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Milad Mirbabaie
University of Duisburg-Essen, Department of Computer Science and Applied Cognitive Science, milad.mirbabaie@uni-due.de

Stefan Stieglitz
University of Duisburg-Essen, stefan.stieglitz@uni-due.de

Melia Ruiz Eiro
University of Duisburg-Essen, melia.ruiz-eiro@uni-due.de

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Research-in-Progress

Milad Mirbabaie
University of Duisburg-Essen
Forsthausweg 2, 47057 Duisburg
milad.mirbabaie@uni-due.de

Stefan Stieglitz
University of Duisburg-Essen
Forsthausweg 2, 47057 Duisburg
stefan.stieglitz@uni-due.de

Melia Ruiz Eiro
University of Duisburg-Essen
Forsthausweg 2, 47057 Duisburg
melia.ruiz-eiro@uni-due.de

Abstract

Many companies have faced challenges of social media in the form of public social crises. Previous research on social media crisis communication focuses specifically on examining communication patterns, text content, and user structures. However, ironic communication that takes place during corporate crises has hardly been investigated. To contribute to this field, we gathered Twitter data about a major global corporate crisis and conducted a social network analysis. Moreover, we started an online survey to examine user groups and their personal and social motives for the use of irony. Our study revealed that certain community clusters exist that use irony specifically for the purpose of entertainment and pastime. Based on the findings of this paper, managers can adapt and expand their strategies in crisis communication. Further research papers in information systems could use the implicit display theory and our suggested methods for detecting and understanding irony in social media communication.

Keywords: Crisis Communication, Social Media, Social Media Analytics, Irony, Volkswagen

Introduction

In recent years, social media has become an important medium for communication between individuals and organisations. Among dozens of social media platforms, Twitter is a popular microblogging medium, with 313 million monthly active users worldwide (Twitter 2017). It is particularly characterised by enabling a fast dissemination of information (Zappavigna, 2012). In addition, the usage of hashtags simplifies interactions toward a particular topic (Chang, 2010). As another field of application, Twitter is used as a tool for crisis communication and management, and it thus offers new opportunities and risks in the areas of organisational strategies, leadership and governance. In the event of a crisis, individuals can immediately and directly confront an organisation online, which forces the organisation to communicate and respond as soon as possible (Ulmer et al. 2013). However, in the case of a crisis, affected companies are not the only ones actively involved in communication with individuals; journalists, non-profit organisations, government agencies and other companies participate in the interaction as well (Burgess et al., 2013). Crises that arise as a result of the organisation's activities often leave customers unjustly treated (Bi et al. 2014; Siomkos and Shrivastava 1993). Because indignation and anger create an emotional basis for the use of irony, and since some people tend to demonstrate their negative feelings publicly, it can be assumed that this displeasure is ironically expressed. Although some studies recently examined corporate crises (Meesters et al. 2016), the usage and role of irony during crisis situations and in social media communication have not yet been considered. Irony and, in particular, sarcasm are often associated with contempt and aggression against others or against situations (Clift, 1999; Gibbs, 2000). In a

crisis situation, an ironic environment can arise as a result of the Implicit Display Theory (IDT) according to Utsumi (2000), since the expectations of the consumers were not fulfilled, and they are on thus motivated to communicate in an ironic way. Therefore, it can be assumed that in crisis situations, and especially in corporate crises, a favourable environment for ironic expression arises (Bi et al. 2014).

For this reason, Volkswagen AG's (VW) exhaust gas affair, which began in September 2015, serves as a reasonable object of investigation for examining the usage of irony in social media crisis communication. The US authorities California Air Resource Board (CARB) and Environmental Protection Agency (EPA) informed the public about the manipulation of exhaust gas tests of vehicles with diesel engines manufactured and sold by VW. A total of around 8.5 million VW cars were affected worldwide. In this situation, the consumers had been deliberately deceived, and, more precisely, the crisis had arisen on the basis of management decisions that violated the law. According to the IDT (Utsumi, 2000), it is probable that in Volkswagen's crisis communication during the scandal an ironic environment emerged in which people were increasingly inclined to use irony. Therefore, this work addresses the following questions: 1) Who takes the lead in ironic communication, and 2) which personal and social motives are connected when using irony in crisis communication? Overall, the aim of this work is to examine the role of irony in crisis communication on Twitter as a starting point in information systems research and IT strategy, leadership and governance of organisations.

