Psychosocial Functions of Social Media Usage in a Disaster Situation:
A Multi-Methodological Approach

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Abstract

Disasters are unexpected events that can affect a great number of individuals physically and psychologically. While previous research identified the Internet and especially social media as crucial platforms for information and communication in such situations, the psychological perspective on disaster-related functions of social media is still underrepresented. Building on motivation and emotion theories, this work uses a multi-methodological approach to holistically assess the individual’s motives that underlay social media usage in the context of the human stampede at the Love Parade 2010. The results of a content analysis of postings in social networking site groups (N = 5970), qualitative interviews (N = 10), and an online survey (N = 171) delineate social media not only as a means for verifying the well-being of loved ones but also as appropriate spaces for social sharing of emotions and pursuing empathic concerns. Moreover, social media have been found to provide psychological benefits for users: The more individuals actively engaged in social media communication, the more they felt emotionally relieved and as a part of a like-minded community. These findings extend prior knowledge with regard to processes of emotion regulation that accompany social media communication in non-routine situations.

Keywords: disaster communication; emotion regulation; social media; social networking sites

1. Introduction

On July 24th 2010, a human stampede occurred at the Love Parade in Duisburg, Germany. This man-made mass disaster at the largest electronic dance music festival
worldwide caused the death of 21 people and the injury of at least 500. Besides the families of the deceased and injured victims, young adults in particular were affected by this incident, be it directly as visitors or indirectly through concern about the welfare of family members and friends.

The individual’s response to unexpected mass disasters can vary widely and be influenced by social context, personal experiences, expectations and the subjective meaning of the incident (Butler, Panzer, & Goldfrank, 2003). In such situations, people might deal with states of uncertainty, fear or panic and develop different needs which can be met through media exposure (Perez-Lugo, 2004): Cell phones can help to gain certainty about the well-being of loved ones; television and radio might provide official information about the incident. However, the Internet in particular has been shown to positively influence the individual’s coping with a disaster (Al-Ani, Mark, & Semaan, 2010; Boyle et al., 2004; Procopio & Procopio, 2007; Shklovski, Burke, Kiesler, & Kraut, 2010). The uniqueness of the Internet lies in the possibility for users to autonomously seek specific information that they might not get elsewhere and to communicate with others at any time and place (Bucher, 2002). Especially web applications subsumed under the terms “Web 2.0” or “social media” offer features that may revolutionize the way in which individuals communicate during and after disasters: Within social media, users are able, for example, to upload and watch videos that document any disaster on YouTube or to discuss the incidents with peers on social networking sites—even with their web-compatible mobile phones. Scholars have analyzed the functions of blogs (Macias, Hilyard, & Freimuth, 2009), microblogging services such as Twitter (Sutton, Palen, & Shklovski, 2008; Qu, Huang, Zhang, & Zhang, 2011) or social networking sites (Vieweg, Palen, Liu, Hughes, & Sutton, 2008; Semaan & Mark, 2012) in times of crisis. Despite the large body of research in this field, there is a lack of empirical approaches investigating the underlying psychological factors influencing whether and how
individuals expose themselves to social media in disaster situations. We aim to fill this gap by drawing on the theoretical approach that when facing negative emotional experiences, individuals perceive the particular need for sharing their emotions with others individuals (Rimé, 2009) and they might try to fulfill this perceived need by exposing themselves to media (Katz, 1959; Ruggiero, 2000). Furthermore, the exploration of social media usage still requires a differentiated perspective: Since previous research predominantly conducted content analyses of online messages, these approaches assessed active usage patterns such as participating at discussions related to disasters, writing comments and providing information. However, social media users can also act passively by merely reading contributions of other users or watching videos without taking part in observable communication. By considering these different usage patterns, the present research aspires to offer a broader understanding of psychosocial processes that accompany disaster-related social media usage. Particularly, we focus on individuals’ motives for exposing to social media and on the questions of what users (emotionally) experience while and after usage. Therefore, the present case study combines objective analyses of communication behavior and subjective self-reports of individuals related to social media usage in the context of the stampede at the Love Parade 2010: First, we conducted a content analysis of social networking site groups dealing with the Love Parade 2010 to assess the concerns and issues users talk about in social media after having experienced or having found out about the disaster. Second, qualitative interviews were performed in order to approximate the subjective gratifications of active as well as passive social media usage on an explorative level. Finally, we performed an online survey with a larger sample in order to systematically identify the uses and gratifications of different social media applications such as social networking and video sharing sites and their impact on individuals.
2. The Role of Social Media in Times of Disaster

Social media comprise applications such as social networking sites (SNS) like Facebook or Twitter, diary-like weblogs, the video-sharing website YouTube, and the knowledge-sharing website Wikipedia. All of these platforms are characterized by a technical ease of use that facilitates production, exchange and consumption of user-generated content among social media users. Since social media usage has in any case become a crucial part of people’s daily lives (e.g., Duggan & Brenner, 2013; Hampton, Goulet, Rainie, & Purcell, 2011), a considerable body of research has explored whether the use of social media can take specific roles in particular situations, for instance in settings of disaster. Research by Palen and her group (e.g., Palen, 2008; Shklovski, Palen, & Sutton, 2008) analyzes the use of information and communication technology in times of crisis from a computer science perspective and with a special focus on social media: In relation to the Southern California Wildfires in 2007, their research group found that citizens used social media for information gathering, verification and distribution as they did not receive sufficient data from traditional news sources about the specific areas that caught fire (Sutton, Palen, & Shklovski, 2008). In this case, the authors speak of “backchannel communication”, a form of collective communication among peers to exchange additional information that is otherwise difficult to obtain. However, most users reported to have used social media to seek information and only a third of the respondents actually actively contributed information about the wildfires. When analyzing the content of Facebook groups related to the Virginia Tech shootings in 2007, Vieweg et al. (2008) found that citizens assiduously collaborated on determining the identity of the fatalities by sharing the information to which they had access. Hence, social media enabled users to generate and share information that official authorities did not have or were not willing to release.
With the explicit aim of assessing the different functions of social media in times of crisis, Macias et al. (2009) conducted a content analysis of weblog entries in the aftermath of the 2005 Hurricane Katrina: The most frequent function identified was communication (such as looking for missing people or documenting experiences), followed by political functions (such as commenting on political statements), information (such as providing information about damage and how to get help), and helping (such as offering and organizing assistance). With a special focus on expressions within weblog entries, a further function was identified: The emotive or therapeutic use of social media (as discussing one’s own emotions). Further works identified similar functions of social media in disaster settings (e.g., Hart, Brewster, & Shaw, 2012; Qu et al., 2011). However, such findings are often based purely on content analyses, which solely focus on the observable communication behavior of active users. Other users, though, might participate passively by reading or looking at content without contributing to discussions. Thus, a psychological perspective on social media functions requires a more differentiated view on the different underlying motives which may drive the individual’s exposure to social media. Like others, we theoretically draw on the uses and gratification approach (Macias et al, 2009), but extended the analyses to passive social media users and the emotional functions social media might have during and in the aftermath of mass disasters.

