

#qldfloods and @QPSMedia

Users relied overwhelmingly on image-sharing services integrated into *Twitter* clients (and to a lesser extent on *Facebook* images). This dominance of social media-centric services raises questions related to public memory – and particularly the post-disaster collection, archiving and sharing of these historically significant images: such services come and go, and are designed for ephemerality (*Twitpic* lacks an export function, for example); and the copyright status of these images is uncertain and highly dependent on the terms of use of individual platforms.

@QPSMEDIA AND #QLDFLOODS

From our overall analysis of the #qldfloods data, the Queensland Police Service Media Unit's *Twitter* account, @QPSMedia, clearly emerged as the most visible participant in #qldfloods; it became a major source of information for Queenslanders and others following the unfolding floods crisis on *Twitter*, and introduced innovations such as the #Mythbuster series of tweets, which aimed to intervene in the spread of rumour and disinformation. The evident success of the QPS Media Unit's use of *Facebook* as well as its *Twitter* account @QPSMedia has been widely noted in the media, with team members Kym Charlton and James Kliemt making regular public appearances to discuss the social media strategies of the organisation in the context of crisis communication.

To further examine the specific role played by @QPSMedia in the context of overall #qldfloods activities, we undertook a detailed content analysis both of tweets in the overall #qldfloods hashtag, as well as of tweets which form part of the conversation with @QPSMedia (that is, tweets from and to the @QPSMedia account). We coded these tweets for the presence of a number of content categories, outlined below. For our analysis of #qldfloods, we worked with a representative sample drawn from the total dataset, coding every twentieth of all tweets. For our analysis of @QPSMedia, we coded all tweets containing the term "@QPSMedia", and/or sent by the @QPSMedia account.

Coding Categories

Our coding categories were first developed for the @QPSmedia sample, and then adjusted to be relevant to the overall #qldfloods sample. All tweets in both samples were then coded using this coding system, and cross-checked for consistency. Our coding scheme includes five major categories – **Information**, **Media Sharing**, **Help and Fundraising**, **Direct Experience**, and **Discussion and Reaction** – which in turn divide into several distinct sub-categories.

Information

A – Advice: Tweets that provide information about what to do (e.g. during evacuations), safety tips, and how best to act to streamline the relief and recovery process. Includes tweets that contain information about services to contact for assistance or information.

Advice for drivers stranded Wittcott #thebigwet #qldfloods <http://fb.me/yq10t405>

S – Situational Information: Tweets that provide information about the location of floods, road closures, areas to avoid, and other risks. Includes maps and other visualisations. Specific, tailored information for locals. Includes information about rescue, response and recovery from a service-oriented angle, and reports on this process from official sources. Pertains to information from official sources.

RT @seqincidents: **EMERGENCY RED MESSAGE** 7M Wall of Water to come down Lockyer Creek within 10 minutes. ALL PERSONS SHOULD EVACUATE AREA NOW.
#qldfloods

#qldfloods and @QPSMedia

RI – Requests for Information: Where individuals ask questions about the current situation or about specifics, such as looking for particular individuals, postings about lost dogs, etc. Includes requests from MSM for content or interviews.

are CBD hotels safe? with power? #qldfloods

Media Sharing

NM – News Media: Media updates, news reports, press releases and press conferences. Includes both links to other sources and headline-like tweets from official and media sources that contain statistics and provide news information independently of links.

Sydney: 'Inland tsunami' devastates Queensland towns <http://bit.ly/f36OHX> #qld #thebigwet #qldfloods

MM – Multimedia: Links to photo galleries, videos and images of the flooding.

RT @rowangbrand: This is INSANE. Cars floating down the rapids <http://bit.ly/gQySIX> #TOOWOOMBA #qldFLOODS

Help and Fundraising

H – Help: Tips for how to help as well as requests for help, volunteers, etc. Both from official sources or individuals.

RT @ftfloods: Anyone who needs help with cleanups should post on <http://fightthefloods.com> there's over 150 people ready to help #qldfloods

FR – Fundraising: Requests for donations, invitations to fundraising events, deals with help to raise money for the floods, announcements of donations.

RT @mintie: You can give a donation to #qldfloods when you pay for your groceries at Woolies. Money goes to the Salvo's appeal and is tax deductible.

Direct Experience

PNE – Personal Narrative and Eyewitness Reports: Includes tweets about direct, personal experience of the floods and eyewitness reports on the ground of events as they happen.

Just returned from Coles & picking D up & I must say the creeks in The Gap area are filling up pretty darn quickly O.o #qldfloods #thebigwet

Reactions and Discussion

AD – Adjunctive Discussion: Use of the event in question to spark off other discussions about e.g. environmental politics or the performance of the federal government.

@JuliaGillard and @TheQldPremier (Anna Bligh) suspend the #NBN and give that \$1b to help QLD rebuild! #QLDFLOODS

PR – Personal Reaction: Expression of reaction to the events as they unfold. Pertains to people who are responding to information about the event.

Total Chaos. Never thought I would see this in Toowoomba. <http://t.co/LP77d4w>
#qldfloods #thebigwet Lucky not 2 B driving home at this time.

T – Thanks: Expressions of thanks and appreciation to particular actors for their role during the flood crisis. Includes referrals and recommendations to *Twitter* users to follow particular official users.

RT @nicmclachlan: I am in jaw-dropping awe of the fire and rescue guys (& girls) working in the #qldfloods #justsaying

SP – Support: Expressions of support toward those affected by the event.

thoughts go out to those who have fallen victim to the floods in some way. and you're cats. #Qldfloods

META – Meta-Discussion: Discussions on *Twitter* and in the media about the significance of social media and its role in crisis response.

This sounds stupid but it kind of feels important to be on Twitter today. #qldfloods

Overall Patterns

Overall tweet patterns in #qldfloods over the key days of the crisis (fig. 13) are generally consistent with the patterns of activity identified in fig. 2 above: 11-13 January constitute the most active days for #qldfloods, coinciding with the height of the flood crisis in Brisbane.