The Usage of Irony

The use of irony is well researched in linguistics, as well as in psychological and cognitive science (Gibbs, 1986; Utsumi, 2000). Irony is expressed by a statement that can have different meanings or express the opposite of what has been said (Attardo 1998). Frequently, a very intense positive emotion is used to say something negative (Bosco et al. 2015). Often, sarcasm is classified as a type of irony—though it is described as more aggressive—and is used to verbally attack people (Clift, 1999). However, language forms in online communication have not yet been exhaustively investigated, and the theoretical approaches have not yet been transferred to online communication. In particular, sarcasm as a sub-form of irony is often disregarded. There are only a few studies that investigate the use of irony on social platforms (Derks et al., 2008). Due to the lack of a consistent differentiation between irony and sarcasm, irony was so far considered predominantly as a whole, ignoring the various facets of irony such as sarcasm. Based on this, various theories about the use of verbal irony in face-to-face communication have emerged over the course of time. In particular, five theories, which are repeatedly mentioned in the literature, have been established and expanded: 1) The Theory of Conversational Implicature after Grice (Grice 1989); 2) the Echoic Mention Theory (Sperber & Wilson, 1981); 3) the Pretense Theory, which Clark and Gerrig (1984) postulated; 4) the Allusional Pretense Theory (Kumon-Nakamura et al., 1995); and 5) most recently, the IDT, which was established by Utsumi (2000).

Utsumi (2000) developed the IDT on the basis of the theories of irony. His IDT (2000) states that certain situations motivate the speaker to use irony. He calls these situations ironic environments. These arise when the expectations of the speaker are not fulfilled within a period of time, resulting in the development of a negative emotional attitude towards this incongruence between expectation and the actual situation. The author believes that verbal irony can be viewed as a statement implicitly indicating such ironic environments. This means that a statement should address the expectation of the speaker, violate one of the conversational principles and express the speaker's negative attitude toward the unfulfilled expectation. However, there is a lack of theories in current IS research that address the understanding of the usage of irony in crisis communication. We therefore seek to shed light on this topic and examine the possible application of the IDT. We furthermore want to examine which user groups communicate during an organisational crisis ironically and which personal and social motives are connected with this kind of communication.

Research Design

Data Collection and Preparation

For collecting the data, we used a self-developed Java tool through the use of the library Twitter4J, which connects to the Search API of Twitter. The collected data is then saved in a MySQL database for further analysis. As soon as the VW scandal occurred on 18 September 2015, we collected approximately one million tweets until 31 December 2015. Data tracking based on two central keywords for referring to the crisis: "VW" and "Volkswagen". We collected English and German tweets

exclusively. To gain the core data containing tweets that the authors themselves declared as ironic, sarcastic or cynical, we filtered the data towards the following keywords: ironie, sarkasmus, zynismus, irony, sarcasm, cynicism, sarkastisch, ironisch, zynisch, ironic, sarcastic, cynical, sarkasmusschub, moreirony, moresarcasm, somuchsarcasm, somuchirony, justkidding and notreally. These keywords were an indicator of ironic or sarcastic tweets. In this way, subjectivity can be excluded because the tweets are not subdivided into ironic and non-ironic by means of interpretation. It can be assumed that the author of the tweet is the best judge about whether a tweet is ironic. We used this process, as it is consistent with the current methodology for investigating irony on Twitter in current research (González-Ibánez et al., 2011; Weitzel et al., 2015). The filtered dataset contains 726 users and 1,696 tweets.

Data Analysis

First, we performed a network analysis by using the open-source Gephi software to examine communication roles and their relationships to each other (Stieglitz et al. 2014) during the crisis. The nodes of the network represent the users, and the edges between the nodes represent retweets. We used both visualisation filters and indegree and outdegree for detecting users who were very active or who were retweeted often. In a second step, we identified the user groups in the network and assigned the most active users in the network into roles. For this purpose, we used the network modularity (Cherven 2013). Modularity is a measure of the strength of the clustering of a network (Blondel et al., 2008). This means networks with a high modularity have dense connections within a cluster, but little or no connections between the clusters. The most active users per cluster are then located by indegree. Building on that, we examined which user groups often use irony or sarcasm in their tweets. For this purpose, the individual nodes (i.e., users) are classified according to their role in the network. The coding scheme for classifying the users into certain roles was based on the roles derived from the literature (Mirbabaie et al. 2014; Stieglitz et al. 2017; Wu et al. 2011). For the coding, we separately coded the users manually by looking at the profile data of each user.

After that, we conducted an online survey among the participating Twitter users. We measured the social motives, the personal characteristics and a possible connection between these characteristics and the use of irony and sarcasm. The individuals were mainly recruited via the data set to ensure that they had already posted or retweeted an ironic tweet at least once, and they were manually contacted via Twitter. The only condition for participation was that the candidate was a regular user of Twitter. The survey was in both German and English. The questionnaire was completed by 42 people (51.2 percent) in German and 50 people in English. The structure of the survey, including the research objectives, can be found in Table 1.