3. Disaster-related Uses and Gratifications of Social Media

According to the uses and gratifications approach, individuals use media to fulfill their current needs and desires (Katz, 1959; Katz, Blumler, & Gurevitch, 1974). This approach postulates that psychological, sociological, and environmental conditions shape people’s motives determining their choices and uses of media. In this regard, motives are conceptualized as subjectively perceived needs which individuals are able to articulate when they are asked to explain their reasons for using media (Papacharissi, 2008; Rubin, 2009).
Therefore, individuals are supposed to deliberatively use media in a way that satisfies their current needs and leads to gratification. With the rise of online communication, the uses and gratifications approach has gained new interest: The emerging interactivity (in the sense of enhanced opportunities for activity on the web), demassification (the individual selectivity within Internet offers), and asynchronicity (in terms of communicating at the individual’s convenience) on the Internet provides a higher degree of freedom for individuals to actively fulfill their perceived needs (cf. Ruggiero, 2000). Following these assumptions, we argue that individuals facing a disaster might perceive particular needs which they will try to actively pursue by exploiting the particularities of online media. The present research therefore takes the uses and gratifications approach as a framework to link the individual’s motives and their social media usage patterns in disaster settings. In the following sections, we first discuss people’s motive of gathering information, which has been addressed widely in the literature. Then, we aspire to broaden this motivational view by elaborating on people’s motive to deal with emotions which might comprise the perceived need to share one’s emotions but also to observe other’s emotions in the context of a disaster.

3.1. Information Gathering

Seeger, Vennette, Ulmer, and Sellnow (2002) pointed out that disaster situations enhance informational needs. These needs, originating from high levels of uncertainty, manifest themselves in an urgent necessity for immediate and accurate information (Sellnow, Seeger, & Ulmer, 2002). Thelwall and Stuart (2007) outlined three different forms of this need: Individuals experience a general information need when they want to get more general information about the course of the disaster. A personal information need arises when individuals want to verify the welfare of family or friends. The third form, information usage, refers to the individual’s necessity to communicate with others. The authors found that social
media might fulfill general information needs rather than personal information needs.

Similarly, van Leuven (2009) delineated four categories within the information need:

Situational awareness is related to the individual’s wish to know what exactly has happened and what might still happen. Expert knowledge refers to the individual’s questions about how to protect themselves as well as their need for expert advice. News/Emerging Info comprises the need to see photographs of damage, to receive eyewitness accounts and local news. Recovery assistance is targeted at the organization of community support and voluntary help.

According to van Leuven (2009), social media is able to meet these needs as it is more immediate and interactive than traditional media.

According to the uses and gratifications approach, individuals might use social media in different ways depending on which form of the informational need is dominating: While users might address their need to know what exactly happened by merely monitoring contributions of other users, they might try to fulfill their personal information need by actively writing messages to loved ones in order to learn whether they were affected by the disaster or not. Thus, passive and active social media usage may be related to different dimensions of the informational need individuals perceive. While prior research predominantly focused on the informational needs determining disaster-related social media usage (e.g., Vieweg et al., 2008; Sutton et al., 2008; Thelwall & Stuart, 2007), only a few studies have focused on emotions as driving forces behind social media usage. In this context, we consider the active sharing of emotions and the passive observing of others’ emotions as people’s motives to use social media.

3.2. Sharing Emotions

At disaster scenes, individuals commonly get involved in exceptional emotional states. One phenomenon related to people’s emotion regulation in non-routine situations is depicted
by the concept of social sharing of emotions (Rimé, 2009; Rimé, Mesquita, Philippot, & Boca, 1991). According to this approach, humans develop a specific need to express their internal states to others following an emotional event. This behavioral tendency has been steadily identified in a notable line of research, including different methodologies such as autobiographic or experimental studies (e.g., Luminet, Bouts, Delie, Manstead, & Rimé, 2000; Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998): These findings suggested that the more people felt affected by a specific emotional episode, the greater was the extent of their social sharing of this experience. The more time passes, the less individuals memorize the particular event which leads to a decrease in the extent of socially shared emotions over time (Curci & Rimé, 2012). Considering that individuals are prone to share negative rather than positive emotions, Rimé (2009) postulates that a negative emotional event elicits particular cognitive (e.g., finding clarification and meaning) and socio-affective (e.g., getting attention, empathic reactions or social integration) needs which induce the sharing process. Given the variety of features for interpersonal communication in social media, it seems justified to conclude that, in times of crisis, these social platforms might serve as appropriate spaces for users to fulfill at least some of their cognitive and socio-affective needs. Indeed, content analyses of blogs and twitter messages related to disasters have found users expressing their sadness and grief and supporting each other emotionally (Macias et al., 2009; Qu et al., 2011). Based on a literature review, Barak (2010) furthermore outlined an extensive list of social and psychological functions of the Internet for individuals in disaster situations. Among others, Barak revealed a therapeutic function of online applications in the sense of allowing users to disclose internal states and experience emotional relief. But does the revelation of personal concerns and feelings related to a decisive experience automatically lead to psychological benefits? In offline settings, the sharer’s gratifications of his/her emotional disclosure have been shown to depend on the listener’s reaction: While the
stimulation of cognitive needs (e.g., the listener positively reframes the negative episode) can lead to long-term emotional recovery, addressing socio-affective needs (e.g., the listener shows empathy) merely triggers temporary relief (Nils & Rimé, 2012). Although empirical evidence revealed that users discuss their emotions on social media when facing disasters, it remains unclear whether these users subjectively experience psychological benefits from the sharing process.

3.3. Observing Emotions

Given that social media users do not necessarily need to interact with others to get disaster-related information (e.g., by watching private videos or reading blog postings), our aim is to additionally take the perspective of passive users, i.e., the sharer’s listeners and their perceived needs. According to Rimé (2009) “listeners in a social sharing situation are thus expected to experience emotional responses in their turn” (p. 71). Against this background, it should be asked why passive receivers willingly expose themselves to emotionally charged content such as accounts of people concerned with the disaster. Since the personal tone of content shared by users may enable receivers to put themselves into the position of people affected, it could be suggested that receivers might also perceive empathic concerns. Building on empathy research (Preston & de Waal, 2002), one might assume that the observation of the state of people affected by the disaster might activate the recipient’s representations of the state. Prior research in this regard has shown that taking the perspective of others’ in a non-routine situation not only can lead to feelings of sympathy or compassion, but also to states of personal distress (Lamm, Batson, & Decety, 2007). With respect to passive users of social media in disaster contexts, previous research has left open what users emotionally experience while merely observing other users disclosing their emotional states on SNS or passively watching scenes of a disaster on YouTube.
Summing up, a considerable body of research has revealed the information and communication functions of social media in disaster settings. The present investigation aims to extend this knowledge by giving deeper insights into the psychological factors underlying active and passive usage of social media platforms. The motivational and emotional processes accompanying social media usage were addressed by three consecutive studies with three different methodological approaches which are presented in the following sections.

4. Study 1

4.1. Objective

The aim of our first study was to examine the communication content in social media that has been produced by users in connection with the stampede at the Love Parade 2010. Therefore, we conducted a quantitative content analysis of groups on SNS that were related to the subject Love Parade 2010, focusing on the content and the activity of users. Within SNS, users have the possibility to create or become members of groups which refer to common interests, attitudes, or activities (Haferkamp & Krämer, 2009).

Following the theory of social sharing of emotions (Rimé, 2009), one can assume that individuals confronted with the stampede at the Love Parade, as a negative emotional event, were motivated to share their internal states. In this regard, social networking groups may offer appropriate venues for discussing emotions and experiences with like-minded people. Therefore, we expect that emotional topics dominated the conversations in these groups:

$H1$: Emotions are the most frequent issues of conversation in social networking groups on the Love Parade 2010.

Since the process of socially sharing emotions has been found to decrease with time passing after an emotional episode (Curci & Rimé, 2012), we assume:
H2: Over time, the extent of emotions expressed in social networking groups decreases.