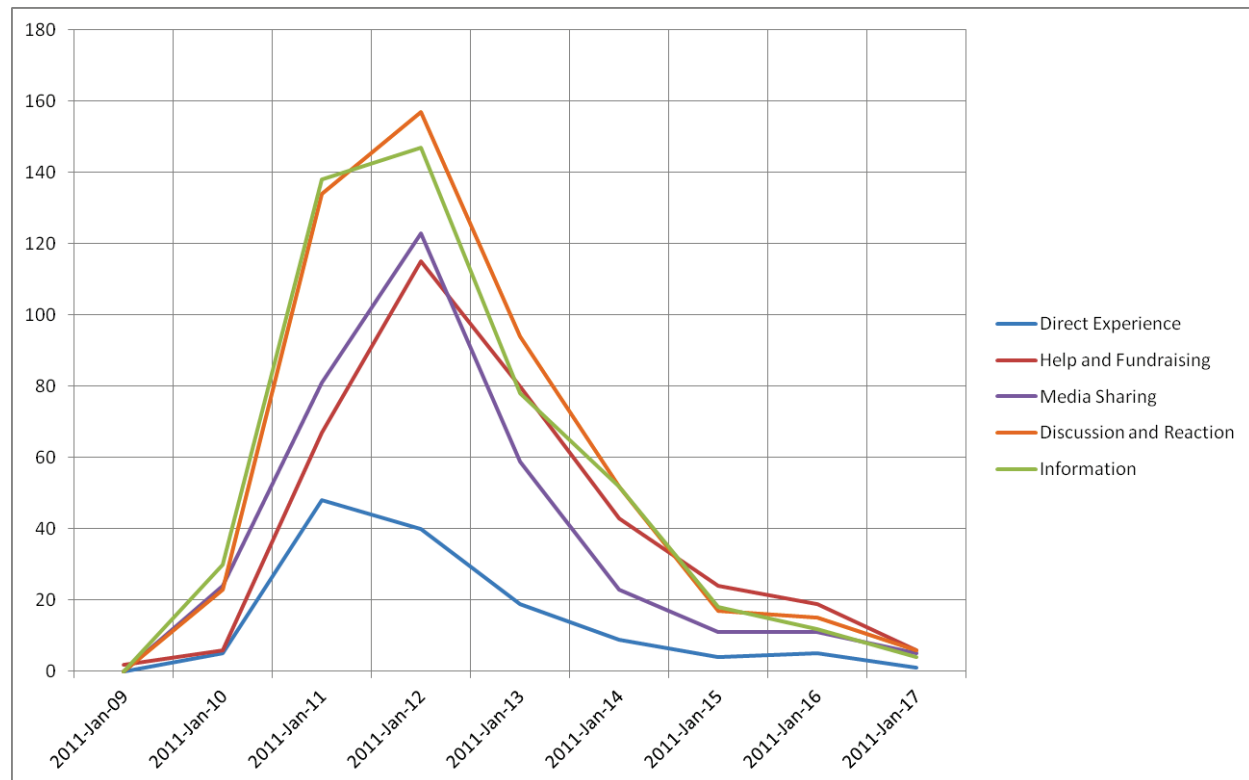


Fig. 13: #qldfloods tweet types over time (from representative sample: every 20th tweet coded)⁵

There are, however, notable differences in the trends which can be identified for the five major categories: **Discussion and Reaction** and **Information** already become prominent by 11 January, while **Media Sharing** and **Help and Fundraising** still grow substantially on the following day, as a greater range of media coverage emerges and the relief effort swings into action. The latter category, in particular, remains strong on 13 January, too – showing the gradual shift from emergency information to relief and recovery over the course of the week. By contrast, **Direct Experience** – the most minor category overall – is comparatively strong mainly on 11 January, as Brisbane floodwaters rise and several affected locals use *Twitter* to report on the current situation, resulting in widespread retweets of their messages.

A comparison of these overall content patterns with the content of tweets by and directed at the @QPSMedia account shows some clear differences in how that account was positioned within the #qldfloods discussion (fig. 14).

⁵ Note that volume numbers shown in fig. 9 indicate the number of matching tweets in the representative sample; with every twentieth #qldfloods tweet coded, they should be multiplied by a factor of twenty to obtain an indication of the total volume for each category. For example, the ~160 **Discussion and Reaction** tweets on 12 January suggest a total volume of $\sim 160 \times 20 = \sim 3200$ tweets in that category.