Table 1. Structure of the survey including the research objectives	
Object of study	**Questionnaires**
Intensity /Motivation for Twitter usage	Facebook Intensity Scale (adapted to Twitter)
	Internet Use Expectancies Scale (adapted to Twitter)
Personal characteristics	10-Item Version Big Five Inventory
	Rosenberg Self-Esteem Scale
	Need to Belong Questionnaire
	Need for Popularity Questionnaire
Motives	Humour Styles Questionnaire
	The Aggression Questionnaire
	Sarcasm Self Report Scale
	Neutral communication behaviour in terms of the Uses & Gratification Questionnaire
	Ironic communication behaviour in terms of the Uses & Gratification Questionnaire
Socio-demographics	Socio-demographics

All statistical calculations were performed using the IBM SPSS 23 statistics program. Before starting the data evaluation, the data of the questionnaire was prepared. For this purpose, negatively encoded items of relevant scales were inverted. Subsequently, the total scores of the corresponding scales and subscales were determined as a function of the questionnaire design. To assess the reliability, an analysis using Cronbach's Alpha per scale or subscale was performed. The dependent variables were also tested for normal distribution using the Kolmogorov-Smirnov test. However, parametric tests were also performed in the case of non-normalized variables, since the procedures required in this study are robust, according to Rasch et al. (2010), when the sample is larger than 30 subjects and the groups are approximately the same size. The same applies to the homogeneity of the dependent variables, which was tested with the Levene test. The arithmetic mean (M) was used as a measure of the central tendency, and the standard deviation (SD) was used as the variability measure. The

Spearman rank correlation coefficient served as a test method for correlations, which was used in particular for the statistical verification of the questionnaires. With respect to the computation of correlations, according to Cohen (1988), r = .10 is characterised by a small effect, r = .30 by a medium effect and r = .50 by a strong effect. In order to check the significance, the limit value $p \leq .05$ applies to all methods as statistically significant.

Preliminary Findings

The majority of the users are individuals, followed by bloggers. Commercial organisations represent 8.1 percent of the data set. Media organisations and journalists represent 4.5 percent of the data. We identified one user as an emergency management agency, while another five users were identified as political groups. In addition, there are a few users who can be identified as blocked or deleted accounts. Through the cluster analysis, we revealed 136 clusters, with the largest eight clusters accounting for a total of 44.35 percent of the entire network. The remaining clusters are very small, so they consist of only a few nodes and represent between 0.28 and 1.65 percent of the network.

The participants have an average follower count of 1463.50 (SD = 3673.44) and spend an average of 243.45 minutes on Twitter (SD = 1118.05). A total of 68 people (82.9 percent) said they had already posted on Twitter in a neutral way or had retweeted a neutral message. Of these, 54 people (65.9 percent) reported that they did so during crisis situations. Overall, 73 people (89 percent)—according to their own statement—used ironic communication. Of those 73, 61 people (74.4 percent of the total) said they had used this type of communication even in crises. They were also asked for the specific crisis situations in which they had communicated neutral and ironically. A total of 43 subjects were able to recall specific situations in which they had used the respective type of communication. By communicating neutrally (N=20), their priority was on attacks and terrorism, as well as political crises. However, by communicating ironically (N=23), their priority was more on political and corporate crises. Such statements often referred to Brexit but also to the general political situation and the coup in Turkey. The Volkswagen scandal and other crises in the industry were also frequently mentioned. During acts of terrorism or during the refugee crisis, they had rarely communicated ironically. An ANOVA with measurement repetition was performed to check whether the user's different needs are satisfied with the chosen type of communication. Neutral communication differs significantly from ironic communication regarding the satisfaction of needs in content and process gratification (cf. Table 2). People use neutral communication to achieve content gratification. In contrast, people who communicate in an ironic manner tend to satisfy their needs in terms of process gratification. This means that ironic communication serves as entertainment and pastime compared to neutral communication.

Table 2. Differences between neutral and ironic communication									
	Neutral communication (n = 68)		Ironic communication (n = 68)						
	M	SD	M	SD	df1	$df2$	F	η^2	p
Content Gratification	4.55	0.92	3.80	1.15	1	67	47.48	.415	**<.001**
Social Gratification	4.00	1.35	3.80	1.40	1	67	1.75	.025	.191
Process Gratification	3.67	1.37	4.07	1.33	1	67	7.53	.101	**.008**

In addition, correlations were calculated to check which characteristics of the subjects and which social motives are associated with a need of satisfaction during the use of irony (Tables 3 and 4).