4.2. Method

A quantitative content analysis was conducted for group titles, threads, and postings of the largest German SNS studiVZ. A query for the terms “Love Parade 2010” and “Love Parade Duisburg” revealed 331 topic-related groups (extraction date: 15th May 2011), whose names were classified by three independent coders into the following seven inductively developed categories: grief / commemoration / condolence (235 groups, e.g., “In memory of the victims of the Love Parade 2010”), general (27 groups, e.g., “Love Parade 2010”), anger (20 groups, e.g., “Fuck Love Parade 2010 The Art of death R.I.P.”), attending the Love Parade (16 groups, e.g., “Love Parade 24.7.2010 in Duisburg – I was there”), rescuers (8 groups, e.g., “Thanks to the paramedics at the Love Parade 2010”), survival (7 groups, e.g., “Love Parade 2010 Duisburg – We survived the chaos”), and others (18 groups, e.g., “Counting the visitors at the Love Parade 2010”). The intercoder reliability for the raters was Cohen’s Kappa = 0.91 (p < .00), 95% CI [.73, .80].

These 331 groups contained a total number of 32,916 postings. To allow further analysis of threads and postings, we reduced the data to 32 groups (10%). For this purpose, we first filtered out all groups with fewer than ten postings and those containing only postings before 24th July 2010 (date of disaster). Of the remaining 135 groups, we chose a sample of 32 groups, which were selected randomly in proportion to the seven categories (24 grief/commemoration/condolence groups, 2 general groups, 2 anger groups, 1 attending the Love Parade group, 1 rescuers group, 1 survival group, and 1 others group).

The sample contained 338 threads and 5970 postings, created on 24th July 2010 or later, which were evaluated by means of content analysis by inductively formulating content categories. Forty-six categories were identified and written down in a coding scheme with a
definition of the code, a coding rule, and an example for each code. Thread titles were coded by one coder and independently reviewed by two others. Intercoder reliability for interrater 1 was 87% and interrater 2 was 82%. The postings were subdivided among four coders and for each coder, a random sample of 10% of the analyzed material was given to an additional independent rater. Intercoder reliability was 74.84%. It should be noted here that one posting could be assigned to more than one code. The software OpenCode (ICT Services and System Development and Division of Epidemiology and Global Health, 2009) was used to support the coding process.

4.3. Results

4.3.1. Activity pattern within groups and postings. We found that most groups were founded within three days after the stampede at the Love Parade. Group sizes varied strongly; the smallest group had only one participant, whereas the largest group contained 49,890 members. Overall, 23 of the groups had more than 1000 members. Concerning the usage activity in terms of posting behavior, we found that the majority of coded postings (76%) were created within the first three days after the incident. Only 2% were posted three months after the event or later. Comparing the total number of members of an individual group with the number of contributions provided to the discussions within that group, it becomes clear that there were a lot more registered than actually active users. Hence, a vast majority of group members seem to have joined Love Parade groups in order to obtain information. Another possible explanation for this finding is suggested by Haferkamp and Krämer (2009), who indicated that the membership of SNS groups constitutes a kind of expansion of the personal profile on SNS, presenting one’s own interests or attitudes. In the context of Love Parade groups, passive group users might as well have become members in order to present
personal characteristics such as “I have been affected by the disaster at the Love Parade” or “I am empathetic with people affected”.

4.3.2. Issues of conversation within groups. In order to test $H1$, we analyzed (1) thread titles and (2) postings of the chosen sample of 32 studiVZ groups.

Coding of the thread titles revealed that most threads ($n = 49$) were associated with grief. Thirty-four threads were coded as calls for action, 33 as information/news coverage, 27 as searching for people, and 38 were classified as others, to name only the top five categories.

With regard to the postings, the most frequent topic was condolence ($n = 2175$; 36%; e.g., “my deepest sympathy to all families and friends”). In second place we found expressions of grief, such as “my thoughts are with the dead” ($n = 1428$; 23.9%), and the third most frequent postings declared some kind of criticism about the organization and the course of events ($n = 1064$; 17.8%). 1027 (17.2%) postings contained visual content in the form of ascii art images (images created out of characters) of candles or crosses, followed by 987 (16.5%) postings expressing horror and speechlessness, such as “it still gives me the heebie-jeebies when I see the pictures”. 927 (15.5%) postings contained calls for action and there were 790 (13.2%) postings about the question of guilt and who is to blame. To sum up, it can be concluded that users utilized social online spaces such as SNS groups to express their empathy and sympathy with people concerned as well as to emotionally support each other, which gives a first hint that social sharing of emotions makes a considerable share of active social media communication in disaster contexts. These findings support $H1$.

4.3.3. Differences between content posted immediately and three months later. A chronological comparison ($H2$) of postings revealed that the first postings immediately after the incident (on the day of the disaster) most frequently contained criticism ($n = 37$; 0.6%), e.g., “It could have been prevented with a separate exit”. Some entries even referred to searches for missing people ($n = 17$; 0.28%). In the subsequent days, expressions of
condolence dominated the groups, but we also found many postings expressing grief, criticism, horror, and speechlessness, and the question of guilt (see table 1). From 27th July 2010 onwards, a huge number of postings also contained calls for action. These included, for example, calls to sign an online book of condolence or to help to disclose the actual number of attendances of the festival by registering on a specific website. As stated above, three months after the disaster there was very little activity left in the groups. However, we came to notice that the most frequently discussed issues had changed. Instead of condolence, most postings referred to the decreasing interest in the Love Parade incident \( (n = 24; 0.4\%); \text{ e.g., “Have you noticed that nobody cares anymore about what happened in July?”} \) or after-effects and coping \( (n = 22; 0.37\%); \text{ e.g., “I still can’t get the thoughts out of my mind.”} \). Table 1 provides a detailed overview of the top seven codes in a chronological comparison. These findings reveal that in particular the first postings after the incident were characterized by high emotional involvement. Three months after the Love Parade, we found the general quantity of postings decreasing. However, against our expectations in H2, these messages still contained emotions indicating a prolongation of the social sharing process for some individuals. This might be interpreted as individuals using social networking groups for emotional disclosure over a longer period are those who have not yet emotionally recovered from the particular incident (Curci & Rimé, 2012).

While the content analysis let us observe a social sharing of emotions process in social media, it remains unclear which factors had driven individuals to show this communication behavior. In order to identify these factors and to gain insights into how individuals experienced the emotionally charged communication within social media, we conducted two further self-report studies. These, moreover, aimed to consider not only users who actively contributed to the dialogue within social media (e.g., via postings) but also users who passively consumed information.
5. Study 2

5.1. Objective

In the second study, we conducted qualitative guideline-based interviews with ten respondents to focus on motives and subjective experiences that accompanied social media usage related to the Love Parade 2010 on an explorative level. The method of choice was the in-depth interview with the objective to extensively outline the respondents’ internal processes, since the interactive conversation allows for a detailed recording of subjective usage purposes. The leading research questions were as follows:

\[ RQ1: \text{What were the individuals’ motives that drove social media usage during and after the Love Parade 2010?} \]

\[ RQ2: \text{How did users experience social media communication?} \]

\[ RQ3: \text{What is the perceived uniqueness of social media compared to traditional media?} \]

5.2. Method

To examine our research questions, five females and five males were interviewed. Recruitment was performed through posters on the campus of the BLIND REVIEW and postings on the social networking sites studiVZ and Facebook. The only prerequisite for participation was the general usage of social media in the context of the Love Parade 2010, which was announced on the posters and in the postings. One interviewee was directly at the scene of the disaster and another respondent stated to have attended the Love Parade but not being present when the incidents happened. The remaining interviewees either meant to visit the festival area but were not allowed to enter anymore due to the incidents or did not attend the festival at all.

The execution of the interviews was supported by a manual of guiding questions. The participants were interviewed on their (social) media usage patterns, motives, and experiences
after having heard about the stampede as well as on the overall utility of these platforms in this context. The interviews were recorded with a voice recorder and thereafter transcribed into plain text. Evaluation and reduction of the data was conducted inductively (cf. Schreier, 2012). Although text material was pre-structured according to the specific interview questions, the key codes were built by going through the text along the constructs of interest (see research questions).

