Dogs Good, Trump Bad: The Impact of Social Media Content on Sense of Well-Being

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ABSTRACT

Social media can impact how people feel both in the short and long term. Most studies in this area have focused on longer-term feelings of happiness and life satisfaction, but the immediate impact on users' sense of well-being and anxiety levels are not well studied. In this work, we had 1,880 subjects complete surveys about their immediate sense of well-being and contentment and then view one of three possible social media pages: a collection of happy dog pictures and videos; a collection of non-dog related images and videos that generally were funny, non-political, and popular; and Donald Trump's Twitter account. After viewing this content, they were re-surveyed on their sense of well-being. We found viewing dogs led to a large and significant increase in the sense of well-being, viewing popular content led to a smaller but still significant improvement, and viewing Donald Trump's Twitter account led to a very large decrease in sense of well-being. This work has implications for recommender systems, which may consider these results as a step toward optimizing user well-being rather than simply engagement, and for users who may want to manage their own happiness through social media channels and following patterns.

KEYWORDS

social media; well being; recommender systems

ACM Reference Format:
Jennifer Golbeck. 2019. Dogs Good, Trump Bad: The Impact of Social Media Content on Sense of Well-Being. In 11th ACM Conference on Web Science (WebSci '19), June 30-July 3, 2019, Boston, MA, USA. ACM, New York, NY, USA, 5 pages. https://doi.org/10.1145/3292522.3326009

1 INTRODUCTION

Social media platforms are good at measuring engagement with content; time viewed, likes, shares, and comments are all easy and straightforward to track. Content recommender systems generally rely on these engagement metrics to recommend content, based on the general idea that the things we spend more time interacting with are the things we want to see. However, studies into the overall impacts of social media on users repeatedly show mixed effects. There are plenty of positive impacts but also plenty of negative ones. This suggests the question: what social media is good for people to view?

Figure 1: Does this picture spark joy? For our subjects, it did.

With this in mind, we set out to understand the impact that different types of content have on users' immediate sense of well-being. With 1,880 subjects, we created an experiment where subjects would complete a short survey to measure well-being before and after viewing selected social media content. Subjects were randomly assigned to one of three experimental content conditions: posts featuring pictures and videos of dogs, popular posts that tended to be funny and were non-political, and Donald Trump's Twitter feed. These were selected to cover a range of topics from the cute and non-controversial to the politically-charged.

We found that dog posts created a large and highly significant increase in immediate sense of well-being, as did popular posts to a lesser extent. Viewing Donald Trump's

WebSci '19, June 30-July 3, 2019, Boston, MA, USA

ACM ISBN 978-1-4503-6202-3/19/06…$15.00
https://doi.org/10.1145/3292522.3326009

Twitter feed led to a large and significant decrease in immediate sense of well-being.

These results are not designed to suggest that one type of content is objectively good or bad, but rather to establish that there are marked differences in how content impacts users and to drive future research toward measuring and using well-being as a factor in content recommendation.

In this paper, we frame this work in existing studies of the impacts of social media. We present our experiment and results and discuss future directions for building systems that not only engage people but that help them feel better.

2 RELATED WORK

2.1 Social Media and Well-Being

Social media's impact on well-being has been studied from a variety of perspectives. Much of this work focuses on the impact of interactions on social media or the general experience of consuming content, rather than our approach which looks at the impacts of different types of content.

On Facebook, researchers found that one-to-one interactions made people feel more bonded and less lonely, but as they consumed more content, these feelings were reduced [6]. A 2015 experimental study found that immediately after consuming social media content, subjects had increased stress and lower happiness [5]. This is echoed in a clinical study that found problematic social media use connected with depressive states [16].

A meta-review that focused on adolescents found that the impacts were mixed in most of the 43 studies they analyzed. Some studies found benefits like increased self-esteem and social capital along with negatives like depression and social isolation [4]. While focused on adolescents, this meta review presents the main result: results are mixed. Social media is linked to improvements and detriments, often for the same person. Thus, trying to understand "is social media good or bad" is an oversimplified question.

