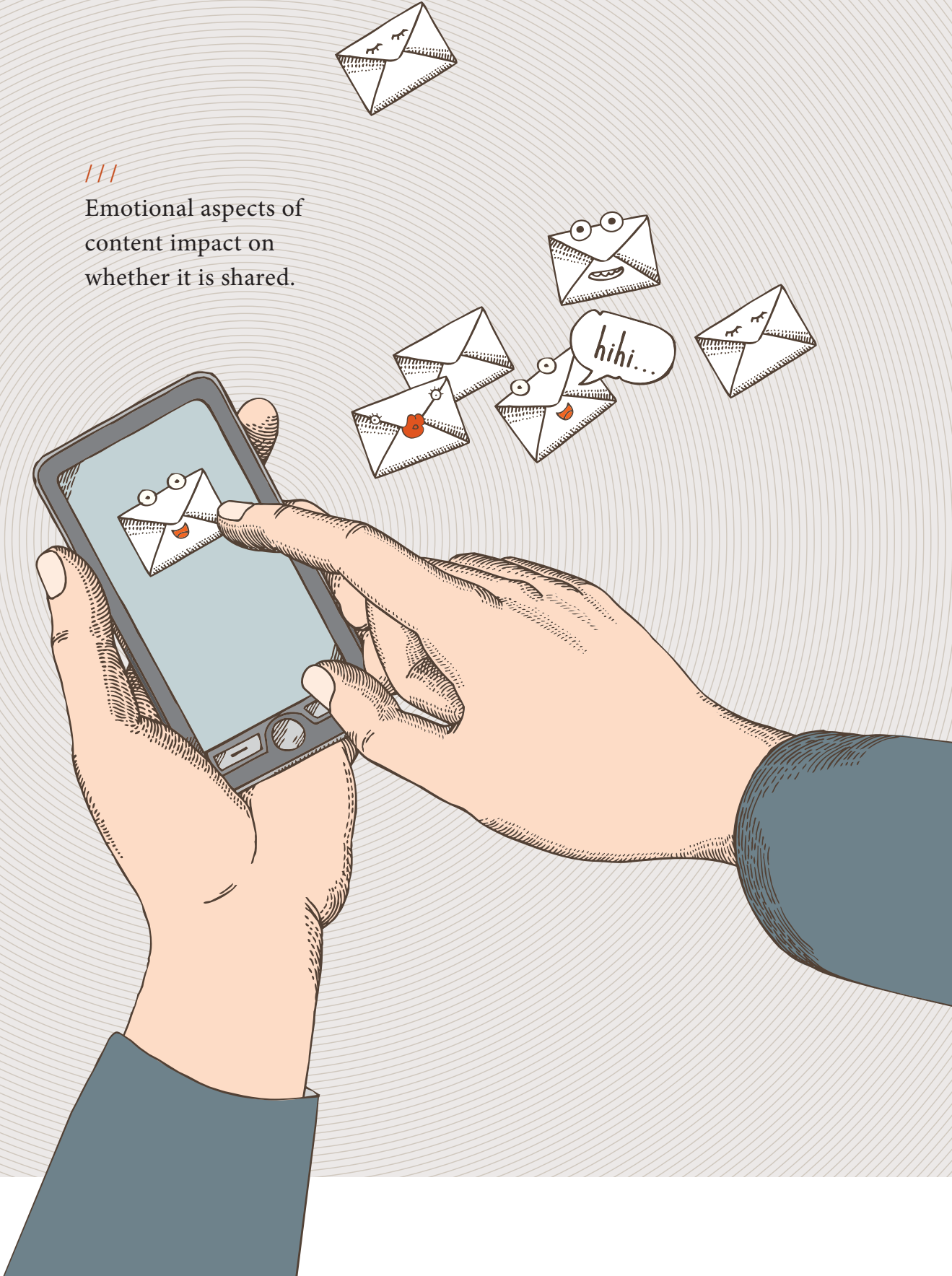


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Emotional aspects of
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Emotion and Virality: What Makes Online Content Go Viral?

Jonah Berger and Katherine L. Milkman

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THE AUTHORS

Jonah Berger,
Joseph G. Campbell Assistant Professor of Marketing,
jberger@wharton.upenn.edu

Katherine L. Milkman,
Assistant Professor of Operations and
Information Management,
kmilkman@wharton.upenn.edu

Both at the Wharton School,
University of Pennsylvania,
Philadelphia, USA

Is virality random? /// One of the most popular online videos of all time is “Charlie bit me”, a short film about two little boys. They are sitting side by side in a chair when Charlie, the younger brother, mischievously bites down rather hard on his older brother Harry’s finger. Harry isn’t sure whether to laugh or cry while baby Charlie is unmistakably delighted by his little trick. Nothing much happens in the video, and yet the clip had received more than 400 million views on YouTube by the end of 2011.

