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**Twittering the Little India Riot:  
Audience Responses, information behavior and the use of emotive  
cues**

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## Abstract

In crises and disasters, social media not only facilitates mobilization, sharing of critical information, but also enables people to watch and participate as the crisis unfolds. Participation is now much more open to those beyond the immediately affected: the victims, the rescue workers and other stakeholders. This paper reports on a study of tweets collected during and after a rare occurrence of a violent riot in Singapore, illustrating the evolution of crisis responses, emotive cues information seeking and sharing behavior on Twitter over the lifecycle of the riot. Evidence of orientation of responses from the self towards the community as the riot progresses was found, contributing to ongoing research on community building in crises. Emotive cues were most dominant in the first hour of the riot, with various responses fluctuating over the riot's lifecycle. Emotive cues predicted most responses except for tweets that were reasoning about the riot, and also had an effect on informational tweets. Retweets drove most activity, and users also shared information and formed communal dialogue within their own networks. Despite the dominance of negative emotive cues and responses to the crisis, positive tweets – those singing praises and thanking stakeholders – were more likely to be retweeted.

**Keywords:** crisis, audience responses, information behavior, information cues, situational crisis communication theory, Twitter

## 1. Introduction

Social media has been particularly useful in crises, especially in soliciting and gathering information quickly (Spence & Lachlan, 2010). Information reported about crises can be quickly formulated and disseminated via social media, long before any reporter can get to the scene. For instance, in the Hurricane Katrina disaster, one of the worst disasters to ever strike the United States, social media was used to help locate missing persons and facilitate disaster reliefs (Sutton, Palen & Shklovski, 2008). During the Southeast Asian haze crisis, social media was used to build knowledge with regards to coping strategies such as the supplies of masks, and to provide other precautionary advice and disseminate information about the level of the hazard from the authorities (Pang, 2014).

Despite the importance of social media in crises and disasters, research about how it evolves in the lifecycle of a crisis is still lacking. This may have to do with the difficulties associated in gathering data in real time as a crisis breaks out, or locating participants and observers after a crisis. The unpredictable nature of crises simply makes data collection difficult and challenging (Spence & Lachlan, 2010). In addition, the attributes of specific platforms are also often overlooked in studies examining computer mediated communication in crises and disasters, specifically in the unique ways they facilitate and mediate interactions and relationships between people. Research in crisis communication has also often focused

on organizations and not spectators and audiences as the primary unit of interest (Choi & Lin, 2009).

In this study, we focus on a violent riot as a crisis which saw the use of Twitter by people to respond to the riot. The context is unique in the sense that most Twitterers were not actual participants in the riot – but were actively watching, making sense of, and responding during and after the riot. As Bargh & McKenna (2004, p. 579) argued, recent studies of the Internet have focused on “interactions between features of the Internet communication setting and the particular goals and needs of the communicators” – and a number of studies have emerged examining the use of the Internet and community involvement. Evidence points to the fact that greater use of the Internet can lead to greater community involvement and engagement (Katz et al, 2001; Wellman et al, 2001). Using the Internet “does not appear to weaken the fabric of neighborhoods and communities” (Bargh & McKenna, 2004, p. 587).

The fact that a crisis gains a wider audience and participants relatively quickly with the use of social media gives rise to a number of theoretical propositions. As suggested by McLuhan (1964), any medium “used to distribute meaning directly affects the meaning that arises” (Sellnow & Seegar, 2013, p. 12). In other words, the information and communication technology (ICT) platform that is used to alert, send warnings and signals about a crisis becomes the message of a crisis. Communication of the crisis that is carried through particular ICTs is filled with symbols, impromptu rules, and labels (Sellnow & Seegar, 2013) that contribute to the construction and reconstruction of meanings about the crisis. Shklovski, Palen & Sutton (2008) argued that people find a community and form communal ties when using ICTs to seek information during disasters. Such social cohesion is important especially in post-disaster recovery (Carroll, Cohn, Seesholtz & Higgins, 2005). As meanings are transmitted and formulated in the communication of a crisis using social media, what does communal dialogue, community involvement and engagement look like, if any? What are the implications when social cohesion during a crisis is fostered using ICT platforms such as Twitter?

## **2. The Little India Riot**

Globalization, ongoing urban developments, and the growth of the knowledge economy in Singapore in the past decade have driven the increase of migrant workers in Singapore, coming from neighbors such as India, Bangladesh, China, Philippines, and Indonesia. The growth in migrant workers resulted in issues such as overcrowding, pressures on public transport and housing, and the quality of the living environment. The wellbeing of migrant workers contributed to rising tensions between locals and migrant workers in the republic (Yeoh & Lin, 2012). Many migrant workers also often gathered in their own groups, dominating certain neighborhoods and spaces. Little India, a cultural district in Singapore that is often described as the “heart of Singapore’s Indian community” (Ong, 2009) is one such place where migrant workers from South Asia can often be found gathering on the weekends.

At 9.23pm on 8 December 2013, a fatal car accident occurred at a crowded dining spot in Little India. The accident attracted the attention of patrons who had been dining and drinking

nearby. They rushed to the scene to see what had happened. By 9.45pm, the crowd which had grown to around 300 began reacting violently towards the bus driver and timekeeper on the bus, subsequently attacking the bus, the police, rescue vehicles and workers. The riot which lasted 2 hours involved approximately 300 people and has been said to be one of the worst riots in Singapore with 1 dead, 62 injured, and property damage estimated at over S\$530,000 (Committee of Inquiry, 2014). No Singaporean was involved in the riot, making the riot exclusive to the migrant workers – arguably heightening the tensions between the locals and migrant workers and polarizing attitudes against the migrant workers.

On Twitter, the first tweet related to the riot appeared at 9.57pm posing the question ‘What’s going on at Little India? I see police and commotion...’ (@jdveteran, 2013). By 10.39pm, a picture of the scene was posted on Twitter (@HappyScones, 2013) which was subsequently picked up by a number of mainstream media and became the most re-tweeted picture (via the mainstream media) across the lifecycle of the riot. Barely 20 minutes later at 11pm, the total number of tweets on the topic swelled to 6417. Throughout the riot the number of tweets continued to increase until the very first official tweet from the Singapore Police Force was released at 1:10am.

### **3. Literature Review**

Heath (2010) defines a crisis as “risk manifested” (p. 3) – it is any event, situation, or incident that can cause potential harm to a person, group or organization. In other words, crises are ad-hoc and disrupt people from the conduit of everyday life. Those that are involved in a crisis are required to mobilize resources and cope with the challenges arising from the crisis, and those that are not involved as direct participants, watch and respond as audience. With social media, the number of people in the audience has grown. They need not be present at the scene; they can share first-hand accounts and videos from people at the scene, ask each other questions, and respond using social media. Understanding such usage of social media, especially in the context of a crisis, involves the examination of messages, information cues, and also thinking about how the composition of users on each platform shapes responses and usage of information cues.

#### *3.1. Twitter as a media platform*

It is good practice to identify the unit of analysis, in our case, the attributes of Twitter and how they define Twitter’s social and cultural form. When Twitter started in 2006 as a micro blogging service, its future was uncertain with it being “characterized as something between a short message service, a phone call, an email, and a blog: less cumbersome than keeping a blog, less exclusive than talking to one person on a phone, less formal than e-mail exchange, and less elaborate than most social network sites” (van Dijck, 2013, p. 70). By now it is the world’s leading micro blogging service with the ability to integrate with other social networking sites such as Facebook – essentially making it possible for users to connect with all their social networks via Twitter.

Other than Twitter’s function as a micro blog, three other distinct features define Twitter as a social platform. One of them is the concept and function of “following”, where users

may subscribe to each other's tweets. "Following" enables "communal dialogue in real-time" (van Dijck, 2013, p. 71), with debates and the exchange of opinions happening in small or large publics. The implementation of the hash tag (#) supports and adds further value to such communal dialogue by helping users to identify or connect to trending topics within their networks. The retweet feature allows users to repost and share meaningful or news-worthy tweets, and accounts for much of the traffic on Twitter. As van Dijck (2013) argued, this feature encouraged conversational tagging and together with the other two features of hash tag and following, certain users rise in dominance and influence over others in the public Twitter-sphere. These features would later contribute to the way we define the corpus and analysis in our study. With these unique features, Twitter has been discussed by many scholars as a platform to understand audience responses (Lachlan, Spence & Lin, 2014), information conduits (Spence, Lachlan, Lin & Del Greco, 2015), and channels for affective displays (Papacharissi & de Fatima Oliveira, 2012).

