

## Chapter 69

# Positive vs. Negative Emotions and Network Size: An Exploratory Study of Twitter Users

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### **ABSTRACT**

*This chapter looks at the relationship between the expression of positive and negative emotions in Twitter and users' network size. The questions that guided this study are: Do users who tweet twice or more "I am bored," "I am excited," "I feel lonely," "I feel loved," "I feel sad," and "I feel happy" gain more followers and friends or lose them? Do users who express positive emotions twice or more have more followers and friends compared to users who express negative emotions or less? Do users who express boredom, excitement, loneliness, feeling loved, sadness, and happiness twice or more interact more with their networks or less? To address these questions, the study collected 35,096 English tweets in 2016. The findings indicate that users who tweeted these emotions, their number of followers and number of friends have increased, not decreased and that only users who expressed excitement had more followers and friends than users who expressed boredom. The study contributes to the literature on the benefits that lonely, sad, and bored users can reap from expressing emotions in Twitter.*

### **INTRODUCTION**

Self-expression is one of the main motivators for sharing content in social media (Shao 2009). Self-expression is not only a way of presenting the self, but it can also be used to control the impressions of viewers and foster supportive relationships (Shao 2009). However, emotions expressed in status updates can have an impact on a user's network size (Lin and Qiu 2012). Hutto et al. (2013), for example, found that negative emotions expressed in tweets reduce, while positive emotions facilitate, network growth. In a similar vein, Al-Saggaf & Ceric (2016), who explored the relationship between the expression of boredom and excitement on Twitter and network size, i.e. the number of followers and number of friends,

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found that generally speaking users who expressed boredom had smaller network sizes compared to users who expressed excitement. Similarly, Al-Saggaf, Utz, & Lin (2016), who explored the relationship between the expression of loneliness, emotion loved, sadness and happiness on Twitter and network size, found that users who expressed loneliness had smaller network sizes compared to users who expressed emotion loved and users who expressed sadness had less friends than users who expressed happiness. Al-Saggaf, Utz, & Lin's (2016) findings are consistent with Dunder's et al. (2016) findings. The explanation given by Al-Saggaf, Utz, & Lin (2016) was that it could be because expressing negative emotions is less attractive to a user's network (Utz 2015) or that loneliness might lead to personality attributions, i.e. the assumption that something is wrong with the lonely person. Regardless, these findings suggest not all users reap the benefits of self-expression; especially when they don't address others in their status updates. Both Al-Saggaf & Ceric and Al-Saggaf, Utz, & Lin (2016) studies compared users who tweeted a negative emotion with users who tweeted a positive emotion using a single tweet. While these studies contributed to the limited literature on the relationship between emotions and network size, the fact that they made inferences about the relationship between expression of emotions and network size based on a single tweet weakened the strength of their inferences. This study looked at network size for each group of users, i.e. 'bored', 'excited', 'lonely', 'loved', 'sad' and 'happy,' separately at Time 1 when they expressed these emotions and at Time 2 when they expressed these emotions again later. Comparing network sizes for each group of users at Time 1 and Time 2 allowed within group comparisons. The study also compared the network sizes of each negative emotion with its opposite emotion. The study collected 35,096 tweets posted in English to Twitter between 16 December 2016 and 24 December 2016 and performed several statistical tests to address the following research questions:

- Do users who express excitement, happiness and being loved twice or more in their tweets gain more followers and friends than users who express boredom, loneliness and sadness twice or more in their tweets or less?
- Do users who express positive emotions twice or more have more followers and friends compared to users who express negative emotions or less?
- Do users who express boredom, excitement, loneliness, emotion loved, sadness and happiness twice or more interact more with their networks or less?

## **METHOD**

### **Process of Collecting and Preparing Data for Analysis**

35,096 tweets posted in English were collected from Twitter between 16 December 2016 and 24 December 2016. The tweets were retrieved using the Digital Methods Initiative Twitter Capture and Analysis Toolset (DMI-TCAT)<sup>1</sup>. For the TCAT to work, an App was developed in Twitter to automatically authorise TCAT to retrieve data from Twitter on behalf of the author. To retrieve the tweets of users who explicitly expressed the above mentioned emotions, i.e. boredom, excitement, loneliness, emotion loved, sadness and happiness, the phrases "I am bored", "I am excited", "I feel lonely", "I feel loved", "I feel sad" and "I feel happy", in double quotations marks, were used. After downloading the data of interest, it was queried using SQLite for users who expressed these emotions one, twice or more and three times or more. Only tweets for users who expressed these emotions with these criteria were stored in datasets

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