5.3 Results

5.3.1. Social and general media usage. In line with the premise to participate in this study, all ten interviewees stated that they used the Internet and social media in the first 24 hours after the stampede: Six respondents used studiVZ (German equivalent of Facebook which was still popular in 2010), six used Facebook, four watched videos on YouTube, three read Twitter messages, and one read blogs during and/or in the aftermath of the disaster. While seven interviewees used online news sites, nine also exposed themselves to television to gather information on the incident.

5.3.2. Social media usage patterns and motives. While all respondents stated to have consumed information presented on social media platforms, four of them actively contributed to the communication in different ways, e.g., by writing articles, commenting on other people’s inputs, creating social networking groups, or uploading photographs and videos taken of the disaster. Four interviewees, further, reported to have exchanged private messages with other users in order to verify the well-being of each other. Respondents, moreover, reported about their individual motives for engaging in social media usage (RQ1): All ten participants used social media for information purposes. The information motive, however, comprised different dimensions: One dimension refers to the personal information need, i.e., checking the well-being of loved ones (five respondents). Moreover, six interviewees wished to receive an authentic impression of the happenings at the Love Parade by reading inputs and
postings made by others, by looking at pictures taken of the disaster as well as by watching videos on YouTube which were uploaded within the first hours after the stampede. One female stated:

It was all about getting information. [...] I wanted to visualize the situation, to see how it occurred. Like watching a movie in my head. Therefore I relied on different sources such as videos, pictures, personal blogs, and first-hand accounts, and so on. Finally, I recomposed them to a big picture to make sense of this incident.

Besides getting an authentic picture of the stampede, three interviewees intended to comprehend what people affected were going through, thus, they pursued empathic concerns:

I tried to learn whether people I know were affected. What do they think and say about what happened? What did they experience? Many people wrote: Oh my god, I am right here at this very moment, it’s awful (male).

Three respondents reported that the information motive was related to a further purpose, which was to psychologically process what has happened. One female, who did not participate in the festival, stated:

I wanted to know what exactly happened and who is to blame. I wanted to know this to be able to cope with it. To get an idea what was going on, I had to look at the pictures because I somehow needed to understand it.

As stated by two interviewees, another social media usage motive was mutual emotional support. One male, who was not present at the Love Parade 2010, clarified:

Consider that people really affected did not get rid of these traumatic scenes at the Love Parade. So, we, as not directly affected people, tried take load from their shoulders. For me, it was not only “giving”. It was great to see someone opening up him or herself [...] and saying: I’m getting better, you really help me.

Two further respondents stated that they used social media for opinion formation with
regard to who was responsible for this accident.

5.3.3. **Personal experiences while and after using social media.** Findings related to RQ2 reveal that respondents perceived social media usage as a quite emotional action comprising contradictory feelings. One the one hand, nine interviewees described negative emotions such as sadness, depression, compassion, shock, numbness, or anger, especially during the exposure to social media applications. On the other hand, social media usage appeared to elicit emotions that five respondents perceived as relieving, therapeutic, and beneficial:

*I felt better. I had the sense of being well understood. I knew that other people were experiencing the same I was going through [...] They have the same problems and are shocked, like me, about what happened* (female).

*Well, it’s difficult to express. On the one hand, it was interesting and nice to talk to someone about what happened. On the other hand, this topic was neither interesting nor nice. I was sad and had a lump in the throat; however it was pleasant to be able to talk about it* (female).

Three interviewees, moreover, felt gratifications in the sense of pursuing their curiosity and their interest about how what happened and how other people felt about it. Nonetheless, two respondents pointed out that the intensity of emotional experiences might have been related to the personal involvement with this incident. Regarding this, a male who was not personally involved, because he did not know anyone who was there, stated: *I was a little bit interested, but I would say, I was not deeply affected.*

5.3.4. **Uniqueness of social media.** With respect to the specific characteristics of social media (RQ3), five respondents named the pace at which information is spread in such applications. Four interviewees, however, see the authenticity and the personal tone as uniqueness of social media, since it is possible get first-hand information from laypeople,
which is not offered by official media channels. In this context, the majority of respondents \((n = 8)\) classified social media rather as a complement to traditional media than as a substitute, as exemplified by one male interviewee:

*On the one hand, it [social media] was a good supplement [...], since one might reach many people by sending one message. But, on the other hand, it is only a supplement since it is not enough for information. For this purpose, news broadcast on television and radio is more relevant for me.*

Only two interviewees stated that social media were a substitute for other media forms, especially when referring to the possibility of personal communication.

By means of a qualitative approach, the second study gives insight into individual’s diverse motives of disaster-related social media usage: We found that individuals perceived cognitive needs in the sense of getting information and making sense of the actual disaster as well as socio-affective needs such as receiving emotional support. Building on Rimé\’s (2009) concept of social sharing of emotions, one can deduce that the cognitive and socio-affective needs found here might have led individuals to engage in emotional conversations in social media, as those identified in study 1. Moreover, the second study reveals that social media usage in disaster contexts implies more than social sharing of emotions: Individuals also acted passively, i.e., only consuming instead of producing online content, as they were looking for information on the course of events and for expressions of subjective experiences of other people. This passive behavior seems to have been driven by the need to comprehend the internal states of people involved and to make sense of the psychological consequences of the disaster. With regard to the emotional effects of social media usage, the interviewees reported to have experienced negative as well as positive feelings during usage, however, it remains unclear whether specific usage patterns determine the emotional reaction. In order to systematically assess users’ motives and the effects of social media usage patterns, we
conducted a third study.

6. Study 3

6.1. Objective

The third study, an online survey, aimed to generalize our previous findings for a larger sample of social media users. Additionally, we inquired about usage patterns for different social media applications with regard to uses and gratifications. The following research questions were posed:

RQ 1: What was the individuals’ social media usage pattern connected to the stampede at the Love Parade 2010?

RQ 2: What were the individuals’ motives for using social media in the context of the Love Parade 2010?

As shown by research on social sharing of emotions, the amount to which individuals express their internal states and thoughts might be a function of the extent to which they feel affected by an emotional experience (Luminet et al., 2000; Rimé et al., 1998; Rimé, 2009). Therefore, we assume that the motivation to disclose emotions and personal thoughts on social platforms might be more intense for individuals who have directly experienced the incident or know people affected by it. So, we hypothesize:

H1: Users’ personal relevance toward the disaster is related to emotion-based and opinion-based social media usage motives.

Furthermore, the qualitative interviews pointed out that the social sharing of emotions as well as the empathic interpretations might imply positive as well as negative emotional experiences for users. Thus, it seems justified to ask which specific usage patterns might be perceived as beneficial for individuals:

RQ 3: To what extent is active and passive social media usage related to emotionally beneficial effects?
6.2. Method

For the third study, an online questionnaire was created on a free online platform (oFb, www.soscisurvey.de/, 2013), addressing individuals who used social media to deal with the stampede. The measures included in the survey are presented in the following.

6.2.1. Measures.

6.2.1.1. Frequency and pattern of social media usage. On a seven-point scale ranging from 1 “never” to 7 “very often”, we assessed how frequently participants used each social media application in the specific stampede context. We differentiated between passive and active usage, defining passive usage as the reading of postings or watching videos and active usage as referring to actively commenting on postings or uploading videos (these definitions were explicitly included in the questionnaire). Participants were asked to specify their usage pattern for each application with the help of one scale for active and one scale for passive usage (seven-point scales).