### *3.2. Responding to a crisis*

Theories of crisis communication seek to "problematize the messages and meaning construction" (Sellnow & Seegar, 2013, p. 2). Crisis communication research is about the management and interpretation of information throughout the lifecycle of a crisis, from prevention to responding and post-crisis learning (Coombs, 2010). The aims of crisis communication research, especially theories that predicts how organizations respond to crises and disasters are useful in providing a framework to understanding responses and messages on social media.

The study of crisis communication has its roots in organizational theory and learning, with the goal of "continuous improvement" in organizations (Sellnow & Seegar, 2013, p. 82). As such, many theories of crisis communication have been developed in the organizational context, such as attribution theory (Kelley & Mechela, 1980), image repair theory (Benoit & Czerwinski, 1997), contingency theory (Coombs, 2010), organizational learning (Veil & Sellnow, 2008), and the situational crisis communication theory (Coombs, 2006). Amongst these theories, situational crisis communication theory (SCCT) has most often been lauded for its flexibility across different contextual settings, and predictive strength in crisis responses.

Situational crisis communication theory (SCCT) was developed by Coombs (2006). It takes into account attribution theory as well as how factors such as prior reputation and crisis history can influence perceptions of attributed responsibility for the crisis. Unlike attribution theory which is focused on explaining how inferences are made from other people's actions in the interpersonal communication context, SCCT provides a framework to think about how individuals may infer causes via the responses of organizations to a crisis. Coombs & Holladay (2002) argued that SCCT "develops a prescriptive system for matching crisis response strategies to the crisis situation" (p. 183). In other words, the development of SCCT was driven from the primary basis of responding to a crisis according to how the public may be perceiving the crisis.

The theory posits three categories of crisis response strategies, and a total of ten crisis response strategies. Coombs (2009) argues that SCCT can be used by organizations to select the appropriate crisis response strategy after assessing the crisis (the type of crisis, history of the crisis, and prior reputation of the organization). Table 1 provides a summary of the strategies proposed by Coombs (2006). SCCT is by far the most used theoretical framework in crisis communication (Cooley & Jones, 2013). However, it was developed and usually applied in the context of organizational crisis communication and not audience responses, with a few notable exceptions, such as the study by Choi & Lin (2009) who utilized SCCT to examine consumer responses to the recall of unsafe toy products by Mattel in 2007. This was successful, leading to the conclusion that SCCT was applicable as a framework to studying audience responses. Choi & Lin (2009) were motivated by the premise that responses of the public to a crisis “have significant implications in crisis communication” (p. 204).

Although there have been criticisms of SCCT in the way it ignores audience responses and beliefs (Benoit, 2015), SCCT was in fact theorized on the basis of how the audience attributes responsibility for a crisis. In other words, SCCT has the audience in mind. However, Benoit (2015) highlight an important gap in his review and critiques of crisis communication theories: more studies investigating the application of crisis communication theories to understanding audience responses are needed. Building theoretical understanding of how the public respond to a crisis and investigating the application of existing theories in such contexts is lacking. Our study aims to address this gap further, in applying SCCT to a different crisis context as well as developing theoretical refinements to the framework from the perspective of audience responses.

**Table 1**

Crisis response strategies according to SCCT (Coombs, 2006).

DENY	Attack	Confronting the party or parties involved
	Denial	Denial that the crisis exists
	Scapegoat	Blaming the crisis on another entity
DIMINISH	Excuse	Making excuses for the organizations or parties involved
	Justification	Minimizing the damages and rationalizing the decisions made and actions taken
DEAL	Ingratiation	Singing praises and thanking stakeholders for the good work
	Concern	Expressing concerns for victims
	Compassion	Offers of help for victims, such as money and gifts or offers to clean up
	Regret	Expressions of guilt about the crisis by parties involved
	Apology	Bearing of responsibility for the crisis by parties involved

With attribution theory “as a guiding light” (Coombs, 2009, p. 109), response strategies theorized in SCCT are based on public perceptions of a crisis. This theoretical basis is important in two ways. Firstly, it is a potential candidate as a theoretical guide to predict and explain audience responses. Additionally, it may also be useful as we reflect on the

functionality and nature of the Twitter platform. With users “following” each other and trending topics emerging via the use of hash tags (#), Twitter is arguably a platform that effectively facilitates and mediates “public chatter” (van Dijck, 2013, p. 77) on a trending topic. As a crisis unfolds, users are also conscious of the responses and chatter of others even as they respond individually to the event. SCCT is also one of the few crisis communication theories that are concerned with public perceptions, since its goal is to predict crisis responses (Sellnow & Seegar, 2013). This makes the theory particularly relevant to our study on how the public responded to the crisis. Although it has largely been used to study organizational responses, the theoretical foundations are relevant to the context of audience responses.

In the case of the Little India Riot, there were multiple stakeholders that were involved (directly and indirectly) during and after the crisis. Responses on social media came mostly from individuals (although some individuals may be taking the sides of different organizations), and can be leveled at any of the stakeholders, including the rioters as victims. With this context, we use SCCT to examine the potentially broad range of audience responses to the crisis, which can come from individuals or organizations. We formulate our first research question as follows:

*RQ1: How did the public use Twitter to respond to the Little India Riot, during and after the riot?*

### *3.3. Information behavior, crisis news diffusion and information cues*

The traditional discipline of information behavior is focused on the ways people interact with information, i.e., how they seek and use information, and in the process, seek meanings out of the information they interact with (Case, 2012). Information seeking is especially relevant in crisis or uncertain situations, with consistent evidence that individuals seek information more intensely in order to mitigate tensions and anxiety, and to come up with informed responses to the threats (Seeger, Sellnow & Ulmer, 2003). Information behavioral theories, however, have their roots mostly set in the traditional library and scholarly settings where users are seeking information to fulfill an information need, unlike the context of crises where information is salient for users in order to cope or make sense of a crisis (Case, 2012). Development of information behavior theories using the contextual basis of crisis is still lacking, although there are some factors in information behavioral theories that are salient to the crisis context, and can provide analytical context to understanding crisis responses (Pang, 2014).

One such factor is the concept of uncertainty. Uncertainty is a core concept in information behavior and prompts information seeking behavior (Case, 2012). By asking questions and seeking information, individuals reduce uncertainty for goals such as making informed decisions, coping with stress and anxiety that arise out of crises, and learning.

The second factor is that of time-space. This concept has been central to modern social theory, significant because it is argued to be not just the background context but also the “constitutive elements of all social actions and interactions” (Gross, 1982, p. 83). Time-space according to Giddens (1981) must be used to understand the social systems and human agents

embedded within. To operationalize this important concept, three aspects of time-space were identified by Savolainen (2006) to drive information behavior: time as bounded with social and cultural factors to produce individual information behavior, time as a constraint reducing or shaping individual information behavior, or time as the implicit link for linear information behavior activities. Allen (2011) on the other hand, provides empirical illustrations on how time-constrained information behavior can look like in his study of police officers.

These factors provide insights as to why crises are trigger events for more intense information seeking (Seeger et al, 2002). A closely related concept is that of crisis news diffusion (Sellnow & Seegar, 2013), in which scholars examine the use of various media platforms to diffuse information, how, when, where and from whom people found out about crises. One of the earliest studies in this area was conducted by Bantz, Petronio & Rarick (1983), who interviewed 289 people within 10 hours of the assassination of President Ronald Reagan. Although television and radio (popular media channels at that time) were responsible for diffusing news, interpersonal communication was the most dominant source for participants in their study. In other words, people informed and turned to each other first for information during the crisis.