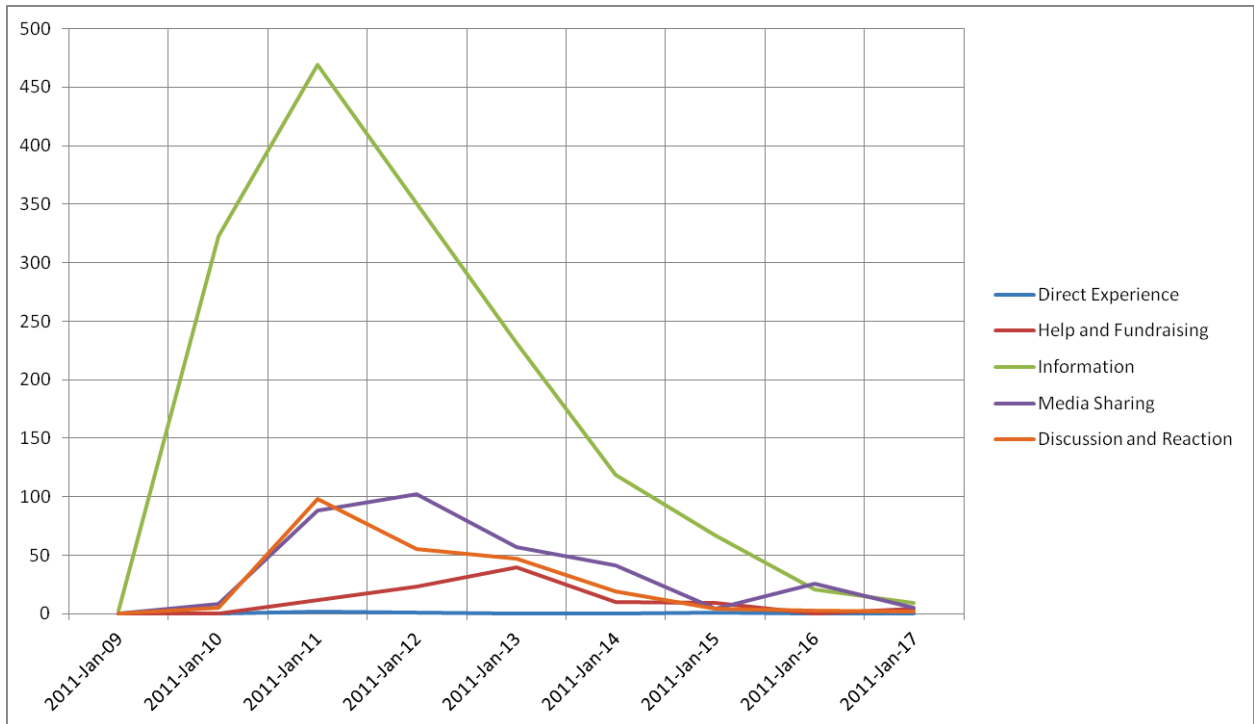


Fig. 14: #qldfloods tweet types by and directed at @QPSMedia, over time (all tweets coded)

The vast majority of tweets sent by and to @QPSMedia focus on sharing or requesting information on the floods crisis. Cumulative data for the whole week also bears this out (fig. 15).

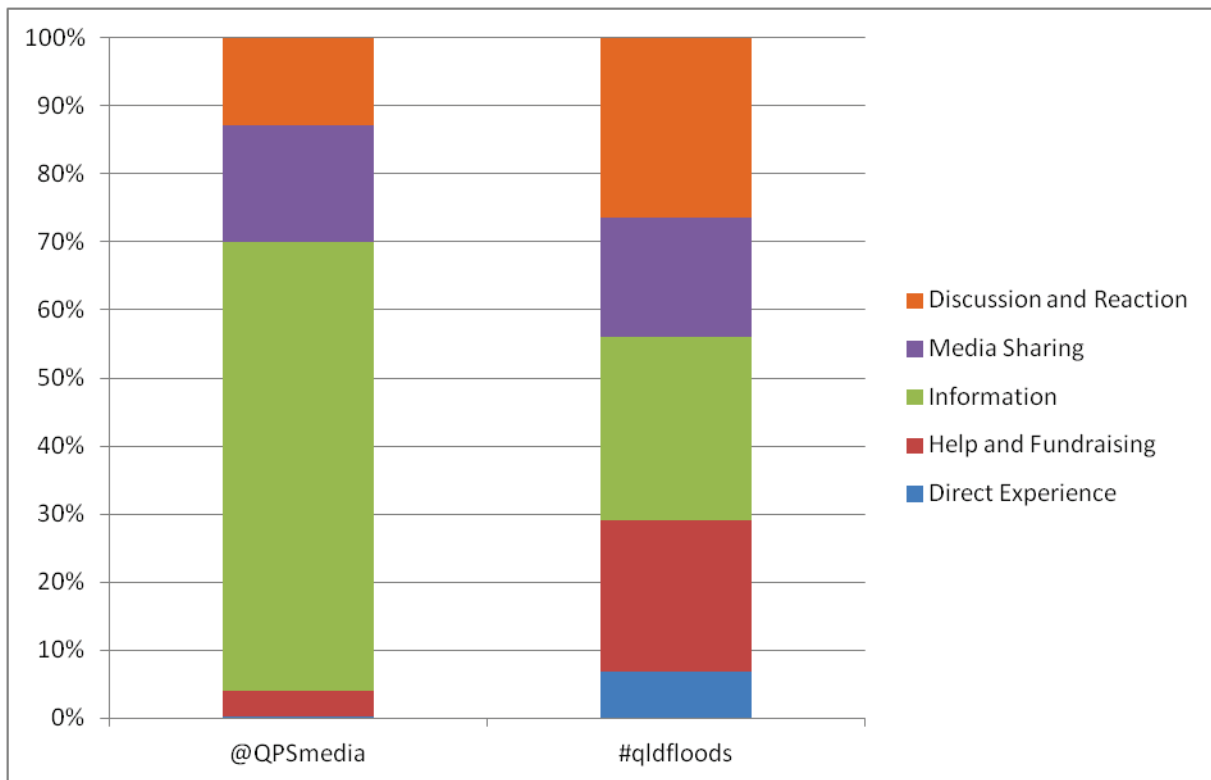


Fig. 15: Distribution of tweets by/to @QPSMedia and in #qldfloods for the week of 10 Jan. 2011

#qldfloods and @QPSMedia

Clearly, then, general uses of #qldfloods and specific conversations around the @QPSMedia account differ quite considerably. Whereas activity in the hashtag #qldfloods shows a fairly even distribution of tweet types, activities around @QPSmedia overwhelmingly consisted of **Information** tweets, complemented by a much smaller number of **Media Sharing** tweets. The third category of any note, **Discussion and Reaction**, mainly captured meta-discussion tweets acknowledging how well @QPSMedia performed during the floods crisis.

These findings clearly indicate that @QPSMedia was successful in reaching its target audience, and that the members of that audience treated the account with considerable care and respect. @QPSMedia tweets themselves were appropriate to the task at hand, containing timely and relevant information, and as a result were also widely retweeted, as we have already shown. Responses to @QPSMedia, in turn, remained consistently constructive and on-topic, as well as expressing support and gratitude to the Queensland Police Service staff operating the account.

Detailed Patterns

A further breakdown of the major categories into their elements reveals further details about the specific focus of *Twitter* discussion in #qldfloods and of conversations around @QPSMedia.

Information

Across both the overall #qldfloods dataset and the specific tweets by and to @QPSMedia, informational categories were roughly similarly distributed (fig. 16); however, as we have shown above (fig. 15), the **Information** category played a vastly more important role in @QPSMedia communication, compared to the overall #qldfloods hashtag feed.