6.2.1.2. Motives for social media usage. In order to assess the individuals’ motives for using different social media applications, we developed statements that were derived from findings of the second study. We adapted the resulting 31 items to the characteristics of different social media applications (SNS, YouTube, and weblogs). The questionnaire exclusively asked about the participants’ usage motives of the two most used social media applications in and after the disaster situation. Participants stated their level of agreement on a seven-point scale. The results of exploratory factor analyses (principal component analysis with varimax rotation) are presented in the following.

Motives for using social networking sites. In total, 108 participants completed the questionnaire regarding usage motives of SNS such as Facebook, studiVZ, or Twitter. The exploratory factor analysis resulted in five factors, which explained 72.74% of the total variance. To ensure the validity and reliability of these factors, we excluded 13 items with
low primary factor loadings (< .50) or high parallel loadings (> .40) or both. The remaining 18 items were assigned to factors with a good up to excellent reliability (in terms of Cronbach’s $\alpha$), which were semantically interpreted (see also table 2): Factor 1, *factual and personal information* ($\alpha = .91$), included four items assessing whether participants used SNS to get official and personal accounts about the course of the stampede. The second factor, *emotional processing* ($\alpha = .87$), comprised four items asking whether participants used SNS to enable them to process their thoughts, feelings, and experiences with regard to the stampede. The third factor, *sharing of information* ($\alpha = .86$), contained five items related to disclosing information about one’s own or other people’s well-being as well as sharing experiences and further content (videos, pictures). Factor 4, *opinion expression* ($\alpha = .90$), included three items connected to expressing one’s own thoughts and criticism toward this incident. The fifth factor, *help* ($\alpha = .93$), comprised two items measuring whether participants used SNS to offer social and emotional support.

**INSERT TABLE 2 ABOUT HERE**

*Motives for using YouTube.* 123 respondents completed the questionnaire with respect to motivations for using YouTube. Ratings from the 31 motivation items concerning YouTube usage were reduced to the five factors, which explained 69.97% of the total variance. 11 Items with low primary and high parallel loadings were removed, the remaining 20 items are represented by the following factors with good up to excellent internal consistencies (see table 3): The first factor, *first-hand information* ($\alpha = .91$), comprised six items related to the participants’ motivation to examine authentic and uncensored information material. The second factor, *emotional perspective-taking* ($\alpha = .88$), used six items to measure the participants’ attempt to experience and process feelings related to the stampede and to be able to comprehend how people affected felt during the stampede. The third factor, *opinion expression* ($\alpha = .77$) included three items connected to the political and organizational context
of the music festival and the criticism thereof. The fourth factor, *condolence* \((\alpha = .86)\), used three items with regard to expressing sympathy and condolence to people affected. The fifth factor, *sharing of information* \((\alpha = .84)\), with two items, referred to the contribution of data or one’s own point of view.

**INSERT TABLE 3 ABOUT HERE**

*Motives for using weblogs.* Due to a small sample of 47 participants who completed the motive questionnaire for weblog usage, we were unable to perform a principal factor extraction.

**6.2.1.3 Beneficial effects.** To measure the emotional effects individuals perceived while and after they used social media. We developed five items which assessed whether users experienced emotional relief and a sense of community, based on participants’ statements of the second study. On a seven-point Likert scale, respondents rated, to what extent they agree with items like “While/after I used YouTube, I could handle what happened better” or “While/after I used social networking sites, I felt no longer alone”. In this case, we were interested in the effects of the social media application participants have used the most. Items were for each application exactly the same, the reliability for SNS \((n = 74)\) was \(\alpha = .93\), for YouTube \((n = 69)\) \(\alpha = .84\), and for weblogs \((n = 23)\) \(\alpha = .83\).

**6.2.1.4 Personal characteristics.** The final part of the questionnaire included demographic questions (age, sex, educational and occupational background), followed by the measurement of participants’ personal relevance to the incident (five self-constructed items such as “The Love Parade 2010 was a decisive point in my life” on a seven-point scale, \(M = 5.44, SD = 1.37; \alpha = .87\)).

**6.2.2 Sample and Procedure.** To collect these data, participants were recruited online during the summer of 2011, i.e., one year after the stampede. The online questionnaire was posted as a link in several social media applications that were related to the incident of
the music festival (in Facebook and studiVZ groups, as a comment underneath YouTube videos showing the music festival or even the stampede, on Twitter and weblogs). Social media users were invited to fill in the questionnaire with an announcement stating that the study aimed to find out “the role of social media in the context of the Love Parade 2010”. A total of 171 participants (73.7% female) completed the online questionnaire, aged between 13 and 64 years ($M = 27.44, SD = 9.07$). The sample mainly consisted of employees (48%) and students (29.3%) and the majority (74.9%) had at least a secondary school graduation or a higher educational level. Within the sample, 45 participants (26.31%) stated that they attended the Love Parade 2010, while 126 participants did not attend the music festival.

6.3. Results

6.3.1. The frequency and pattern of social media usage. With regard to frequency of usage, the participants’ answers revealed the following ranking among the different social media applications: The video-sharing website YouTube was used the most ($M = 5.06, SD = 2.25$), followed by Facebook ($M = 3.90, SD = 2.52$), weblogs ($M = 2.52, SD = 2.09$), Wikipedia ($M = 2.51, SD = 2.05$), studiVZ ($M = 2.44, SD = 2.13$), and Twitter ($M = 1.64, SD = 1.54$).

To delineate the individuals’ usage pattern of social media (RQ1), it was also asked whether participants used the applications rather actively or passively. To this aim, we performed repeated-measures ANOVAS, which confirmed that YouTube ($F(1,112) = 35.38, p < .001, n_p^2 = .22$), weblogs ($F(1,70) = 26.62, p < .001, n_p^2 = .28$), studiVZ ($F(1,76) = 4.52, p = .037, n_p^2 = .06$), and Wikipedia ($F(1,61) = 16.30, p < .001, n_p^2 = .21$) were used rather passively than actively (means are shown in table 4). A marginal superiority of passive usage could also be found for Facebook ($F(1,112) = 3.42, p = .067, n_p^2 = .03$). For Twitter, no difference between passive and active usage was found.
6.3.2. Motivations for social media usage. Regarding participants’ motivations for using social networking sites, we assessed the following ranking: factual and personal information ($M = 5.46$, $SD = 1.83$), opinion expression ($M = 4.39$, $SD = 2.18$), emotional processing ($M = 3.93$, $SD = 2.14$), help ($M = 3.48$, $SD = 2.24$), and sharing of information ($M = 3.38$, $SD = 1.96$). According to these findings, users mainly used SNS to obtain official and person-related information posted by other users and to express their point of view with regard to the stampede. Likewise, YouTube users sought to gain authentic first-hand accounts in terms of stampede videos as well as to deal with and express their own emotions. The motive ranking was: first-hand information ($M = 5.80$, $SD = 1.39$), followed by condolence ($M = 3.36$, $SD = 2.14$), emotional perspective-taking ($M = 3.28$, $SD = 1.81$), opinion expression ($M = 3.24$, $SD = 1.92$), and sharing of information ($M = 2.12$, $SD = 1.87$). While SNS might provide both official information (in terms of hyperlinks) and personal information (in terms of personal accounts), YouTube primarily addressed users need for authentic information from people who were affected or were in the middle of the stampede. While receiving information and its accompanying internal process of making sense of the stampede appear to be crucial motivational mechanisms, the active sharing of information, however, appeared to be a less dominating usage motive for SNS and YouTube users.