The media environment of today is quite different, especially with social media becoming a level playing field for everyone, including mainstream media, individuals, activists, and interest groups. How will people find out about crises using social media today? When seeking and sharing information in the computer-mediated environment, individuals rely on temporal cues or chronemics such as emoticons, language, and symbols to communicate their opinions and sentiments about an issue or topic (Burgoon & Saine, 1987). Chronemics or temporal cues are non-verbal cues that may help to augment and shape the message being communicated. For instance, technologically-mediated information cues such as the “like” button imply affirmative or supportive responses. Emoticons allow individuals to express sentiments and project themselves.

In their study of citizen attitudes towards Hurricane Katrina, Malhotra & Kuo (2009) suggested that emotive information cues may be triggered by sudden and unexpected events. Negative emotive cues can also result in reduced rationality and prevent sound judgments (Bodenhausen, Gabriel & Lineberger, 2000; Lerner & Tiedens, 2006). With the social connectivity and the form of communal dialogue on Twitter, the use and prevalence of negative emotive cues can also imply greater irrationality, misinformation, and anxiety as a crisis unfolds.

The study of Twitter during crises is not new. Other than its utility as a tool for information diffusion and acquisition (Acar & Muraki, 2011), Lachlan et al (2014) discussed extant research supporting the finding that during crises where there may be much uncertainty and emotions, Twitter functions as a means of “affective release” (p. 556). In their study of over 165,000 tweets, Stieglitz & Linh (2013) found that tweets utilizing emotive cues tend to get retweeted more often and quickly, although it did not matter whether or not the emotions were positive or negative. Their study was not carried out in the context of crises though, and this brings us to our next research question:

*RQ2: What are the types of emotive information cues used, and how did they evolve during and after the Little India Riot?*

In the study by Stieglitz & Linh (2013), a retweet is explicated as a measure of information sharing. We agree with this, but also propose that during a crisis on Twitter, other types of information sharing exist which may not be captured as a retweet. One example is the sharing of links, or simply tweeting information about what one knows about the situation on the ground. Although the act of information sharing is found within the scope of information behavior, research on this takes place largely in the work environment, and in the context of pursuing a common goal or task (Case, 2012). As discussed, whilst Twitter is often seen as a platform for sharing information (Spence et al, 2015), it is possible that individuals may also use the platform as a source to seek information (Lachlan et al, 2014).

*RQ3: What are the types of information seeking and sharing behavior exhibited on Twitter during and after the Little India Riot?*

#### **4. Methodology**

Content analysis was conducted with each tweet as the primary unit of analysis. Berelson (1952) described content analysis as “a research technique for the objective, systematic and quantitative description of the manifest content of communication” (p. 18). Content analysis has been practiced for more than 50 years in a variety of disciplines (Neuendorf, 2002), and can be conducted in various forms, from rhetorical analysis to narrative, discourse, semiotic, interpretive, conversation and critical analysis. With our research questions, the design of our content analysis is focused on analyzing discourse: the “characteristics of manifest language and word use, description of topics in media texts, through consistency and connection of words to theme analysis of content and the establishment of central terms” (Neuendorf, 2002, p. 5). In addition, evidence of emotive information cues, information seeking and sharing behavior were also included in our code book and coding scheme.

##### *4.1. Data collection and preparation*

The tweets in this study were obtained via Gnip, an authorized reseller of Twitter Inc. We used three hash tags: #littleindiariot, #sgriot, and #littleindia over 20 days (i.e. 8pm on 8 December 2013 to 8pm on 28 December 2013). This yielded 150,228 tweets, including tweets in languages other than English. One option we considered to identify tweets related to the riot more meaningfully was to use location – but this was ruled out as not every Twitter user turns on their location settings, and using this would potentially exclude tweets beyond Singapore.

Using time as the basis, we developed custom-written scripts to identify tweets posted between 9.23pm on 8 December 2013 to 1:09am on 9 December during the riot (the accident happened at 9.23pm). Although the mob had dispersed at the rioting site by 11.45pm, Twitter was still busy with many responding asking questions about the riot. A total of 60224 tweets were counted as tweets during the riot, including retweets. At 1:10am, the Singapore Police Force tweeted about the riot (the first official statement about the riot by the authorities), and

by 2.15am a police conference about the riot began which concluded around 2.30am. This time line of 1.10am-2.59am was used as the frame to identify and compare post-riot tweets to tweets during the riot, since many clarifications were made about the riot. 12767 tweets fell into the bucket of post-riot responses, including retweets.

For the purpose of scope and consistency between coders, non-English tweets were excluded as the coders have differing levels of expertise in other languages. Limiting the tweets to those in the English language, and filtering out the retweets (since many of the retweets are repetitive) we finally derived 18132 tweets analyzed in our study, with 15257 and 2875 tweets respectively coded and representing tweets posted during and after the riot.

The tweets in our sample are not representative of the entire population of responses to the riot since responses were also coming forth via other social media platforms such as YouTube and Facebook. But Spence & Lachlan (2010) offer useful suggestions about re-conceptualizing the unit of analysis in crises-related research: in our study, the focus is on Twitter users, and not users of social media, in general. As earlier discussed, the features of Twitter make it particularly meaningful as a conduit for information diffusion and responding to the riot. Instead of randomizing the sample to be coded, our approach is to analyze the entire corpus of tweets related to the riot. This has to do with our intentions to examine a riot's lifecycle (during and after the riot), especially in the early hours of the riot where the number of tweets is limited, and it is difficult to come up with meaningful randomization.

#### 4.2. Human coding

An initial theoretical framework consisting of the ten crisis response strategies of SCCT as well as the following attributes of information behavior and cues was developed: information sharing, seeking information by asking questions, emoticons, emotive language, caps, and exclamations. To establish inter-coder reliability, we randomly selected a sample which made up ten percent of tweets during and after the crisis. The first author of the paper and one undergraduate research assistant coded this sample independently, looking out for tweets that do not fall within the original framework. The first author trained the second coder over the course of three days, first by explaining each code in the coding framework, and going through examples. After the training, both coders worked on coding the sample at the same time, and the overall coding agreement, measured using Cohen's kappa, was 0.82. After one round of discussion, the overall agreement was improved with Cohen's kappa increasing to 0.91. All individual variables met the minimum inter-coder reliability criteria of .70 (Krippendorff, 1980). Several new categories emerged from this inter-coder exercise. The final codebook (new categories in emphasis) is summarized in Table 2. All variables were coded for their presence (yes/no), and are not mutually exclusive which means that each tweet can be coded with more than one response, information behavior, and/or cues if they are present in each tweet.

**Table 2**  
Final code book.

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DENY	Attack	Confronting the party or parties involved.
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	Denial	Denial that the crisis exists.
	Scapegoat	Blaming the crisis on another entity.
	<i>Lamentation</i>	<i>Lamentations on how conditions in society are no longer as good as before.</i>
DIMINISH	Excuse	Making excuses for the organizations or parties involved.
	Justification	Minimizing the damages and rationalizing the decisions made and actions taken.
	<i>Redirection</i>	<i>Responses that were of a diminishing nature, which redirected attention from the riot to other factors or things happening in other places.</i>
	<i>Satire</i>	<i>Making a mockery or laughing at the situation, essentially of a diminishing nature.</i>
DEAL	Ingratiation	Singing praises and thanking stakeholders for the good work.
	Concern	Expressing concerns for victims.
	Compassion	Offers of help for victims, such as money and gifts or offers to clean up.
	Regret	Expressions of guilt about the crisis by parties involved.
	Apology	Bearing of responsibility for the crisis by parties involved.
	<i>Corrective action</i>	<i>These responses were dealing with the riot by emphasizing the corrective actions to take.</i>
INFO. BEHAVIOR	<i>Collectivism</i>	<i>Responses reflective of collective values, such as calling for people to focus on the positive aspects, demonstrate unity and emphasis on harmony.</i>
	Information sharing	Tweets purposed to share information, either in the form of a retweet, posting links, or stating information about the riot.
	Q & A	Seeking information by asking questions about the riot, and answering questions from others.
CUES	Exclamations	The use of punctuation such as exclamation marks to express sentiments, usually shock and surprise.
	Emotive language	Negative emotions expressed through emotive language, mostly expletives.
	Emoticons	The use of emoticons to express sentiments.
	Uppercase	Tweets that are in uppercase usually come across as shouting or raising one's voice. In our coding, the use of abbreviations and acronyms (which are usually in uppercase) are excluded from this.