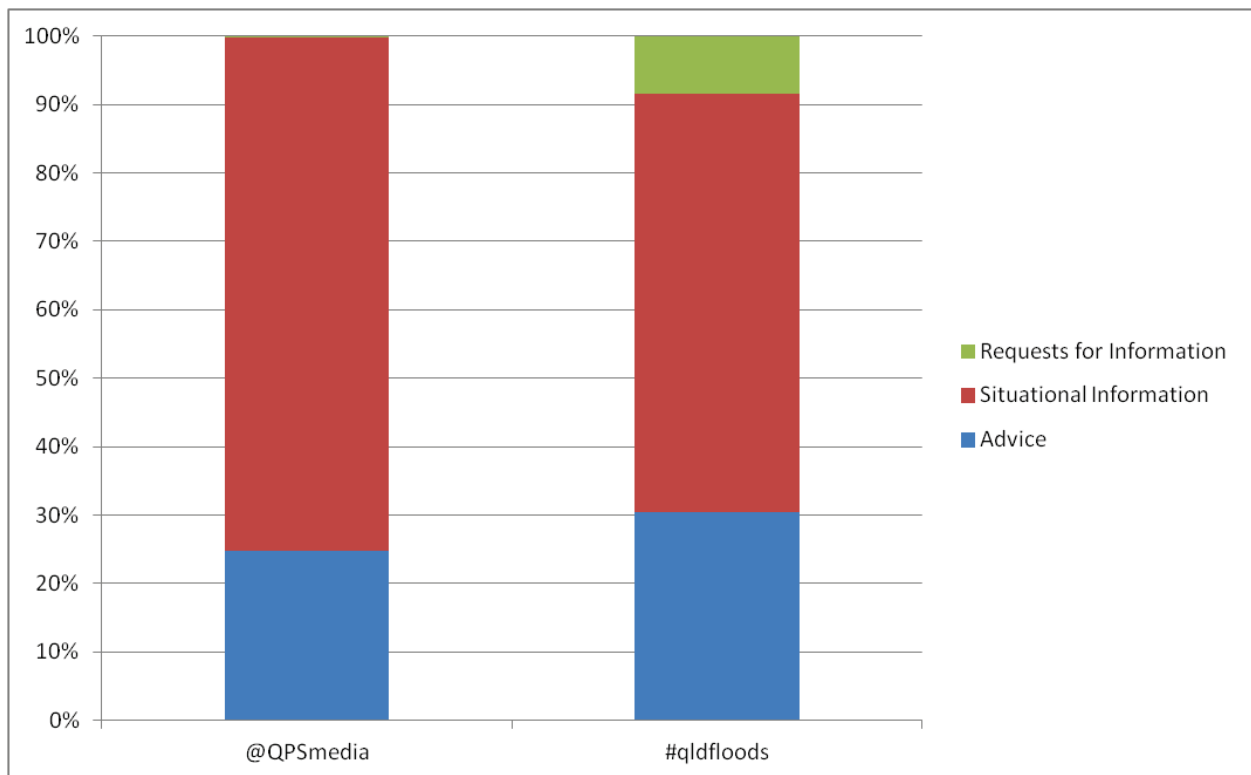


Fig. 16: Breakdown of tweets in the Information category

Amongst the sub-categories of **Information**, it should also be noted that there was considerable overlap between “Advice” and “Situational Information”. Many situational awareness messages implicitly contained advice (for example notifying residents of drinking water contamination in a particular region, without necessarily containing specific instructions to boil water). At the same time, advice tweets peaked one day later than situational information tweets.

Tweets encouraging others to check facts and not to spread rumours were among the most resonant “Advice” tweets. In coding these tweets, we also noted gradual changes in the tenor of advice tweets: as the event moved from crisis to recovery, messages from @QPSMedia began to include more law and order messages, along with survival and emergency notices.

“Situational Information” tweets, by contrast, provide information about the emergency situation as it develops. Such tweets kept users up to date on flood levels, locations of flooding, and other risk factors during the floods. During the latter stages of the crisis, as such resources became available, they also included links to flood maps and other forms of visualisation. Situational awareness tweets were related, but treated separately from, news and media updates (in the **Media Sharing** category): news updates often resembled article headlines, and contained information which did not specifically provide emergency information, but rather presented more general news about the flood disaster; such tweets became more common in the later days of the floods crisis, sharing links to articles which summarised the disaster’s effects (tracking human and economic impacts, etc.), or provided human interest stories.

“Situational Information” and “Advice” tweets were amongst the most retweeted types of tweets we observed in our data. Particular mention must be made in this context of a specific type of tweet initiated by @QPSMedia in the evening of 11 January: its series of #Mythbuster tweets (using that hashtag in addition to #qldfloods) responded directly to rumours and misinformation circulating on *Twitter*. Along with official notices to evacuate, these #Mythbuster tweets were the most widely retweeted @QPSMedia messages.

Discussion and Reaction

In #qldfloods overall, **Discussion and Reaction** tweets (fig. 17) were much more likely to be personal reactions to the emergency – expressions of shock, horror, or amazement. By comparison, the conversation around @QPSmedia in this category of tweets centred more on the role of @QPSmedia and others in helping to provide information and support during the floods: we describe these tweets as engaging in “Meta-Discussion”.

Unsurprisingly, too, of the “Thanks” (directed specifically at identified stakeholders) and “Support” (general expressions of support for affected locals) categories, “Thanks” is more prominent in the @QPSMedia dataset, where such thanks are generally directed at the Queensland Police Service itself. In the broader #qldfloods sample, on the other hand, expressions of thanks are also directed towards other actors, such as Premier Bligh, rescue workers, and other official online sources, while – appropriate to the more general discussion taking place in #qldfloods – there is also a greater level of general expressions of support.