6.3.3. The influence of personal relevance on motivational processes. In order to test $H1$ predicting a significant relation between the personal relevance toward the Love Parade disaster and the users’ motives for exposing to social media, we conducted multiple hierarchical regression analyses for each motive construct. In the first step, we considered sex and age as control variables. In the second step, we added participants’ personal relevance toward the incident. This construct had significant predictive power for all motives for using SNS and YouTube (see table 5 and 6). Given the coefficients of personal relevance with each
motive, it becomes clear that the degree to what individuals personally felt involved with this
disaster is strongly related especially to emotion-based and opinion-based motivational factors
for SNS and for YouTube usage: Individuals who feel particularly affected by a disaster
primarily use these platforms to express and deal with their thoughts and emotions. Thus, we
consider $H1$ as supported.

INSERT TABLE 5 ABOUT HERE

INSERT TABLE 6 ABOUT HERE

6.3.4. Beneficial effects of social media usage. We further explored whether active
and passive social media usage is positively related to emotionally beneficial effects ($RQ3$):
Correlation analyses revealed that active YouTube usage (in terms of uploading videos or
commenting on videos) was positively related to beneficial effects ($r = .549, p < .001$). With
regard to the effects of SNS usage, correlation analyses showed that emotionally beneficial
effects emerged from active Facebook ($r = .335, p = .008$) and active studiVZ ($r = .317, p = .044$) usage, but not from active Twitter usage. Furthermore, active weblog usage was
positively associated to emotionally beneficial effects ($r = .567, p = .028$). Focusing on passive
usage patterns, emotionally beneficial effects were found to be positively related to passive
studiVZ usage ($r = .348, p = .019$) and passive weblog usage ($r = .502, p = .024$). No
significant correlations were found for passive YouTube, Facebook, and Twitter usage.

The findings of the third study revealed that in the light of the Love Parade stampede,
social media were used rather passively for information and internal processing purposes than
actively in the sense of involving oneself in discussions. Personal relevance toward the
disaster appears to intensify individuals’ motives to use social media, especially those dealing
with emotions and expressions of one’s point of view with respect to the incident. Particularly
active social media usage implies beneficial feelings for individuals such as better emotional
coping or the sense of being a part of a community. These feelings, however, were also
experienced by merely receiving information on the social networking site studiVZ or on disaster-related weblogs. Considering the finding that studiVZ provided emotion-related communication in its groups (cf. study 1), it can be concluded that mere exposure to such an emotional content might affect users in a positive way.

7. General Discussion

The aim of this research was to holistically map the psychosocial functions of active and passive social media usage during and after the stampede at the Love Parade 2010 by following a multi-methodological approach. While the present results reinforce the functions identified by prior research, they particularly reveal the crucial role of social media with respect to individual’s emotional processes associated with an extensive disaster. Besides the fulfillment of general and personal information needs (cf. Seeger et al., 2002; Thelwall & Stuart, 2007) in terms of getting an impression of what exactly happened during the disaster and verifying the well-being of loved ones and acquaintances, social media seem to serve as instruments for individual emotion regulation. Users appear to pursue (a) the social sharing of emotions and opinions and particularly (b) the empathic interpretation of internal states that people affected by the disaster are going through.

As shown by the first study, social media applications serve as spaces for social sharing of emotions, in which individuals are able to exchange their feelings and critical thoughts about a specific disaster with other users. The second and the third study, though, give a more differentiated perspective on the social sharing process: One critical predictor of the tendency to share one’s emotions is the perceived personal relevance toward the disaster. In line with evidence from emotion psychology (cf. Luminet et al., 2000; Rimé et al., 1998; Rimé, 2009), the perceived struggling with a negative emotional event like the Love Parade stampede influenced individuals’ need to share their sentiments with others online. In this
regard, social media appear to support this mechanism since these allow like-minded people to connect with each other in topical sections like SNS groups such as “In memory of the victims of the Love Parade 2010”.

An even more important mechanism underlying social media usage might be the more passive perspective-taking of victims and people affected. This is underlined by the third study, which confirmed that social media were used rather passively than actively. While prior studies identified information gathering, verification, and distribution as critical social media functions in disaster contexts (see Palen, 2008, Shklovski et al., 2008; Vieweg et al., 2008), our analyses of subjective motives additionally revealed that the purposes behind passively receiving first-hand information might encompass empathic concerns. Individuals seem to have a need to comprehend the consequences of a disaster on an individual level and social media appears to fulfill this need by offering more authentic and personal information compared to traditional media. This need is also intensified by the individual’s perceived involvement with the disaster (cf. results of the third study). The gratifications people might experience by getting first-hand impressions of the happenings is the mental organization of the disaster procedure and the sense-making of its physical and psychological impacts on individuals (cf., results of the second study).

Nonetheless, social media usage in disaster contexts is not exclusively associated with positive experiences. In fact, respondents of the second study stated to have perceived both positive (e.g., relief) and negative feelings (e.g., depression or anger) during and after usage. Therefore, the third study was conducted to assess which specific usage patterns are related to psychological benefits. Active participation on YouTube, Facebook, studiVZ, and weblogs was found to be associated with beneficial experiences such as feeling better, the sense of not being alone, and the efficacy to cope with this extreme situation. Considering that gratifications of social sharing processes were found to be a function of the “listener’s”
reactions (Nils & Rimé, 2012), our findings indicate the essential support the online community is able to offer to each individual who shares his/her experiences with others. Passive usage, however, was perceived as beneficial only by studiVZ and weblog “readers”. While this result shows that merely receiving information such as personal accounts about the disaster might also imply positive psychological consequences for individuals, it also reveals that passive usage is not beneficial throughout all applications. In this context, further research is needed to systematically explore which specific messages might lead to positive emotions and which might evoke negative consequences.

The current investigation has also limitations: Pursuing the goal to assess users’ subjective experiences with social media in case of disasters, the present studies partly rely on self-reports of internal and to some extent unconscious processes in retrospect. It has to be asked whether individuals are able to thoroughly verbalize their motives in connection with their media usage in such emotionally involving situations. Future studies are needed to assure the present findings. These could use diary methods, accompanying users during and in the aftermath of disasters in order to achieve more authentic insights into social media usage motives.

Another limitation might lie in the particularities of the disaster explored here. Since each disaster has specific physical and psychological effects on individuals (with regard to quality and quantity), the question arises to what extent our findings are generalizable. However, considering that our results do not only confirm but also extend the functions identified by prior studies (see Barak, 2010; Macias et al., 2009; Qu et al., 2011), one might conclude that, in times of crisis, social media might fulfill some basic psychosocial functions such as the expression of one’s emotional states which are independent from characteristics of each disaster.
Overall, this research demonstrates that it is worthwhile to approach online communication in disaster settings with psychological theories in order to understand why individuals engage in social media usage and which consequences accompany this behavior. By conducting a multi-methodological examination, the present work was able to focus not only on active contributors but also on passive receivers of user-generated content. With this broadened perspective, this investigation extends the state of knowledge with respect to motivational and emotional processes intertwined within social media communication. Our three studies revealed that users do not merely seek information about what happened and who is involved in the disaster, they also want to gain insights into other people’s internal states as well as to share and discuss their feelings and thoughts. Moreover, our findings underline the positive potentials of the Internet and social media platforms since the more active users involved themselves in social media communication the more they benefitted emotionally in terms of feeling relieved and as a part of a like-minded community. This might have practical implications for counseling institutions in the sense of creating online spaces where people are able to discuss their mental states and to psychologically process crisis incidents. To exploit the positive potentials of such digital rooms, future research should further differentiate the cognitive and socio-affective needs individuals perceive in the face of a disaster and investigate how specific affordances in different social platforms online may address these needs longitudinally.
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### Table 1

*Overview of the Top Seven Codes with the Number of Appearances in Chronological Comparison*