But why did this video go viral? And more generally, why are certain pieces of online content more viral than others? The emergence of social media (e.g., Facebook and Twitter) has boosted interest in word-of-mouth and viral marketing. But while it is clear that consumers often share online content, and that social transmission influences product adoption and sales, less is known about why consumers share content or why certain content becomes viral.

Why people share content /// In fact, there are many reasons why people enjoy exchanging content. One reason why people share stories, news, and information is because of the useful information contained. Coupons or articles about good restaurants help people save money and eat more healthily. Consumers may forward such practically useful content to help others or to appear knowledgeable and enhance their self-image. Others might share practically useful content because they hope to obtain equally useful information from their friends in return.

Emotional aspects of content may also impact upon whether it is shared. People discuss many of their emotional experiences with others, and there is evidence that extremes of satisfaction (highly satisfied or highly dissatisfied consumers) generate more word-of-mouth than average experiences.

{Box 1}

VIRALITY OF NEW YORK TIMES ARTICLES

The objective of this study was to investigate which types of *New York Times* articles were highly shared. A webcrawler visited the *Times*' homepage (www.nytimes.com) every 15 minutes from 30 August to 30 November 2008 and recorded information about every article (approximately 7,000 articles in total) on the homepage as well as on each article on the most-emailed list (updated every 15 minutes). The dataset captured information on several potentially relevant characteristics such as topic area, location in the newspaper and author fame. Of all of the articles, 20 % earned a position on the most-emailed list.

To document the emotional content of each article, automated sentiment analysis was used to quantify the positivity (i.e., valence) and emotionality (i.e., affect-ladenness) of each article. A computer program (LIWC) counted the number of positive and negative words in each article using a list of 7,630 words that were classified as either positive or negative. Positivity was quantified as the difference in percentage between the positive and negative words in an article. Emotionality was quantified as the percentage of words classified as either positive or negative.

Human coders were necessary to classify the extent to which content exhibited more specific characteristics, in particular anger, anxiety, awe or sadness. There was a closer focus on negative emotions because they are easier to differentiate and classify than positive emotions. The coders also distinguished whether articles contained practically useful information, or whether they evoked interest or surprise (control variables). Only a random subset (approx. 2,500) of the articles were subject to human coding. A logistic regression model was applied to estimate the influence of the variables.

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Content characteristics matter

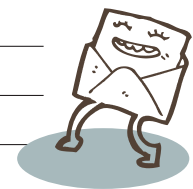
Positive beats negative /// Common sense, as well as simply considering the kind of information that is broadcasted on news channels, suggest that people tend to pass along negative news more than positive news. But the results of a study conducted on the New York Times and its list of most shared articles indicate that positive news actually tends to be more viral (Box 1). Affect-laden content (independent of valence) is more likely to make the most-emailed list than content that does not evoke emotions. In fact, content is more likely to become viral the more positive it is. In other words, while either more positive *or* more negative content tends to be more viral than content that does not evoke emotion, positive content is generally more viral than negative content.

High-Arousal emotions favor sharing /// When taking into account specific emotions, it becomes evident that the role of emotion in transmission is more complex than mere valence alone. While awe-inspiring (positive) content is more viral and sadness-inducing (negative) content is less viral, some negative emotions are positively associated with virality. Anxiety and anger-inducing stories are both more likely to make the most-emailed list after controlling for an article's valence and emotional intensity. This suggests that transmission is about more than just sharing positive things and not sharing negative ones. Content that evokes high-arousal emotions (i.e., awe, anger, and anxiety) after accounting for valence is more viral.

FIGURE 1:

Percentage change in the probability of making the most-emailed list due to a one standard deviation increase in various article traits

Anger	34 %
Awe	30 %
Practical Value	30 %
Interest	25 %
Anxiety	21 %
Emotionality	18 %
Surprise	14 %
Positivity	13 %
Sadness	– 16 %
Time at Top of Homepage	20 %



What else favors virality? /// Articles that are more interesting, informative (practically useful) and surprising are more likely to make the *Times*' most-emailed list. Similarly, being featured for longer in more prominent positions on the *Times* homepage (e.g., the lead story as opposed to at the bottom of the page) is positively associated with making the list. However, the relationship between the emotional characteristics of content and virality holds even when these content characteristics are taken into account.