#qldfloods and @QPSMedia

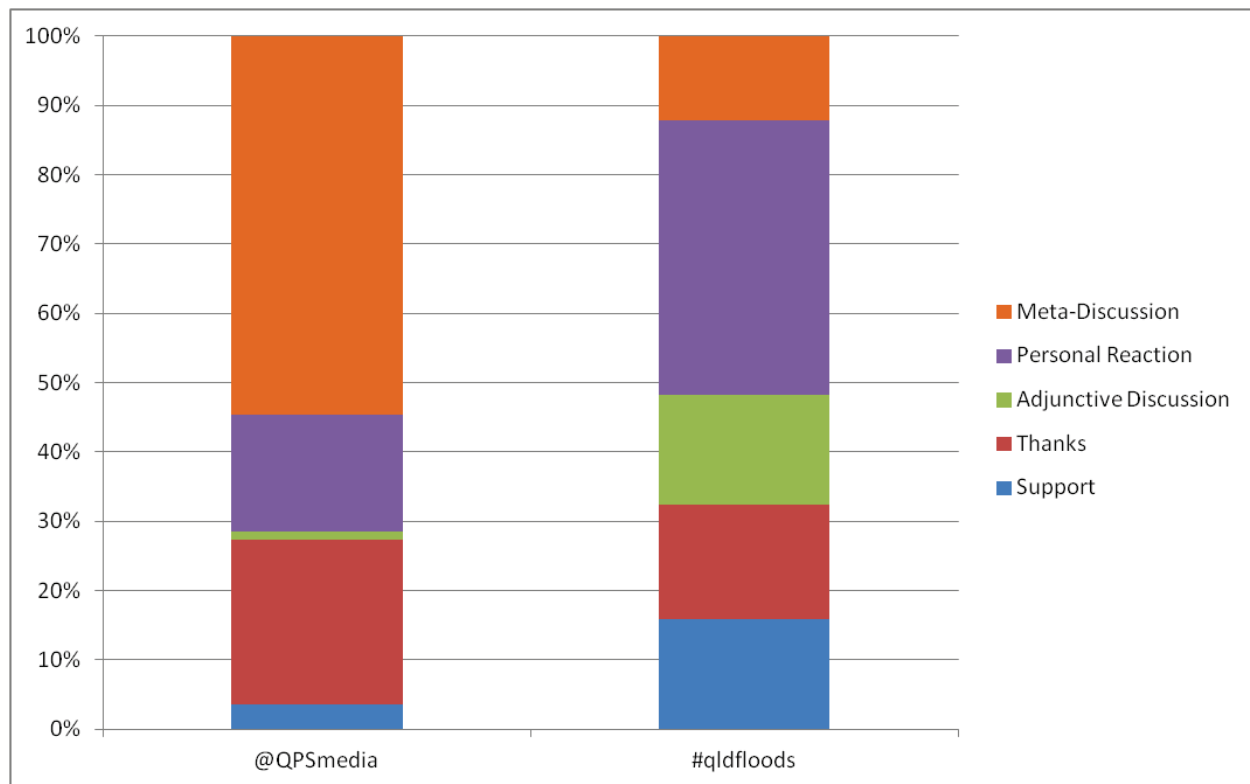


Fig. 17: Breakdown of tweets in the Discussion and Reaction category

Within the @QPSMedia conversation, overall discussion topics in this category of tweets included expressions of shock and sadness about information posted by @QPSMedia (or of gratitude when news was good), comments about how particular information related to users' own circumstances (e.g. "this is the street next to our practice!", "That's cut me off"), and questions about particular rumours and requests for safety information (e.g. "Do you think it will be safe to drive from the Gold Coast to Brisbane Airport tomorrow evening?!"). @QPSMedia's own engagement in these discussions was generally limited to a few apologies for errors and miscommunication. "Meta-Discussion" tweets showed that users were extremely appreciative of the role which @QPSMedia played in providing information during the flood crisis. Particular admiration was expressed for the mythbusting activities initiated by @QPSMedia.

Media Sharing

As fig. 15 showed, the sharing of information in more news-style formats (as both text and multimedia) constituted a more minor activity in #qldfloods than might have been expected, given the significant news coverage which the floods generated; this may be due in large part to the fact that in its focus on the speedy dissemination of the latest updates the hashtag community predominantly shared first-hand situational information and advice, provided not least also by @QPSMedia directly from emergency services situation briefings, rather than the write-ups of such information which would have become available a short time later on the Websites of major Australian and international news organisations. Tweets in the "News Media" category were more likely to summarise the events of the floods and provide less specific information for a broader audience; the frequency of such tweets in the #qldfloods hashtag

stream increased largely during the later days of the floods crisis, *after* the immediate threat had passed.

Where they did post **Media Sharing** tweets, #qldfloods users also disseminated a substantial amount of links to multimedia resources (including photos and videos of the floods and their aftermath); more than one third of these tweets pointed to such resources (fig. 18). Tweets in the @QPSMedia conversation, on the other hand, focussed overwhelmingly on conventional news reports in textual form.