Table 3. Correlations between personality and satisfaction in ironic communication (*p < .05, **p < .001)								
	BFI 10							
	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness	Self-esteem	Need to Belong	Need for Popularity
Content Gratification	.217	.212	**.246***	-.191	.145	.101	-.113	.006
Social Gratification	.169	-.130	.047	-.064	.059	-.017	.113	**.247***
Process Gratification	.037	-.204	**-.361****	**.256***	-.158	**-.232***	.207	**.475****

Table 3 shows the results of the correlations regarding social motives and the dimensions of need satisfaction in an ironic communication.

Table 4. Correlations between social motives and satisfaction in ironic communication (*p < .05, **p < .001)	Internet Use Expectancies		Humour Styles Questionnaire				Aggression Questionnaire				Sarcasm Self Report Scale			
	Positive Reinforcement	Negative Reinforcement	Affiliative Humour	Self-enhancing Humour	Aggressive Humour	Self-defeating Humour	Physical Aggression	Verbal Aggression	Anger	Hostility	General Sarcasm	Face-Saving Sarcasm	Embarrassment Diffusion Sarcasm	Frustration Diffusion Sarcasm
Content Gratification	-.009	-.026	.009	.175	-.048	.081	.028	.103	-.197	-.086	.035	.085	**.246***	**.260***
Social Gratification	**.330***	.077	.058	.134	.066	.071	-.029	.165	.129	-.021	**.284***	.226	**.262***	**.459***
Process Gratification	**.410***	**.428***	-.068	-.107	**.295***	**.242***	**.239***	**.249***	**.433***	**.300***	**.453***	**.292***	.191	**.405***

The results indicate that individuals actively use ironic communication. But the cluster analysis shows that a central user per cluster is retweeted by all other users within the cluster. Thus, small, mixed clusters are emerging that communicate independently and are characterised by their own influence, audience, content and information sources. The chosen classification scheme for coding the users into roles was a good basis, as neither overlaps nor do missing roles exist. All users were clearly assigned to one role. Although the scheme is based on previous research on other types of crises, it can be stated that the available roles in crisis communication are relatively independent of the type of crisis. Individuals are the most active role in ironic communication, followed by bloggers and commercial organisations. The remaining roles account for less than five percent each. In addition, it can be assumed that the VW crisis affects very different people. Irony and sarcasm are very complex forms of language that require a great deal of effort for the user, so the question arises as to whether certain characteristics and motives simplify this use. In a first step, it could be shown that neutral content is more likely to be communicated in the context of crisis communication. Ironic communication, on the other hand, is, according to their own statements of the users, used instead in organisational or political crises. In addition, it is striking that many users do not communicate directly in an ironic way but rather highlight the irony of a situation or a statement by the words "Isn't it ironic that ...". Barbe (1993) describes this kind of irony as explicit, while he refers to subtle and unannounced irony as implicit irony. According to the author, the explicit form of irony is used to describe situations that the speaker himself regards as ironic. The difference is that in implicit irony, the meaning of what is spoken must be grasped independently. In the case of explicit irony, the irony of a situation has already been recognised and passed on to the audience.

Conclusion and Further Research

The aim of this work is to gain a comprehensive picture of several aspects of ironic communication during an organisational crisis on Twitter. For this purpose, we examined ironic tweets produced during an organisational crisis. The research findings offer a genuine contribution to previous research so far, since it gives insight into the structure of ironic crisis communication as well as into the motivation of individuals when using irony in extreme situations. Within ironic crisis communication, not only are there community clusters that interact independently of each other and are distinguished by their own influence, listeners and content, but it has also been shown that the use of irony is based on different motives. When individuals use ironic communication during a crisis, they pursue a common goal of entertainment and pastime, but they are guided by different motives and different individual personality traits. Some people tend to joke, while others tend to exert aggressive behaviour through the use of irony to achieve the goal of entertainment and pastime. One indication could be found that the IDT can be transferred to both online and crisis communication.

However, our study also has some limitations. The strongest limitation is the filtering of the data set. The filter method chosen for the detection of irony and sarcasm in this work is based on the usual methods for studying language forms on Twitter (Kunneman et al., 2015). However, this method used only the messages considered by the author themselves to be ironic, sarcastic or cynical to prevent a subjective division into ironic and non-ironic messages. In a next step, we want to seek other techniques from the text mining field (Co-occurrences, Support Vector Machine) to detect ironic messages as well. Since, the IDT (Utsumi, 2000) is applicable to online communication during crises, the theory should be examined as a single feature in a next step of our research to be able to provide

reliable information about the emergence of an ironic environment during corporate crises. In further investigations, this evidence should be examined as a single feature to be able to provide reliable information about the emergence of an ironic environment during corporate crises. It is also necessary to perform a replication of the results in relation to similar crises to gain generalisable knowledge.

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