## 5. Findings

Tweeting activity grew from the first report about the riot at 9.57pm (@jdveteran, 2013) and steadily increased until official statements from the authorities were released between

1:10am to 2.30am. In terms of activity, there were more tweets during the crisis when compared to post-crisis.

### 5.1. Twitter and crisis responses

*RQ1: How did the public use Twitter to respond to the Little India Riot, during and after the riot?*

To answer RQ1, we studied responses to the riot on Twitter over time. Table 3 provides an overall breakdown of responses to the crisis. Most of the responses were denial in nature (27%), with users expressing surprise along with disbelief that the riot was real. Satires were also frequently found (27%), which diminished the impact and seriousness of the situation with users making fun of the rioters and creating parodies of the riot. Redirection was also common (20%), diminishing the riot by bringing in other (usually unrelated) issues, such as the topic appearing in school textbooks in years to come. Such responses also revealed that users belonged to a certain demographic: young students. There were also many tweets that were attacks (6%); confronting and questioning the parties involved including the rescue workers. Such tweets were however matched by tweets expressing concern (10%), mostly for the police force, rescue workers, victims or the innocent bystanders at the rioting site.

**Table 3.**  
Crisis Responses (during and post-riot combined)

		Number	Percentage	Sub-total
DENY	Attack	907	6%	38%
	Denial	3905	27%	
	Scapegoat	345	2%	
	Lamentation	371	3%	
DIMINISH	Excuse	38	0%	47%
	Justification	97	1%	
	Redirection	2878	20%	
	Satire	3898	27%	
DEAL	Ingratiation	169	1%	15%
	Concern	1447	10%	
	Compassion	10	0%	
	Regret	81	1%	
	Apology	0	0%	
	Corrective action	189	1%	
	Collectivism	287	2%	

Users were also responding to the riot by lamenting about the “good old times” (3%). The tweets in the collectivism category (2%) emerged, which we saw as reflective of the Confucian values of the Singaporean society. Most of them were responding to the satires and expletives by other users, reminding them of values such as harmony and respect for

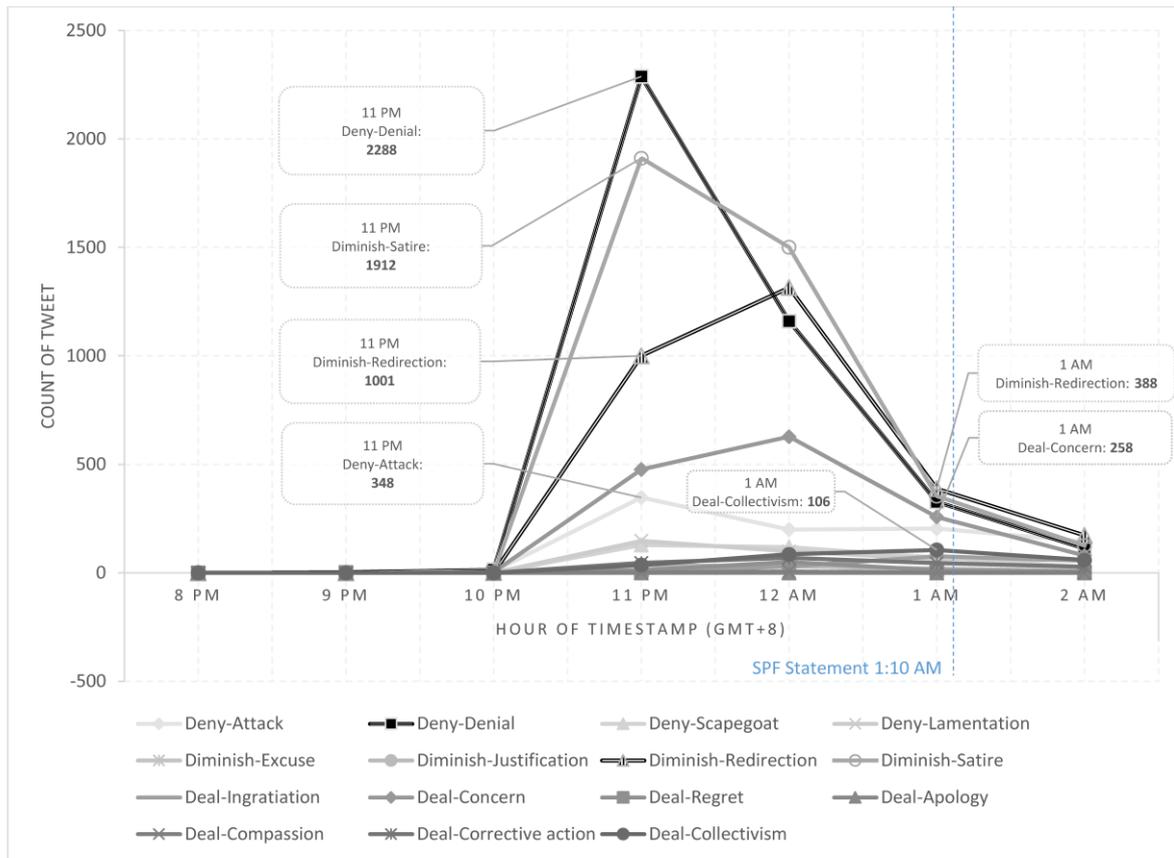
fellow human beings or expressing their shame at the behavior of such users. In addition, they were also sending positive messages by asking “everyone” to be united and respond for the collective good of the society.

We also observed the responses for their trends during and post-crisis (as shown in Fig. 1). Deny-denial responses had the sharpest fluctuations, growing very quickly in the first hour of the riot and then declining sharply thereafter. This made sense, as in the first waking hours of a sudden crisis people are still coming to terms with what had happened and why. Satires followed the same trend in the first hour, although the decline was more gradual. Redirection and concerned responses persisted beyond the first hour of the riot, and kept increasing until the riot was confirmed to be over at the scene around 12am. Attacking responses declined from its peak around 11pm (this was when the riot had started to subside on site), only to climb again an hour later. Attacking responses are usually negative, but they were matched by positive responses such as collectivism and concern, which, although fewer in number, were following the same trend as the attacking responses.

These observations led to the next stage of analysis, to examine whether or not attacking responses significantly declined over time, and by the same logic, if the more positive responses significantly increased as the crisis progresses. Theoretically, this could also help to examine if Twitter, as a social media platform, can be used to actively engage and respond to a crisis. Not merely as an active means for affective release in Lachlan et al’s (2014) research, but also dynamically in terms of the types of responses to the crisis. To investigate these questions a simple regression was used to predict whether the lifecycle of the riot could predict any of the crisis responses.

Time was used as a measure of the riot’s lifecycle, coded as numeric values starting from 1 in 5-minute blocks, to reflect the progression of the crisis. Regression tests were performed 14 times (with each response as the dependent variable – deal-apology response was excluded since there was no observations of this in our dataset). To minimize the probability of a Type 1 error since we are running the regression multiple times, we use a smaller significance level of 0.001. No significant effects were found for most responses, except for collectivistic responses where time significantly predicted collectivism responses,  $b = 4.42$ ,  $t(5)$ ,  $p = .00$ .

This meant that other than the collectivistic responses, all other responses were equally likely to emerge over the lifecycle of the riot i.e. during and post-riot. However, as the riot progresses, the number of responses that were calling for others to be positive, maintain harmony and respect increased. This may be a response to the climate of denial, attacking and satirical responses that were dominant in our study, but it could also be a reflection of progression towards the community i.e. increase in consciousness of communal values and the common good over the lifecycle of a crisis.