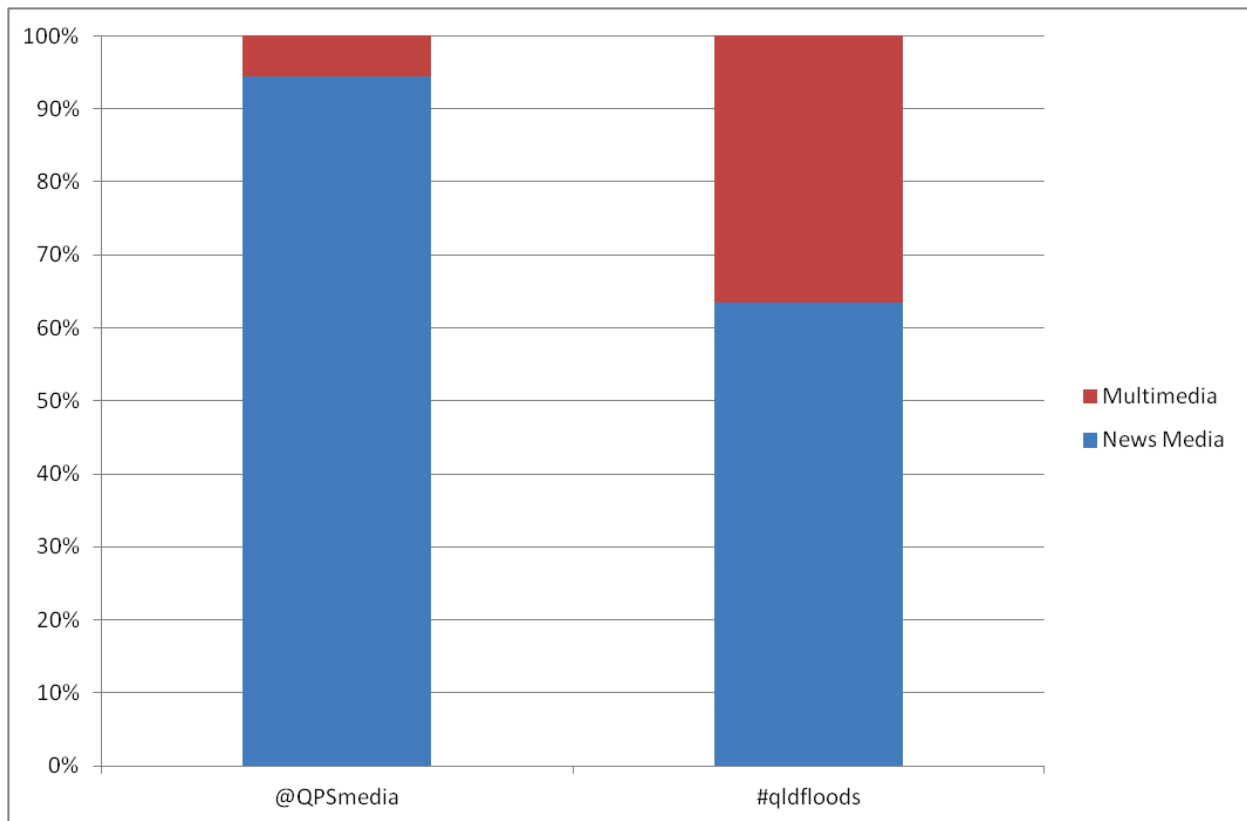


Fig. 18: Breakdown of tweets in the Media Sharing category

Help and Fundraising

In keeping with the implicit purpose of the @QPSMedia *Twitter* account, tweets in the **Help and Fundraising** category (fig. 19) accounted only for a very minor percentage of the messages by and to this account; less than four per cent of the #qldfloods tweets contributing to the @QPSMedia conversation were coded as belonging to this category. Of these, in turn, only some ten per cent dealt with fundraising matters; it appears that the purpose of @QPSMedia as an informational account, and the operational issues which would prevent the Queensland Police Service from engaging in the promotion of active fundraising efforts, were well understood by both police personnel and @QPSMedia followers. Information about volunteering and other forms of help, on the other hand, was more widely shared by and with the @QPSMedia account, even if it still constituted only a minor element of the overall conversation around @QPSMedia.

#qldfloods and @QPSMedia

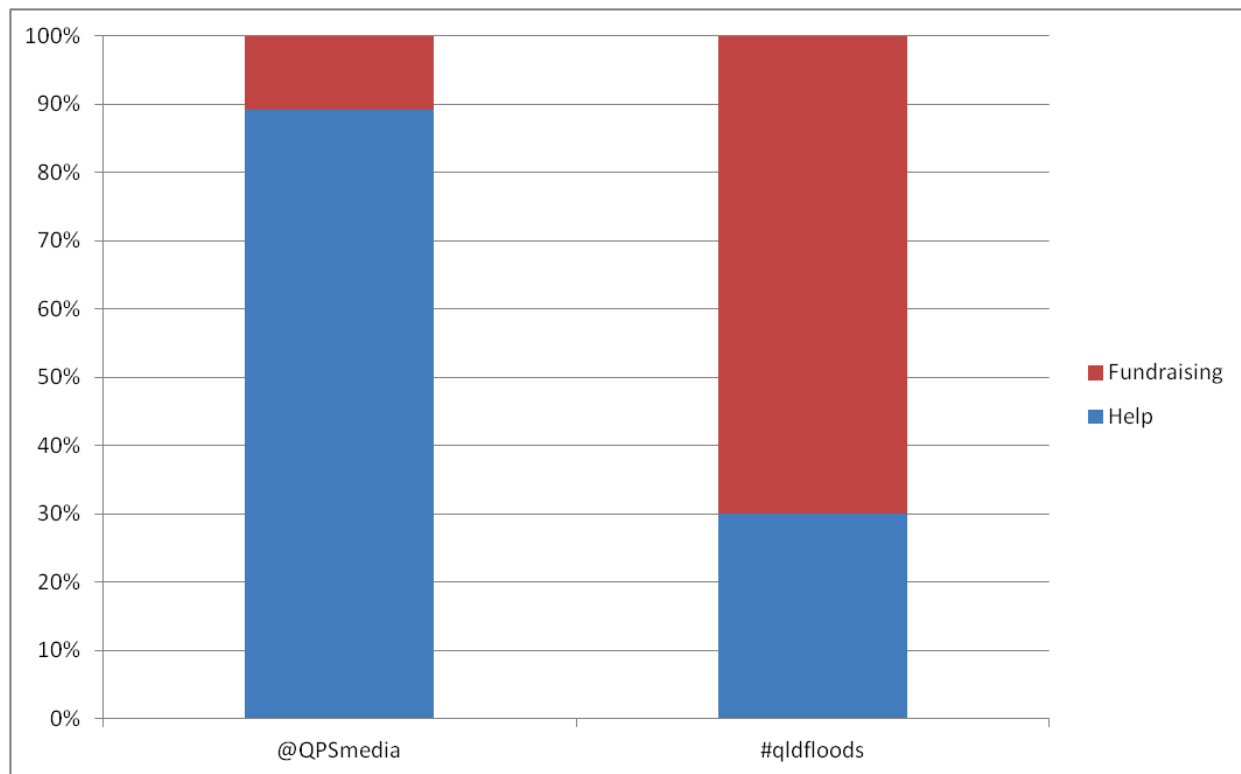


Fig. 19: Breakdown of tweets in the Help and Fundraising category

By contrast, almost one quarter of the overall #qldfloods feed consisted of **Help and Fundraising** tweets, peaking on Wednesday and declining less quickly than other tweet types, as fig. 13 showed. This clearly indicates the shift of focus from rescue to recovery, and the strong response to the crisis from affected communities as well as more distant onlookers. Notably, the overall #qldfloods feed focussed considerably more strongly on fundraising activities than on organising immediate volunteering and other help activities; some 70% of tweets in this category shared fundraising information, with that number boosted also by a substantial number of retweets. This may also indicate the continuing presence of *Twitter* users outside of South East Queensland, unable to engage in hands-on volunteering activities but could contribute through donations (or at least points to a perception amongst the #qldfloods community that such more distant users were still paying attention to the hashtag).