<table>
<thead>
<tr>
<th></th>
<th>07/24</th>
<th>07/25</th>
<th>07/26</th>
<th>07/27</th>
<th>07/28</th>
<th>After two weeks (08/08 – 10/24)</th>
<th>After three months (since 10/25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criticism</td>
<td>37</td>
<td>277</td>
<td>834</td>
<td>742</td>
<td>241</td>
<td>ascii art images call for action</td>
<td>decreasing interest coping / after-effect</td>
</tr>
<tr>
<td>Speechlessness</td>
<td>32</td>
<td>276</td>
<td>452</td>
<td>601</td>
<td>238</td>
<td>gifted</td>
<td>65</td>
</tr>
<tr>
<td>Condolence</td>
<td>26</td>
<td>197</td>
<td>452</td>
<td>475</td>
<td>235</td>
<td>call for action Speechlessness memorial / mass / funeral march</td>
<td>57</td>
</tr>
<tr>
<td>Social conflicts</td>
<td>22</td>
<td>157</td>
<td>408</td>
<td>458</td>
<td>139</td>
<td>ascii art images gifted</td>
<td>51</td>
</tr>
<tr>
<td>Multimedia / links</td>
<td>17</td>
<td>142</td>
<td>274</td>
<td>190</td>
<td>134</td>
<td>Moslems gifted</td>
<td>38</td>
</tr>
<tr>
<td>Search for persons (live)</td>
<td>17</td>
<td>123</td>
<td>216</td>
<td>187</td>
<td>123</td>
<td>condolence gifted</td>
<td>37</td>
</tr>
<tr>
<td>On site</td>
<td>14</td>
<td>119</td>
<td>178</td>
<td>138</td>
<td>111</td>
<td>on site gifted</td>
<td>25</td>
</tr>
</tbody>
</table>

- **After two weeks (08/08 – 10/24)**: ascii art images, call for action, Speechlessness memorial / mass / funeral march
- **After three months (since 10/25)**: decreasing interest, coping / after-effect, guilt, condolence, other.
### Table 2

*Factor Loadings for Exploratory Factor Analysis With Varimax Rotation and Means of Rated Items of Motivations for using Social Networking Sites in the context of the Love Parade 2010 (n = 108)*

<table>
<thead>
<tr>
<th>I used social networking sites…</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F1: Factual and personal information</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…to get information about the course of stampede.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.833</td>
<td></td>
</tr>
<tr>
<td>…to get official information about the incidents.</td>
<td>.810</td>
<td>.152</td>
<td>.138</td>
<td>.261</td>
<td>-.061</td>
<td>5.75</td>
<td>1.94</td>
</tr>
<tr>
<td>…because it was the easiest way to get latest information about the incidents.</td>
<td>.798</td>
<td>.235</td>
<td>.146</td>
<td>.215</td>
<td>.084</td>
<td>5.48</td>
<td>2.08</td>
</tr>
<tr>
<td>…to get first-hand accounts from affected people.</td>
<td>.792</td>
<td>.225</td>
<td>.167</td>
<td>.046</td>
<td>.199</td>
<td>5.10</td>
<td>2.15</td>
</tr>
<tr>
<td><strong>F2: Emotional processing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…to find people who feel the same.</td>
<td>.186</td>
<td>.788</td>
<td>.311</td>
<td>.112</td>
<td>.299</td>
<td>3.75</td>
<td>2.49</td>
</tr>
<tr>
<td>…hoping that the usage can help me coping with the incidents.</td>
<td>.203</td>
<td>.701</td>
<td>.292</td>
<td>.224</td>
<td>.275</td>
<td>3.55</td>
<td>2.43</td>
</tr>
<tr>
<td>…to handle my thoughts, feelings or experiences.</td>
<td>.331</td>
<td>.662</td>
<td>.367</td>
<td>.249</td>
<td>.172</td>
<td>4.32</td>
<td>2.49</td>
</tr>
<tr>
<td>…to find out what could have happened to me.</td>
<td>.361</td>
<td>.599</td>
<td>.210</td>
<td>.087</td>
<td>.126</td>
<td>4.10</td>
<td>2.48</td>
</tr>
<tr>
<td><strong>F3: Sharing of information</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…to report my own experiences during the Love Parade incidents.</td>
<td>.074</td>
<td>.323</td>
<td>.756</td>
<td>.171</td>
<td>.133</td>
<td>2.94</td>
<td>2.40</td>
</tr>
<tr>
<td>…to announce that I am fine.</td>
<td>.186</td>
<td>.301</td>
<td>.755</td>
<td>.025</td>
<td>.078</td>
<td>3.29</td>
<td>2.60</td>
</tr>
<tr>
<td>…to announce that friends and family members are fine.</td>
<td>.292</td>
<td>.091</td>
<td>.743</td>
<td>.190</td>
<td>.199</td>
<td>3.77</td>
<td>2.52</td>
</tr>
<tr>
<td>…to provide links, videos or photos of the Love Parade 2010.</td>
<td>-.009</td>
<td>.348</td>
<td>.606</td>
<td>.281</td>
<td>.252</td>
<td>2.75</td>
<td>2.25</td>
</tr>
<tr>
<td>…to exchange with others about the incidents.</td>
<td>.225</td>
<td>.357</td>
<td>.544</td>
<td>.228</td>
<td>.132</td>
<td>4.16</td>
<td>2.44</td>
</tr>
<tr>
<td><strong>F4: Opinion expression</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…to express my anger with regard to people responsible.</td>
<td>.315</td>
<td>.208</td>
<td>.186</td>
<td>.796</td>
<td>.180</td>
<td>4.65</td>
<td>2.37</td>
</tr>
<tr>
<td>…to express criticism of the organization.</td>
<td>.267</td>
<td>.250</td>
<td>.112</td>
<td>.783</td>
<td>.232</td>
<td>4.56</td>
<td>2.42</td>
</tr>
<tr>
<td>…to comment on political statements.</td>
<td>.187</td>
<td>.099</td>
<td>.211</td>
<td>.715</td>
<td>.361</td>
<td>3.95</td>
<td>2.41</td>
</tr>
<tr>
<td><strong>F5: Help</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>…to offer my help to affected people.</td>
<td>.202</td>
<td>.314</td>
<td>.274</td>
<td>.252</td>
<td>.755</td>
<td>3.40</td>
<td>2.31</td>
</tr>
<tr>
<td>…to support affected people.</td>
<td>.247</td>
<td>.340</td>
<td>.204</td>
<td>.293</td>
<td>.744</td>
<td>3.56</td>
<td>2.32</td>
</tr>
</tbody>
</table>
Table 3

*Factor Loadings for Exploratory Factor Analysis With Varimax Rotation and Means of Rated Items of Motivations for using YouTube in the context of the Love Parade 2010 (n = 123)*

