



Facilitating Analysis of Mass Media Influence Through Content Analysis and Emotional Computing

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Abstract. During the last years, different HCI applications have successfully employed sentimental, emotional, and affective computing algorithms for solving various recognition, interpretation and simulations tasks related to the study of human affects. In this paper, we combine content and sentimental analysis to facilitate the understanding of how mass media may influence and/or control a given information context. We employ as case study the army and police corruption information. We analyze the speeches constructed by the press and the comments that users post on the mass medias web sites. Interesting results are obtained where all topics that readers visibilize and/or invisibilize when constructing their representations about the study cases are precisely detected.

Keywords: Sentimental analysis · Content analysis · Social networks

1 Introduction

During the last years, different HCI applications have successfully employed sentimental, emotional, and affective computing algorithms for solving various recognition, interpretation and simulations tasks related to the study of human affects. However, the interpretation of emotions is particularly hard as the many variables involved in the process. For instance, emotions are widely present in the discourse of mass media, which is a key actor in the influence of people opinions and as a consequence in the configuration of universes. This paper focuses on combining content and sentimental analysis to facilitate the understanding of how mass media may influence and/or control a given information context.

Content analysis is a quantitative technique that allows one to reveal the hidden meaning of what is reported by the media; while sentimental analysis –also known as opinion mining– uses techniques from computational linguistics, text analysis and natural language processing to interpret emotions, affects on given corpus. By combining both techniques we are able to study the degree of appropriation by readers of the representations and emotions communicated by the mass media. We employ as case study a large corpus related to the most important corruption cases occurred during the last 3 years in Chile. This kind of case study is relevant as the many emotions involved in. From this corpus, we do not only analyze the speeches constructed by the press, but

also the comments that users post on the mass medias web sites. Interesting results are obtained where all topics that readers visibilize and/or invisibilize when constructing their representations about the study cases are precisely detected. The remainder of this paper is organized as follows: Next section provides the discussion and results followed by conclusions and some directions of future work.

2 Discussion and Results

Corruption scandals have become a new scenario where political actors use these spaces to publicize and make visible their political thinking [1]. However, not only politicians take advantage of these situations, the media also use scandals to increase their sales as some past investigations have pointed out [2]. The economic logic behind these publications leaves very far that vision that conceptualized the media as vigilantes of the public sphere [3]. In this way, whether by economic logic or surveillance, the media have the power to define the agenda. According to the Agenda Setting, the media influence public opinion and the attitude that these have in relation to certain issues [4]. Its authors affirm that the Theory of the Agenda Setting covers more than the well-known affirmation: “the media tell us what to think”.

The Agenda Setting is framed in how the media exert influence on their audiences through a choice of topics that are considered relevant to them [5]. Also part of this theory is the frame or framing attributed to the news. This dimension focuses more on “how to think”, leaving behind “what to do”. Therefore, the framing that has a discursive construction will deliver the guidelines with which the citizen will interpret the information communicated [6]. What is tried with the framing is to prioritize some elements over others, making them easy for citizens to remember. The information consumed by the citizen/user is charged with the framing of the producer of that discursive work; however, the reader will accept that information as a “real fact” [7]. This way in which the media communicate information will have an important weight in society, in the sense that the frames influence the opinions of the recipients, emphasizing values or events that give more importance to certain positions than to others.

Likewise, we maintain that in the production of the news text there would be no random selection. This implies that the producer of the discursive work will always be framing a piece of news according to its computer principles, constructing it with a certain informative bias. The cases that will be analyzed are the following: Milicogate and Pacogate. The first one is a corruption case that was unveiled in 2015. Milico is the colloquial name for military in Chile. Pacogate, is the largest fraud in the history of the country and was unveiled in March 2017. Paco is the colloquial name for the Police in Chile. The latest published news of each of the corruption scandals was analyzed in the portal of the digital newspaper El Mercurio on line (EMOL), for being one of the 3 most read in the country.

When analyzing the news through the Content Analysis, we could see that Emol constantly doubts that the Police officers have committed fraud. We can observe this situation through the constant use of conditional verbs to refer to these issues. In addition, the sources used in the news do not have a critical position against the

institution, so we believe that these elections are made according to the editorial line of the media that tends to protect the Armed Forces. Unlike what happens with the police, when analyzing the news of the corruption scandal in the Army, we could confirm that the media is much more critical of the Army. Moreover the media does not incur information hiding techniques at the moment of reporting on this news. Next, we apply emotional computing (via SentiStrength [8]) to the news comments. In the Pacogate corruption scandal, although the media tries to soften the issue, users who comment are very critical of the information disseminated (Table 1).

Table 1. Polarity statistics in Pacogate news-comments

Positive	29.73%
Negative	51.33%
Neutral	18.92%

When analyzing Milicogate's comments, users were even more critical than with the Pacogate case. The difference between valuations can be due to two reasons. One of them is that the Police was the institution most valued by Chileans and the comments may have been influenced by this situation. Another possible explanation is in the media coverage of the case (Table 2).

Table 2. Polarity statistics in Milicogate news-comments

Positive	11.54%
Negative	75%
Neutral	11.46%

The negative comments in Milicogate news have two possible explanations: (1) The Army has been a very questioned institution since the military coup of 1973. (2) The construction of the digital mass media about militaries has been quite critical.

3 Conclusion

In this paper we have studied the combination of sentimental and content analysis, in order to include more topics and enrich the research. We may conclude that sentimental analysis tool is of great help to compare the influence of the digital media information in the social network users. However, to enrich the research, we believe it is necessary to enlarge the corpus in order to obtain definitive results.

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