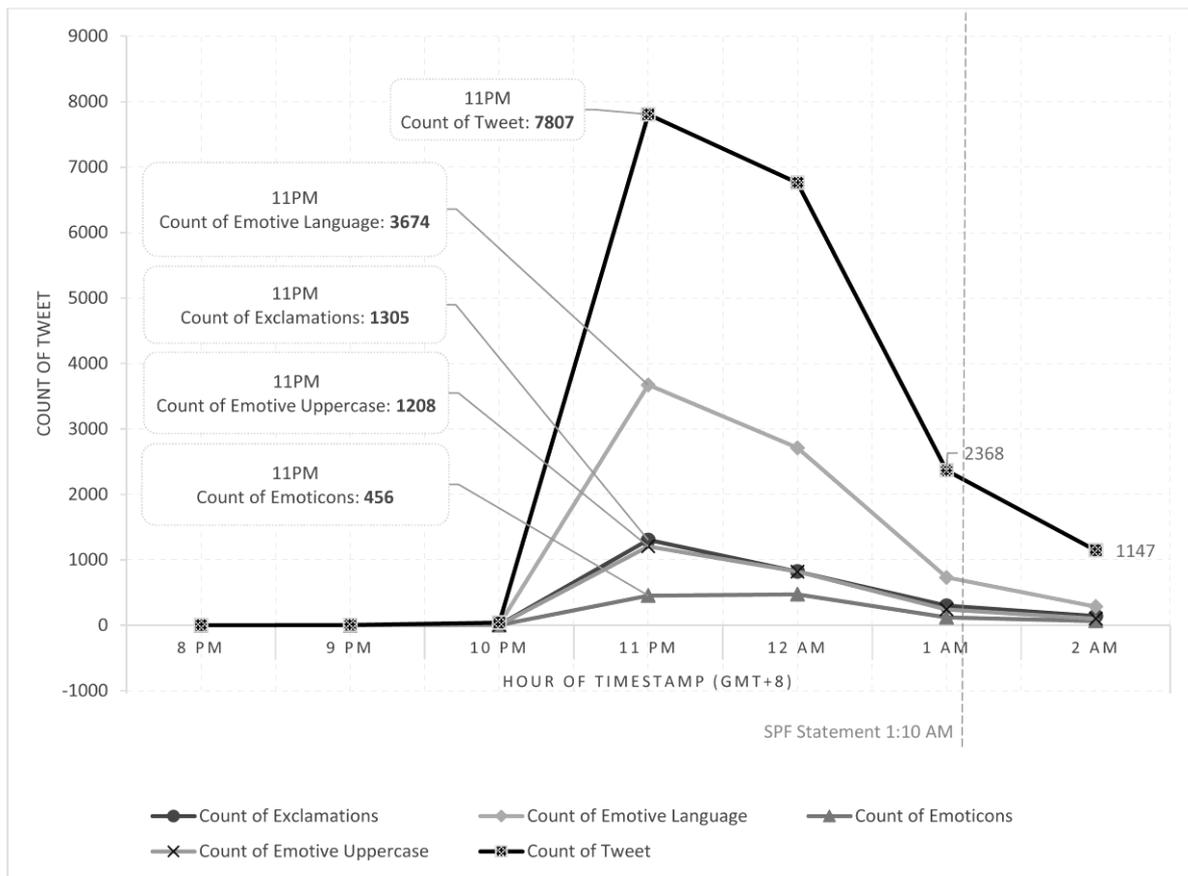


**Fig. 1.** Responses during and post-riot

## 5.2. Emotive cues in the riot

*RQ2: What are the types of emotive information cues used, and how did they evolve during and after the Little India Riot?*

Amongst the tweets coded, most of them used emotive language, followed by exclamations, uppercases, and emoticons. Fig. 2 shows the evolution of emotive cues during and post-crisis. As one can observe, responses to the riot on Twitter were largely emotional in the first two hours of the riot, accounting for approximately 85% of the tweets at its peak. This shows that users were using Twitter to freely express emotional responses, such as shock, surprise, anger, sadness, and unhappiness, up until around 11pm when the riot was subsiding. Bearing in mind that the riot began around 9.45pm and lasted approximately 2 hours, this meant that people were mostly responding emotionally on Twitter in real-time, especially in the first hour of the riot. After that, although emotive cues declined post-riot, time did not significantly predict the decline of emotive cues.



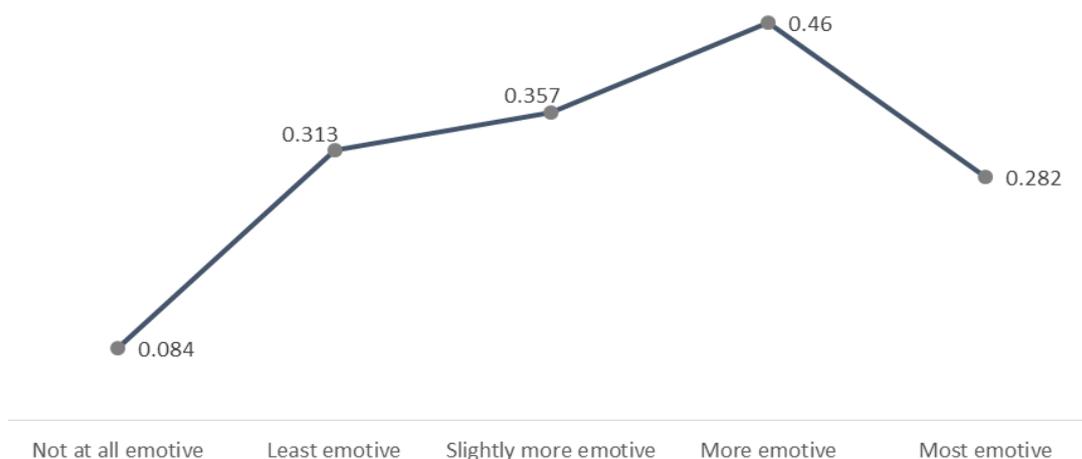
**Fig. 2.** Emotive cues during and post-riot

If emotive cues did not decline over time i.e. the lifecycle of the riot, how did they also impact crises responses? To understand the impacts of emotive cues on crisis responses, a new variable was computed to calculate the intensity of emotive cues for each tweet. If a tweet utilized emotive language, exclamations, emoticons, and used uppercases, that tweet was given a score of 4 (i.e. most emotive). A tweet that did not involve any emotive cue was allocated a value of 0 (i.e. not at all emotive). Of the 18132 tweets coded, 47.5% were not at all emotive (i.e. 8618 tweets had a value of 0), 34.0% were least emotive (6170 tweets had a value of 1), 15% were slightly more emotive (2729 tweets had a value of 2), 3.2% were more emotive (576 tweets had a value of 3), and 0.2% were most emotive (i.e. 39 tweets had a value of 4). In other words, each value reflected the level of intensity of emotive cues used in each tweet.

This variable was run against all coded responses using one-way ANOVA. Emotive cues were likely to be used in all responses (the apology and compassion responses were dropped from analysis because there were either none or very few observations made in these categories) except for tweets associated with scapegoat responses, lamentations, ingratiation, and excuses. There was a significant effect for emotive cues on attacking responses,  $F(4,18133) = 3.08, p = .015$ ; denial responses,  $F(4,18133) = 487.45, p = .00$ ; justifications,  $F(4,18133) = 3.77, p = .005$ ; redirections,  $F(4,18133) = 35.58, p = .00$ ; satires,  $F(4,18133) = 66.48, p = .00$ ; concerns,  $F(4,18132) = 4.72, p = .001$ ; regrets,  $F(4,18132) = 6.25, p = .00$ ;

corrective action responses,  $F(4,18132) = 6.61, p = .00$ ; and collectivism responses,  $F(4,18133) = 6.66, p = .00$ . Tweets associated with scapegoat responses, lamentations, and excuses are similar in the sense that they are all attempting to explain and/or rationalize the riot, which explained the lack of emotive cues with such tweets and therefore the lack of significant effects.