Direct Experience

At less than one per cent of the total, messages of the **Direct Experience** category – which covers largely personal narratives and experiences, as opposed to more immediately situational advice and information – were almost entirely absent from the @QPSMedia conversation; even within the larger #qldfloods sample, they accounted for less than seven per cent of the total update stream. This is likely to indicate that: first, the #qldfloods discussion involved a pool of participants that extended far beyond directly flood-affected residents; and second, where local *Twitter* users did share personal experiences in the floods, they were more likely to do so in the form of shared eyewitness images and videos, or as situational information and advice for others (leading to their tweets to be counted towards those categories rather than Direct Experience), than as ‘merely’ personal narratives.

Amplification by Retweeting

The prominence of certain categories of tweets both in the overall #qldfloods sample and in the conversation around @QPSMedia is due in part also to the substantial amount of message sharing through retweeting. Retweeting not only increases the visibility of messages in the #qldfloods hashtag itself, but especially also passes them along to new recipients: the personal *Twitter* followers of each retweeting user. Retweets, in other words, play a significant role in amplifying *Twitter* messages well beyond the reach of the original sender or hashtag.

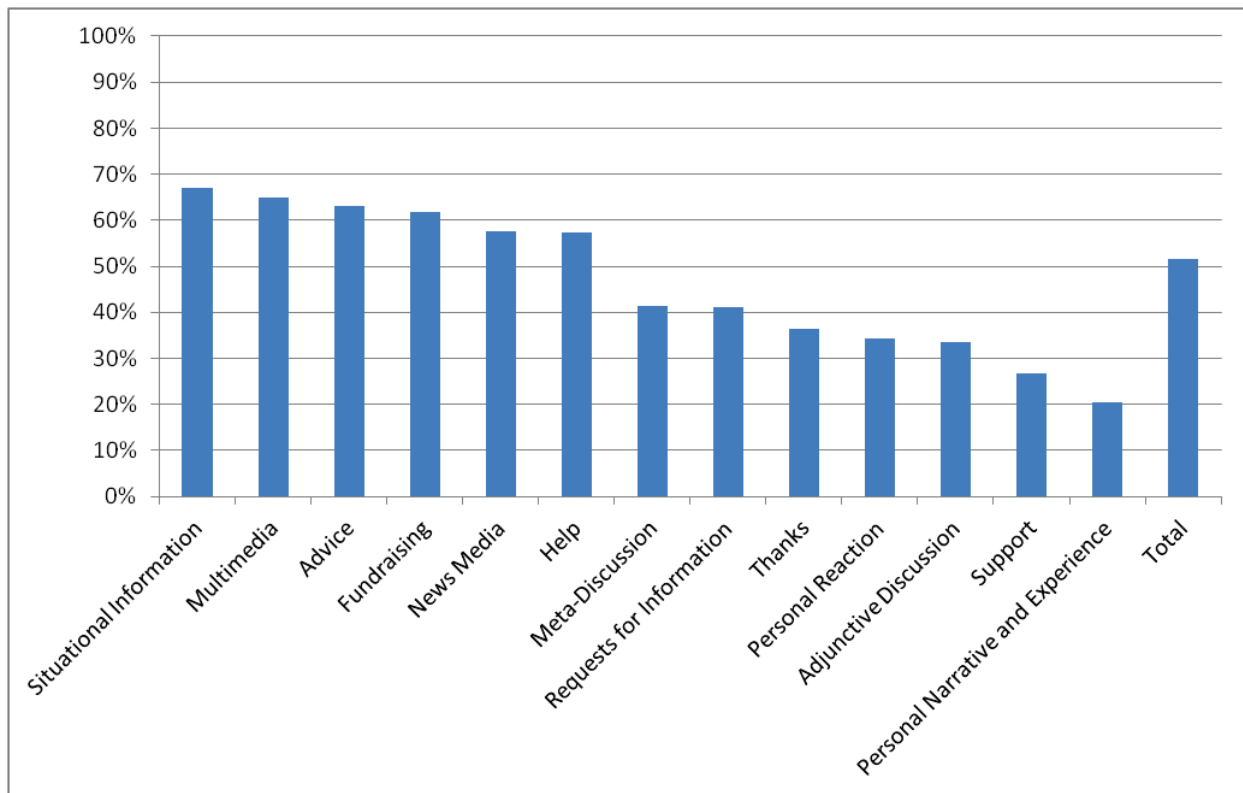


Fig. 20: Percentage of retweets amongst messages across the #qldfloods content categories

Retweeting patterns for the overall #qldfloods sample (fig. 20) are healthy, for the type of conversation which #qldfloods represents: of all tweet categories, those containing the most immediately important information are also the most widely retweeted. More than two thirds of tweets providing “Situational Information” are retweets, for example, and similar visibility is also achieved by the other **Information** sub-category, “Advice”; similarly, both the “Multimedia” and “News Media” sub-categories of **Media Sharing**, and the “Fundraising” and “Help” sub-categories of **Help and Fundraising** are prominently positioned here. By contrast, tweets containing more personal narratives, expressing general support, or engaging in other, less immediately crucial commentary are considerably less likely to be retweeted; only some twenty per cent of “Personal Narrative” tweets are retweets, for example.⁶

⁶ Again, we note that in this discussion we count *manual* retweets – of the format ‘RT @user *original message*’ – only; adding ‘button’ retweets would further boost these numbers across the board, and it is likely that ‘button’ retweet rates would follow a distribution pattern similar to that for manual retweets.