<table>
<thead>
<tr>
<th>I used YouTube …</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>F1: First-hand information</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>… to understand what happened during the stampede.</td>
<td>.875</td>
<td>.022</td>
<td>-.014</td>
<td>.053</td>
<td>-.089</td>
<td>6.20</td>
<td>1.45</td>
</tr>
<tr>
<td>… to get a realistic reporting of affected people.</td>
<td>.865</td>
<td>.175</td>
<td>.046</td>
<td>.112</td>
<td>-.051</td>
<td>5.77</td>
<td>1.72</td>
</tr>
<tr>
<td>… to understand how exactly it came to stampede.</td>
<td>.847</td>
<td>.103</td>
<td>.061</td>
<td>.207</td>
<td>.063</td>
<td>5.96</td>
<td>1.51</td>
</tr>
<tr>
<td>… to verify how or where exactly the stampede occurred.</td>
<td>.826</td>
<td>.102</td>
<td>.098</td>
<td>.130</td>
<td>.052</td>
<td>5.71</td>
<td>1.78</td>
</tr>
<tr>
<td>… to better assess the awfulness of the situation.</td>
<td>.769</td>
<td>.104</td>
<td>.071</td>
<td>-.044</td>
<td>.071</td>
<td>5.78</td>
<td>1.71</td>
</tr>
<tr>
<td>… because it was the easiest way to get latest information about the incidents.</td>
<td>.677</td>
<td>.062</td>
<td>.081</td>
<td>.119</td>
<td>.085</td>
<td>5.37</td>
<td>1.87</td>
</tr>
<tr>
<td><strong>F2: Emotional perspective-taking</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>… to find a place of grief.</td>
<td>.049</td>
<td>.813</td>
<td>.201</td>
<td>.284</td>
<td>.016</td>
<td>3.27</td>
<td>2.35</td>
</tr>
<tr>
<td>… to handle my thoughts, feelings or experiences.</td>
<td>.159</td>
<td>.755</td>
<td>.019</td>
<td>.253</td>
<td>.119</td>
<td>3.88</td>
<td>2.46</td>
</tr>
<tr>
<td>… to experience negative feelings.</td>
<td>.098</td>
<td>.713</td>
<td>.204</td>
<td>.047</td>
<td>.315</td>
<td>2.56</td>
<td>2.10</td>
</tr>
<tr>
<td>… to feel like affected people during the stampede.</td>
<td>.259</td>
<td>.705</td>
<td>.137</td>
<td>.006</td>
<td>.154</td>
<td>3.22</td>
<td>2.32</td>
</tr>
<tr>
<td>… to find out what could have happened to me.</td>
<td>.204</td>
<td>.703</td>
<td>.130</td>
<td>.115</td>
<td>-.053</td>
<td>4.18</td>
<td>2.46</td>
</tr>
<tr>
<td>… to find people who feel the same.</td>
<td>-.038</td>
<td>.634</td>
<td>.313</td>
<td>.316</td>
<td>.258</td>
<td>2.55</td>
<td>2.40</td>
</tr>
<tr>
<td><strong>F3: Opinion expression</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>… to comment on political statements.</td>
<td>.069</td>
<td>.099</td>
<td>.786</td>
<td>.114</td>
<td>.283</td>
<td>2.46</td>
<td>2.18</td>
</tr>
<tr>
<td>… to express criticism of the organization.</td>
<td>.066</td>
<td>.160</td>
<td>.777</td>
<td>.388</td>
<td>.178</td>
<td>3.20</td>
<td>2.38</td>
</tr>
<tr>
<td>… to get information about political statements or actions.</td>
<td>.331</td>
<td>.262</td>
<td>.625</td>
<td>-.035</td>
<td>-.116</td>
<td>4.05</td>
<td>2.39</td>
</tr>
<tr>
<td><strong>F4: Condolence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>… to show others that I sympathize.</td>
<td>.170</td>
<td>.247</td>
<td>.250</td>
<td>.770</td>
<td>.068</td>
<td>3.54</td>
<td>2.46</td>
</tr>
<tr>
<td>… because it was the easiest way to communicate with others about the incidents of the Love Parade.</td>
<td>.182</td>
<td>.253</td>
<td>.342</td>
<td>.692</td>
<td>.172</td>
<td>3.18</td>
<td>2.36</td>
</tr>
<tr>
<td>… to express my condolences to the relatives and friends of those affected.</td>
<td>.161</td>
<td>.247</td>
<td>.327</td>
<td>.687</td>
<td>.138</td>
<td>3.35</td>
<td>2.44</td>
</tr>
</tbody>
</table>
F5: *Sharing of information*

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>...to provide links, videos or photos of the Love Parade 2010.</td>
<td>.017</td>
<td>.231</td>
<td>.211</td>
<td>.309</td>
<td>.755</td>
<td>2.02</td>
</tr>
<tr>
<td>...to report my own experiences during the Love Parade incidents.</td>
<td>.065</td>
<td>.214</td>
<td>.198</td>
<td>.303</td>
<td>.695</td>
<td>2.21</td>
</tr>
</tbody>
</table>
Table 4

Means and Standard Deviations (in Parentheses) of Passive and Active Usage

According to the Social Media Applications (N =171)

<table>
<thead>
<tr>
<th>Social media application</th>
<th>Passive usage</th>
<th>Active usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>5.07 (2.25)</td>
<td>4.68 (2.27)</td>
</tr>
<tr>
<td>studiVZ</td>
<td>4.25 (2.05)</td>
<td>3.78 (2.34)</td>
</tr>
<tr>
<td>YouTube</td>
<td>5.69 (1.79)</td>
<td>4.22 (2.56)</td>
</tr>
<tr>
<td>Weblogs</td>
<td>4.66 (2.28)</td>
<td>3.27 (2.29)</td>
</tr>
<tr>
<td>Twitter</td>
<td>2.62 (2.20)</td>
<td>2.14 (1.86)</td>
</tr>
<tr>
<td>Wikipedia</td>
<td>3.48 (2.13)</td>
<td>2.48 (2.03)</td>
</tr>
</tbody>
</table>
Table 5

Hierarchical Multiple Regression Analyses with Motives for Using Social Networking Sites as Dependent Variables and Sex, Age and Personal Relevance as Predictors (n = 108)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Factual and personal information</th>
<th>Emotional processing</th>
<th>Sharing of information</th>
<th>Opinion expression</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \Delta R^2 )</td>
<td>( \beta )</td>
<td>( \Delta R^2 )</td>
<td>( \beta )</td>
<td>( \Delta R^2 )</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (Female = 1/</td>
<td>.08*</td>
<td>.01</td>
<td>.00</td>
<td>.01</td>
<td>.02</td>
</tr>
<tr>
<td>Male = 2)</td>
<td>-.29**</td>
<td>-.08</td>
<td>.23</td>
<td>-.09</td>
<td>-.06</td>
</tr>
<tr>
<td>Age</td>
<td>.05</td>
<td>-.01</td>
<td>-.03</td>
<td>.00</td>
<td>.13</td>
</tr>
<tr>
<td>Step 2</td>
<td>.18***</td>
<td>.26***</td>
<td>.17***</td>
<td>.23***</td>
<td>.15***</td>
</tr>
<tr>
<td>Personal Relevance</td>
<td>.43***</td>
<td>.51***</td>
<td>.42***</td>
<td>.49***</td>
<td>.40***</td>
</tr>
<tr>
<td>Total R^2</td>
<td>.26***</td>
<td>.26***</td>
<td>.17***</td>
<td>.24***</td>
<td>.17***</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001
### Table 6

Hierarchical Multiple Regression Analyses with Motives for Using YouTube as Dependent Variables and Sex, Age and Personal Relevance as Predictors (n = 123)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>First-hand information</th>
<th>Emotional perspective-taking</th>
<th>Opinion expression</th>
<th>Condolence</th>
<th>Sharing of information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\Delta R^2$</td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
<td>$\beta$</td>
<td>$\Delta R^2$</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex (Female = 1/ Male = 2)</td>
<td>.01</td>
<td>.04</td>
<td>.02</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td>-.04</td>
<td>-.14</td>
<td>-.08</td>
<td>-.16</td>
</tr>
<tr>
<td>Step 2</td>
<td>.11***</td>
<td>.21***</td>
<td>.18***</td>
<td>.15***</td>
<td>.11***</td>
</tr>
<tr>
<td>Personal Relevance</td>
<td>.34***</td>
<td>.46***</td>
<td>.43***</td>
<td>.39***</td>
<td>.32***</td>
</tr>
<tr>
<td>Total $R^2$</td>
<td>.12***</td>
<td>.24***</td>
<td>.20***</td>
<td>.19***</td>
<td>.13***</td>
</tr>
</tbody>
</table>

*p < .05, **p < .01, ***p < .001