For each significant effect, a Tukey post-hoc test was ran. Post-hoc tests revealed that tweets that were not at all emotive were less likely to post an attacking response compared to those that were least emotive ( $.56 \pm .2, p = .021$ ). There were no statistically significant differences between all other levels of emotive cues. For denial responses, significant differences were found for tweets were least emotive compared to those that were not at all emotive ( $.31 \pm .5, p = .00$ ), tweets that were slightly more emotive compared to those that were not at all emotive ( $.36 \pm .5, p = .00$ ), tweets that were more emotive compared to those that were not at all emotive ( $.46 \pm .5, p = .00$ ), and tweets that were most emotive compared to those that were not at all emotive ( $.28 \pm .4, p = .014$ ). The following differences were also significant: between the least emotive and the slightly more emotive ( $p = .00$ ), the least emotive and the more emotive ( $p = .00$ ), the slightly more emotive compared to the more emotive ( $p = .00$ ), and the more emotive compared to the most emotive ( $.28 \pm .5, p = .046$ ). The most emotive tweets was not significantly different compared to the least emotive and the slightly more emotive tweets ( $p = .99$  compared to the least emotive,  $p = .76$  compared to the slightly more emotive). These results are illustrated in the means plot in Figure 3.



**Fig. 3.** Levels of emotive cues for denial responses

For justifications responses, post-hoc tests revealed that there was only one significant difference between tweets that were not at all emotive and those that were slightly more emotive i.e. those that were slightly more emotive were less likely to post a justification response compared to those that were not at all emotive ( $.001 \pm .03, p = .002$ ). The finding implies that users were more likely to exclude emotive cues in such responses, whether intentional or not.

In terms of redirection responses, post-doc tests revealed that tweets that were not at all emotive were more likely to have redirection response compared to those that were least

emotive ( $.18 \pm .4$ ,  $p = .00$ ), the least emotive more likely than the slightly more emotive ( $.15 \pm .4$ ,  $p = .00$ ), the slightly more emotive more likely than the more emotive ( $.11 \pm .3$ ,  $p = .00$ ). No significant difference was found between tweets that were not at all emotive and those that were most emotive. There was also no significant differences between tweets that were most emotive compared to all other levels of emotive cues. Although it may be that there is a plateauing effect from the levels of emotive cues, it may also be a limitation of the corpus of tweets in our study since the percentage of tweets that were most emotive is only 0.2%.

Satirical responses saw one of the highest number of significant differences, with all levels of emotive cues significantly different from each other except for tweets that were slightly more emotive and those that were more emotive ( $p = .805$ ). The post-hoc test reveals that satirical responses usually involve higher levels of emotive cues. Tweets that were most emotive were most likely to be satirical compared to those that were not at all emotive ( $M = .18 \pm .4$ ), least emotive ( $M = .22 \pm .4$ ), slightly more emotive ( $M = .31 \pm .5$ ), more emotive ( $M = .29 \pm .5$ ), and most emotive ( $.62 \pm .5$ ,  $p = .00$ ). Given that satires usually involves irony and ridicule, emotive cues in this particular context of satirical responses can be seen to communicate original negative sentiments towards the situation.

There was only one significant difference between the least emotive and tweets that were not at all emotive for concerned responses, with those that were not at all emotive less likely to be a concerned response ( $.09 \pm .3$ ,  $p = .001$ ). No other significant differences were found for other levels of emotive cues. Looking at the types of emotive cues found in our study, it could be inferred that concerned responses usually involves emotive cues – but once they cross the threshold, the level of emotive cues did not actually matter.

For tweets expressing regrets at the riot, significant differences were found for those that were not at all emotive and those that were least emotive ( $.003 \pm .05$ ,  $p = .003$ ), and those that were not at all emotive and those that were slightly more emotive ( $.001 \pm .03$ ,  $p = .001$ ). No significant differences were found for all other levels of emotive cues. These results are interesting, given that regrets are expressions of guilt at the situation, why were such responses most likely to be those that were not at all emotive? Again, it may have to do with the types of emotive cues found in our study, which is also technologically mediated. Expressions of guilt may not be easily expressed using the emotive cues allowed by the technology.

In terms of corrective action responses, significant differences were found for tweets that were slightly more emotive and those that were not at all emotive ( $.014 \pm .1$ ,  $p = .00$ ), and those that were least emotive and those that were slightly more emotive ( $.003 \pm .06$ ,  $p = .031$ ). This means that tweets of a corrective action responses were more likely to be not at all emotive compared to tweets that were slightly more emotive.

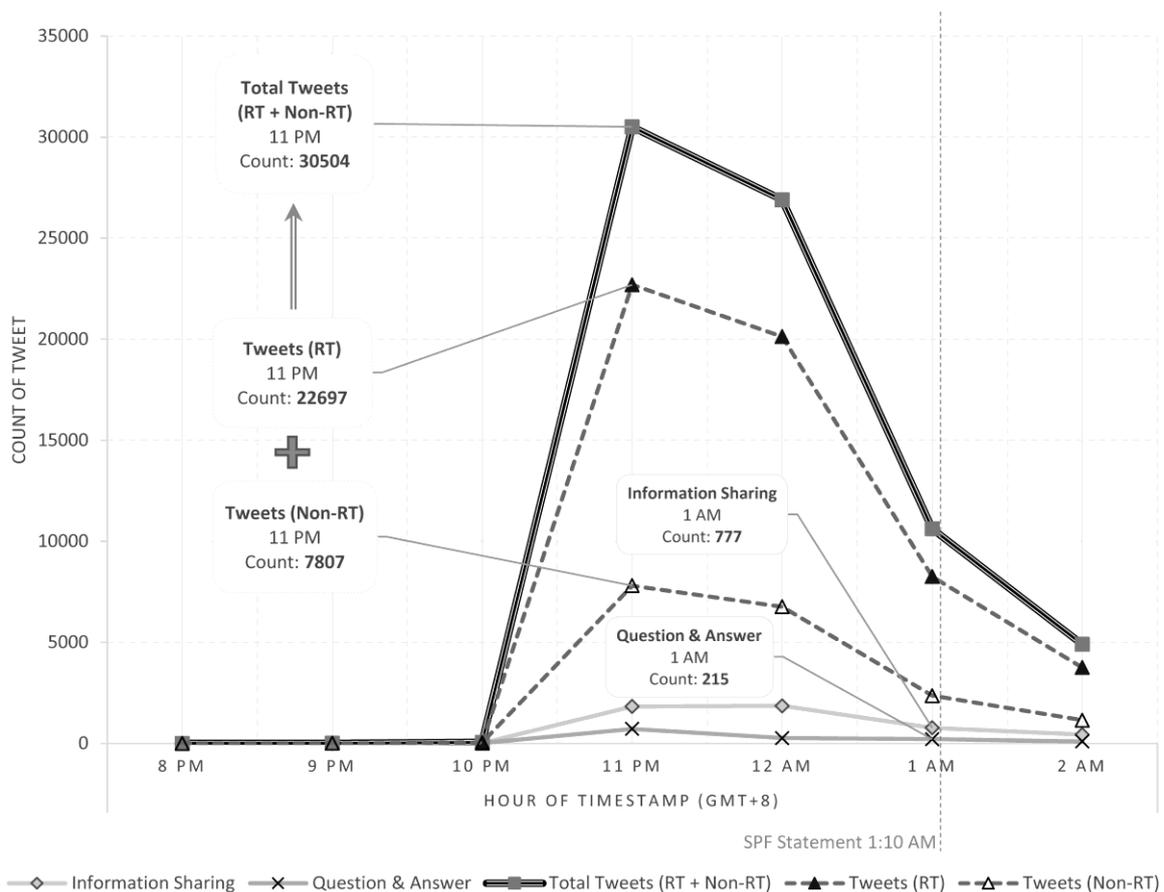
For collectivistic responses, the post-hoc test revealed that there was a significant difference between tweets that were not at all emotive compared to tweets that were least emotive ( $.013 \pm .1$ ,  $p = .006$ ), slightly more emotive ( $.01 \pm .1$ ,  $p = .001$ ), and more emotive ( $.003 \pm .1$ ,  $p = .014$ ). No significant difference was found between those that were not at all

emotive and the most emotive. The more emotive tweets were less likely to be responses of a collectivistic nature. Again, this may have to do with the more complex nature of such responses and such responses usually calling for more reason and rationality.