#qldfloods and @QPSMedia

This focus on retweeting the most salient information is even more pronounced when only tweets in the @QPSMedia conversation are considered. Fig. 21 shows the average amplification factor for all significant sub-categories in the @QPSMedia dataset: it shows clearly that each message in the **Media Sharing** and **Information** categories within this dataset received more than six retweets, with “Multimedia” and “Advice” tweets even receiving more than ten retweets on average. By contrast, while significant numbers of “Meta-Discussion”, “Thanks”, and “Personal Reaction” tweets are present in the @QPSMedia conversation, these did not receive substantial numbers of retweets; overall, they are likely mainly to constitute individual users’ comments *to* or *about* the efforts of the Queensland Police Service Media Unit, while the widely retweeted messages are much more likely to have originated *from* @QPSMedia itself.

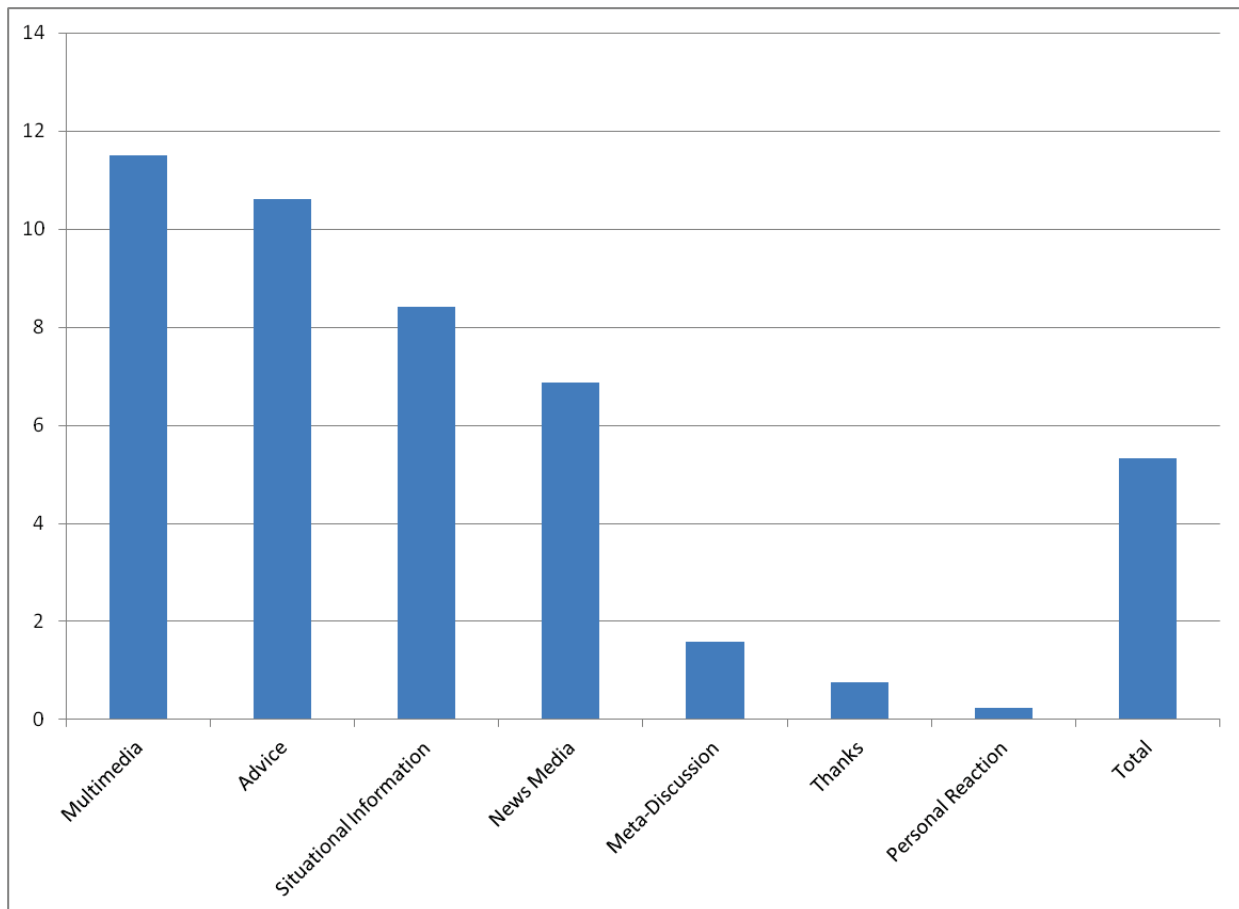


Fig. 21: Average retweet rate of for tweets in the @QPSMedia conversation

Conclusions

Taken together, these observations clearly document that the information posted on *Twitter* by the Queensland Police Service, as well as by other authoritative sources, was able to ‘cut through’ effectively: to reach its immediate audience as well as be passed along and thus amplified many times over, with the help of other *Twitter* users acting as further information disseminators especially at the height of the crisis. Even more notably, tweets containing situational information and advice, pointers to news media stories and multimedia updates, but

also notably advice on how to help or donate funds, were particularly “resonant”; while @QPSmedia itself did not provide much information related to help and fundraising, many other *Twitter* users provided and shared such information in their stead.

These data also confirm that the tweets posted by @QPSMedia, in particular, were as useful and authoritative as the crisis situation urgently required; they provided timely and important information and advice for flood victims and other information-seekers. At the same time, given that the Queensland Police Service’s approaches to using *Twitter* during the flood crisis were developed *ad hoc* and with little prior planning, these successes also suggest that there is significant scope for official agencies to play an even greater role in providing up-to-date information and coordinating relief and volunteer efforts through social media, alongside their more established emergency management procedures.

Sadly, 2011 has seen a number of further natural disasters and other crises, and social media have played a substantial role in many such events, too; stories similar to that of the South East Queensland floods could be told for these events as well. The experience of the Christchurch earthquakes (in September 2010 and February, June, and December 2011), for example, points to a growing confidence and sophistication in civic authorities’ use of *Twitter* and other social media tools as channels for providing and receiving information (cf. Bruns & Burgess, 2011c); overall, research into the use of social media for crisis communication also highlights time and again the important role of social media exchanges in facilitating a communal process of sense-making which begins with the immediate disaster event and continues for weeks and months after it. Further work should now be done by Australian emergency management authorities and researchers to understand the lessons from these events, and implement more advanced strategies for using social media in crisis communication, from the immediate rescue phase to the long-term recovery process.

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