion, sorting, and metadata attribution of information (including twitter and other textual reports, images, videos, and audio files) about the event from across the Internet and social media spheres. As part of a sensemaking process, users can edit items and order them through drag and drop functionality, which will automatically adjust the order for all other users at the same time, providing a real-time collaborative sensemaking experience. In addition, users can group media items and associate them with narrative components (known as narremes; see Baikadi & Cardona-Rivera, 2012). Such narremes are then related in a graph by selecting the Narrative tab, and media and narremes with geographic or date/time attributes are displayed appropriately in the Map and Timeline interfaces respectively.

DISCUSSION AND FUTURE WORK

In the present work we have set out our vision and design for the 'Majority Report' platform to facilitate citizen sensemaking through online media and gives consideration to issues of narrative structure, argumentation and provenance. A prototype has already been constructed in our laboratory and user testing is under way to identify user behavior, needs and requirements within a scenario-based sensemaking process (after Baber et al, 2013) in order to inform the iterative improvement of the system. Work on the platform thus far has raised for us the issue of how citizens may meaningfully interact with authorities in complex and ambiguous situations of crisis. Potential exists for some events reconstructed on Majority Report to be highly contested. Ethical and legal issues and obligations regarding claims made online (including data ownership, anonymity, privacy, and accountability) continue to evolve, and vary across legal jurisdictions. These issues generalise to various forms social media, and are beyond the scope of this paper, but as the platform evolves we aim to explore them in

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[6] Photography of thumbnails supplied courtesy (in order from top-left to bottom right): Sofwathulla Mohamed, David Rydevik, U.S. Navy (Mass Communication Specialist 2nd Class Andrew Meyers), U.S. Navy (Airman Jordon R. Beesley), U.S. Marine Corps (Lance Cpl. Ethan Johnson), U.S. Navy (Mass Communication Specialist 3rd Class Dylan McCord), U.S. Navy (Mass Communication Specialist 3rd Class Dylan McCord), U.S. Navy (Naval Air Crewman 1st Class Jay Okonek).

[7] http://www flic r com

[8] http://www.youtube.com

[9] https twitter com

more detail. While we identify the importance of the crowd to setting the record straight (for example with regard to Ian Tomlinson), we are mindful that not all citizen engagement around a situation may be positive with the scope existing for unwarranted conflict with the authorities. Given these concerns we also seek to expand our research to include dialogue with professionals regarding how they evaluate the platform (for their own use or not) and the possibility it could be used for official-citizen engagement between authorities and citizens perhaps via appropriate allocation of roles within the system (see Figure 1).

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