### 5.3. Information behavior on Twitter

*RQ3: What are the types of information seeking and sharing behavior exhibited on Twitter during and after the Little India Riot?*

Figure 4 shows the different types of information behavior coded in our study. As shown in the figure, retweets were significant in driving much of the total tweets activity on Twitter, accounting for 74%-78% of the tweets at any point in time during and after the riot. Retweets, as earlier discussed, were significant in enabling conversational tagging and given the ease of retweeting, it is not surprising to find it driving much of the activity during the riot. It is also seen as a form of information sharing.



**Fig. 4.** Total tweets, retweets, information sharing and Q & A during and post-riot

Other instances of information sharing (i.e. sharing links or simply stating information that one knows about the riot in the tweet) were also observed, as well as tweets that were informational in nature (i.e. information seeking by asking questions, and tweets that were responding to the questions). Compared to the behavior of information sharing, the trend of asking and answering questions decreased relatively quickly, and way before official

statements about the riot were released. In other words, in the first hours of the riot, users did ask questions due to the high level of uncertainty about what had happened, but users also formed their opinions and judgments very quickly. This may not be irrational, and can be attributed to a behavior known as “satisficing”: with constraints such as time and resources, people decide that there is “enough information and...stop searching and make a decision” (Case, 2012, p. 98). Time however, did not have an effect on retweeting, information sharing and seeking activities over the lifecycle of the riot, although it may be due to other events happening offline which were driving these activities (e.g. new developments on the ground, release of information by authorities).

To understand the retweets further and what may drive some tweets to be retweeted more than others, we examined the sources of the most retweeted tweets. Of the list, 10 came from mainstream media (@TODAYonline, @STcom, @ChannelNewsAsia), and the remaining from individual users. For reasons of privacy we are not duplicating the retweets here, especially since some of the most retweeted contain unique content loaded with emotive cues that can put the user at risk. The top two retweets came from mainstream media with appeals for information and pictures from the riot. This is consistent with Veil & Ojeda (2010)’s observations that media agencies form collaborations with other parties in order to mitigate challenges related to gathering information and covering news of sudden crises. In this case, Twitter became a platform for collaborations between the media and citizens, with the latter not only responding to such calls but also helped to diffuse these requests to others on Twitter.

Not all retweets are the same. It was observed that most of the retweets are important synthesis of information about the riot. Understandably, they were amongst the most retweeted, reflecting the act of sharing and diffusing information to each other by users. However, personal responses can also be found, coming from prominent bloggers and individuals. Through retweeting, the social influence and reputation of individuals can also increase. The function of retweet is hence not limited to the goal and ability to share information with others, but can also reflect or shape individual social capital.

To also understand if certain responses and/or emotive cues attracted greater likelihood of being retweeted, we drew a sample of retweeted tweets. To build this sample we used median split to identify tweets that had a high number of retweets and tweets that had a relatively lower number of retweets. This resulted in a sample of 170 tweets that were retweeted from a range of 50 to 1382 times. Chi-square tests were run to explore their relationships with crisis responses as well as emotive cues. Only one significant relationship was found: responses of an ingratiation nature were significantly more likely to be retweeted than all other responses,  $\chi^2 = 118.33$ ,  $p = .001$ . Although the number of tweets in this category was not large (making up only 1% of the tweets analyzed in our corpus), the finding shows that they were however significant and were likely to be retweeted when they appeared during and after the riot.

Emotive cues also had a significant effect for tweets that were sharing information,  $F(4,18132) = 139.87$ ,  $p = .00$  and tweets that were informational in nature (asking and answering questions),  $F(4,18132) = 3.66$ ,  $p = .006$ . This reinforced earlier discussion that

much information behavior was driven by feelings of uncertainty (Case, 2012; Lachlan et al, 2014), and in a riot such as this, such uncertainty are translated into emotive cues on Twitter.

Post-hoc tests revealed that tweets that were not at all emotive were significantly more likely to be sharing information ( $.35 \pm .5, p = .00$ ) compared to the least emotive ( $.18 \pm .4, p = .00$ ), the slightly more emotive ( $.23 \pm .4, p = .00$ ), and the more emotive ( $.23 \pm .4, p = .00$ ). There was also a significant difference between the least emotive and the slightly more emotive ( $p = .00$ ), with the slightly more emotive more likely to involve the sharing of information. For tweets involving informational exchange, post-hoc tests revealed only one significant difference between tweets that were not at all emotive and those that were slightly more emotive i.e. those that were not at all emotive were more likely to involve informational exchange ( $.078 \pm .3, p = .013$ ).

## 6. Discussion

The Little India Riot, although limited to the physical streets where the riot took place, saw the development of furor and responses online, with Internet users using Twitter to respond to the riot and share information about the riot. Our study showed that tweets were evolving via crisis responses, emotions, and information seeking and sharing behavior.

Given the activity levels on Twitter during and post-riot, Twitter users were active participants during the riot, even though they may be remote onlookers. On Twitter, sharing and receiving information about the riot were observed to be primary activities, given the active retweets and information sharing behavior observed. This was also the case of the bombing at Boston Marathon in 2013, where via users, Twitter behaved as a watchman for the disaster, giving insights to the event, furnishing timely information and addressing informational gaps since the media may not be able to get to the site of the disaster in time (Cassa, Chunara, Mandl & Brownstein, 2013). Audience responses have been argued to be an important aspect of the research on crisis communication (Lachlan et al, 2014; Choi & Lin, 2009). In demonstrating how audience responses develop over the lifecycle of a crisis, our study contributes to extant literature on the notion of community building and social ties during crises (Shklovski et al, 2008; Dynes, 1970; Kaniasty & Norris, 1995).

As shown in the paper, in the first few hours of the riot, responses and emotive cues on Twitter were mostly connecting with sentiments on the ground: that of denial, shock and anger. Twitter functioned as a platform to allow remote technologically-mediated participation in the crisis. However, the social ties are loose, in the sense that most of the time; they are not directly arising or connected to the sentiments and responses of people on the ground. But this may also be due to the cultural context of the riot: none of the rioters were tweeting, and from the entire sample of tweets analyzed not one tweet stated that it was coming from the ground or had an apologetic response – which also meant that it was likely that none of the bystanders, rescue workers and other people at the scene had used Twitter to respond to the riot. The implication is that the responses, emotions and information behavior observed on Twitter may in fact be influenced by all the rioters being non-Singaporeans. There is an intergroup dynamic here which may be analyzed in future work. The social ties

raised on Twitter were also multi-layered, given that they did not only connect with sentiments on the ground, but were also connecting to the responses of others on Twitter. One example of this is the behavior of information seeking and sharing, via retweeting, sharing links or first-hand information, asking question and/or answering them.

Responses that were collectivistic in nature emerged in our study, and were significantly predicted by time. As the riot evolved and many responses coming out that were negative (expressed either via crisis responses or emotive cues) this category of responses were calling on values such as peace, harmony and forgiveness. This reinforced Dynes (1970) early work where he argued that individuals orientate from the self towards a concern of a crisis on the larger community over eight stages of a disaster. Although this orientation from the self to the community was evident on Twitter in our study, the effect is small and the proportion of such responses was relatively small compared to all other responses even though our regression test revealed that these responses were increasing with time. Future work involving the study of other social media platforms in crises and disasters should examine this shift from the self towards the community, and also the reflection of cultural or social values.

Emotive cues, which did not decline or increase with time, showed that Twitter was a form of affective release throughout the riot. The crossing of the threshold from being not at all emotive to being emotive in the way people responded to the riot is important across our findings: there is a significant difference between tweets that were not at all emotive and those that were emotive, although the directions of such differences may be different for different responses. For instance, attacking, denial and satirical responses were more likely to involve at least one level of emotive cues compared to those that were not at all emotive. But this direction is reversed for other crisis responses such as redirection, justification, concern, corrective action and collectivistic. Together, the latter group of responses are somewhat “thinking” and perceptive type of responses; redirections involve analyzing and pointing to other issues, corrective action involve making suggestions on what needs to be done. But the first group of responses is usually associated with negative emotions and also more intense, and these are positively related to higher levels of emotive cues.