Therefore, the correlation between stories that evoke certain emotions and their higher virality is not simply down to editors featuring those types of stories, thereby mechanically increasing their virality.

The same is true for longer articles, articles by more famous authors and articles written by women. These are also more likely to make the most-emailed list, but the emotional effect can still be observed above and beyond these other effects.

The results also hold true independent of an article's general topic (according to 20 areas classified by the *Times* such as Science or Health). This indicates that they are not merely driven by certain areas tending to be the ones to both evoke certain emotions and be particularly likely to make the most-emailed list. The observed relationships between emotion and virality hold true not only across topics but also within them. Even among opinion or health articles, for example, awe-inspiring articles tend to be more viral.

Figure 1 shows how different characteristics shape the virality of an article. Virality is driven by more than just valence. Sadness, anger, and anxiety are all negative emotions, but while sadder content is less viral, content that evokes anxiety or anger is actually more viral. Positive and negative emotions characterized by activation or arousal (i.e., awe, anxiety, and anger) are positively linked to virality, while emotions characterized by deactivation (i.e., sadness) are negatively linked.

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External drivers of attention (e.g., being prominently featured) shape what becomes viral, but content characteristics are of similar importance. For instance, a one standard deviation increase in the amount of anger an article evokes increases the odds that it will make the most-emailed list by 34 % (Figure 1). This increase is equivalent to spending an additional 2.9 hours as the lead story on the *Times* website, which is nearly four times the average number of hours articles spend in that position. Similarly, a one standard deviation increase in awe increases the odds of making the most e-mailed list by 30 %.

Testing the high-arousal-emotions effect in a marketing context /// Two follow-up experiments confirmed the results of the New York Times field study in two different and more marketing-related contexts. The experiments used different versions of stories to test how different amounts of amusement (positive emotion) or anger (negative emotion) influenced arousal and sharing. Participants said they would be more likely to share an advertising campaign when it induced more amusement. They also said that they would be more likely to share a customer service experience when it induced more anger. In both cases the higher willingness to share was driven by the arousal it evoked.

Participants said they would be more likely to share an advertisement if they faced the high as opposed to low amusement/anger advertisement. The results were similar for arousal: the high amusement/anger condition evoked more arousal than the low amusement/anger advertisement.

Marketing Implications /// When looking to generate word-of-mouth, marketers often try targeting “influentials” or opinion leaders. But while this approach is pervasive, its value and cost-effectiveness is doubtful. Rather than targeting “special” people, it may be more beneficial to focus on crafting contagious content. The study results illuminate how content characteristics can improve virality.

> **Amuse rather than relax your audience** /// The findings shed light on how to design successful viral marketing campaigns and craft contagious content. While marketers often produce content that paints their product in a positive light, content is more likely to be shared if it evokes high-arousal emotions. Ads which make consumers content or relaxed, for example, will not be as viral as those which amuse them.

> **Negative emotions do no harm when they activate** /// Further, while some marketers might shy away from ads that evoke unpleasant feelings, negative emotions can actually increase transmission if they are characterized by activation. BMW, for example, created a series of short online films called “The Hire” that they hoped would go viral. The series included car chases and story lines that often evoked anxiety (with titles such as “Ambush” and “Hostage”). While one might be concerned that negative emotion would hurt the brand, the study results suggested that it would increase transmission because anxiety induces arousal (incidentally, “The Hire” was highly successful, generating millions of views).

> **Sadness hinders transmission** /// According to the study, sadness is not a good vehicle for viral communication initiatives. While emotions that generate activation and arousal favor sharing, no matter whether they are positive or negative, sadness actually has a negative impact on willingness to share, no matter whether the induced condition of sadness is low or high. Therefore, public health information, for example, is more likely to be passed on if it is framed to evoke anger or anxiety rather than sadness, which is more frequently encountered.

> **Angry consumers' online actions might be critical**

/// Similar points apply to managing online consumer sentiment. While some consumer-generated content (e.g., reviews and blog posts) is positive, much is also negative, and can lead to consumer backlash if it is not carefully managed. Mothers who were offended by a Motrin ad campaign, for example, banded together and began posting negative YouTube videos and tweets. While it is impossible to address all negative sentiment, certain types of negativity may be more important to address because they are more likely to be shared. Customer experiences that evoke anxiety or anger, for example, are more likely to be shared than those that evoke sadness (and textual analysis can be used to distinguish different types of posts). Consequently, it may be more important to rectify experiences that make consumers anxious rather than disappointed.

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