It is important to reflect on the use and function of retweeting given that it was driving most of the tweeting activity in our corpus. It is a way of sharing prominent information with others, and as van Dijck (2013) argued, it is also one of the mechanisms by which users rise in social influence in the Twitter-sphere. In our study, retweets did not only come from users who were already influential or had high individual social capital (such as the case of mainstream media, the celebrity blogger and minister), they were also shaped by the nature of the tweet. With the top two retweets coming from a newspaper agency calling for more information, Twitter users were actively responding to this collaboration. In addition, retweeting in our study is also a form of agreeing and rallying behind a tweet, especially if it is not just informational in nature.

One particular crisis response emerged to be significant in terms of the likelihood of it being retweeted. This was ingratiation – the praising and thanking of stakeholders in the way they handled the crisis. This is a response that was positive amidst most responses that were

negative (such as attacking and satirical responses) during and after the riot. It may be due to the fact that this type of response is quite different from most of the other responses in our study and therefore stood out to be retweeted, or its significance in reflecting the social values of users. Regardless, this provides some insights into the multifaceted action of retweeting in that it may also be driven by the meanings allocated to the responses found in the tweet, adding to ongoing literature on the various aspects of retweeting (Suh, Hong, Pirolli, & Chi, 2010; Zarrella, 2009; Boyd, Golder & Lotan, 2010).

Given the dominance of tweets during and after the riot purposed to share information (either in the form of a retweet or stating newly acquired information about the riot), Twitter was a critical source of timely information about the riot. But this may also reflect the pervasive information behavior of younger Twitter users. Jansen, Sobel & Cook (2011) found that teenagers were key informants on social networking sites, actively sharing information with their social networks. This was also observed in the case of the Little India Riot, and future work should pay particular attention to the sharing behavior of such users in everyday life and crises contexts.

Especially during the first hour of the riot, users were using Twitter to ask each other questions about the riot. Others responded to their questions, formulating a communal dialogue in their own networks. With different number of people participating in each dialogue, the findings allude to the fact that there may be multiple layers of conversations, with each dialogue converging or diverging from the topics and sentiments on Twitter generally. In other words, tweets may thus be contextualized as within group, or general (intergroup). The immediate conversations within the group, however, may have the greatest significance since online, people operate in “egocentric publics” (Wojcieszak & Rojas, 2011, p. 488). But given the velocity and intensity of tweets and the different activities that were happening on Twitter at the same time, the use of Twitter to build such social ties implies that such communal ties and dialogue are loose and transient: people connect but also lose such connections quickly over the lifecycle of a crisis.

The prevalence of satires during the riot may thus be understood given that they may be expressed and gradually disseminated in groups. In addition, since the presence of the rioters and victims were not felt on Twitter, users may have felt less inhibited by social norms and free to make fun of the situation.

Our study established that Twitter was multifunctional during the riot. For the first hour of the riot, most tweets were emotive in nature, involving the use of expletives, shouting (uppercase), emoticons, and exclamations. Emotive cues were also significant in predicting all of the responses, except for responses that were of a “reasoning” nature, such as finding scapegoats, lamentations and excuses. Our finding is coherent with the discussion by Lachlan et al (2014) that during crises, Twitter is a platform for “affective release” (p. 556).

The use of expletives in social media has received increasing attention in recent years. Gouws, Metzler, Cai & Hovy (2011) found that on Twitter, expletives were common – somewhat attributed to the context of the micro blog where users are limited to 140 characters

and may thus come up with their own vocabulary and expletives to quickly communicate their sentiments and messages. Even on other online platforms, the use of expletives is widespread, largely to anonymity, physical isolation, and the absence of interpersonal cues (Papacharissi, 2002; Spears & Lea, 1994).

The prevalence of expletives and other negative emotive cues captures generally negative sentiments towards the riot, but it is also important to think about their implications in the context of audience crisis responses. Negative cues can influence the judgment of others about the riot, including who were responsible, and how well authorities handled the situation. The cause and effect of such negative cues is beyond the scope of our study, but future work could look into this aspect in terms of how they may contribute to the shaping of crisis responses and other aspects of information behavior. At the same time, we found that ingratiation responses which are positive (singing praises and giving thanks) were more likely to be retweeted, although the number of tweets falling in this category was minimal in our study. How both negative and positive cues and responses continue to evolve during crises is an area for future studies.

Uncertainty in information behavior and how they translate into technologically-mediated emotive cues however, has been lacking in previous work (Nahl & Bilal, 2007). Here, we find that information sharing do not always involve more emotive cues. Tweets that were not at all emotive were most likely to be sharing information – this is perhaps due to direct retweeting or sharing of direct links from mainstream media reporting on the riot, but we also found that there was also a significant likelihood of information sharing involving more emotive cues.

Like Choi & Lin (2009), we found the SCCT generally applicable and meaningful to study audience responses to crises, although it was not comprehensive. There were very few responses falling in the categories of compassion, regret and apology. The reasons for this may not entirely be about the external validity of the SCCT framework to audience responses to crises; it could be due to the context of the riot. In the England Riots in 2011 for instance, a significant number of responses were those of a compassionate nature, and these responses were coordinated using Twitter (Mcdermott & Jaffray, 2011). In the Little India Riot which lasted only two hours (compared to six days of the England Riot), damages and aftermath were relatively contained to only the streets at Little India. The authorities had also cleaned up the area in approximately six hours after the rioters dispersed in the Little India Riot, so there were not many opportunities for others to offer help during the aftermath the riot.

The lack of responses in the regret category is also insightful to the composition of Twitter users in the Little India Riot: there was a lack of users who saw themselves as being responsible for or related to the rioters. This does not always mean they were not Twitter users, simply the fact that they were not actively responding to the riot on Twitter. But it should also be highlighted that the most active users of social media in the republic are mostly younger and affluent (Infographics, 2014), demographics that are unlike the demographic profiles of the rioters. Still, did the negative emotive cues and other dominant crisis responses inhibit their participation? This should be investigated in future work. We

found no response that was apologetic in nature. Again, this could be attributed to the nature of the riot here: it was reactive and not premeditated, triggered by a fatal accident that saw the gathering of mob that turned violent. No organization or group was held solely responsible for the riot.

Through our examination of responses, we have also extended SCCT to include new categories to study audience responses to crises. The validity of this framework will have to be tested over time in future studies focusing on crisis responses and emergency contexts, and across different social media platforms. How these responses may also be supported and related to other informational (such as hashtags) and/or emotive cues (such as the levels of emotive cues as studied in our paper) in other crisis and social media contexts should also be analyzed in future work.

## **7. Limitations and Conclusion**

A limitation of our work stems from the question of generalization of the riot, as well as the representation of Twitter as a social media platform in our study. Whilst it may be argued that no two crises are the same, there are some common attributes, such as their suddenness, time constraints, and impacts. But it is more useful to think about the cultural context of each crisis than to try and generalize crises. The use of social media in the Singaporean society is dominated by particular demographic groups, mostly young, better educated, and technologically literate (Hashmeta, 2014). In our study, none of the rioters, rescue workers, or anyone else at the scene tweeted, which makes the entire sample of tweets we reflecting an audience of the public that were outsiders looking in, participating and connecting via Twitter. It is impossible to tell whether or not this consciousness guided and explained their responses just by studying their tweets. As one of the most globalised society in the world, there is also a mix of values both traditional and new. Awareness of these values is significant in studying and making sense of audience responses to any crisis.

Another limitation of our study lies in our selection of tweets in English. Essentially, this limits us to studying the crisis responses of users that were primarily English-speaking, and although that is the dominant language in Singapore, it is not the only language being spoken and potentially excludes nuances that may come from other demographic groups.

Using content analysis of responses to the Little India Riot on Twitter, our study demonstrates that audience responses on Twitter can be understood meaningfully using the lifecycle of a crisis. We demonstrated and discussed the function of retweets, and the information sharing behavior of Twitter users. We also found that people were still communicating interpersonally on Twitter by asking and answering questions, much like Bantz et al (1983)'s study. Twitter was also multifunctional, serving as a platform to communicate emotive cues especially in the first hour of the riot, and then being used to respond to the crisis over the lifecycle of the riot.

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