There are few studies on the impact of content on well-being from the same perspective. There are plenty of studies that look at a particular type of content that a person may seek out - e.g. healthcare [15], mental health[8], eating disorders [7]. However, our studies differ in that we want to measure the impact of content users may naturally come across (or be recommended) in their feeds.

2.2 The Benefits of Dogs

There has been extensive research into the health and mental health benefits of dogs. People who own pets tend to be healthier overall [11], have lower blood pressure reactions to stressful situations [2], and even have better longevity after cardiac events [9].

The physical presence of a dog can reduce stress and anxiety [3, 12]. A meta-review found that children who read to dogs experience reduced stress and better performance [10].

These benefits extend to viewing images of dogs. Researchers in Japan found viewing pictures of cute animals reduced stress and improved performance [14]. Viewing other pleasant images did not have the same beneficial effect. This suggests that our study on well-being may see similar results, where images of dogs improve well-being in a way that other popular, funny content or political content does not.

3 METHODOLOGY

3.1 Surveys

Subjects began by completing the Anxiety and Depression Association of America's Depression screener and Anxiety screener. They also answered basic questions about their social media use.

Next, we measured their baseline sense of well-being using the Patient Evaluation of Emotional Comfort Experienced (PEECE) survey [17]. This survey has 12 statements that begin with "I feel " and are followed by aspects of well-being: relaxed, valued, safe, calm, cared for, at ease, like smiling, energized, content, in control, informed, and thankful. Subjects rate each feeling on a 5 point scale from 1 (not at all) to 5 (extremely). The test is scored by averaging their answers.

After establishing that baseline, subjects were randomly assigned to view one of three possible conditions: a Twitter page with pictures and videos of dogs, a Twitter page with non-dog-related and non-political popular posts that tended to be funny, or Donald Trump's Twitter feed. We curated the pages for the first two conditions. Subjects were required to spend at least 5 minutes browsing the content on each page and were prevented from continuing in the study by a timer.

Once they had spent time in the condition, they re-completed the PEECE survey so we could measure changes in their immediate sense of well-being.

Finally, subjects provided information about their demographic traits. Because we included Donald Trump's Twitter feed as one of the conditions, we also asked about their approval of his performance as President using the language from the Washington Post -ABC News Approval Poll: "Do you approve or disapprove of the way Donald Trump is handling his job as President?". Subjects could answer "Approve", "Disapprove", or "Neutral/No Opinion".

3.2 Subjects

Subjects were recruited via social media postings on Twitter, Instagram, Facebook, and Snapchat asking them to participate in a survey about how social media content affected their well-being. Subjects were not compensated.

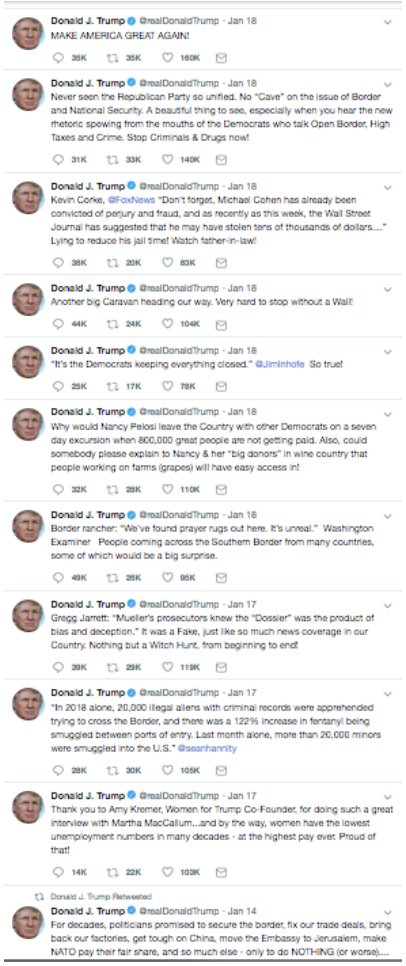
We had 1,880 subjects complete the experiment. The average age was 29 years old (SD = 11.0). Gender distribution was 82.1% female, 15.9% male, and 2% other or fluid. The majority of our subjects were from the United States (73.0%) with another 9.4% from the UK and 6.0% from Canada.

On the depression screener, subjects rated how much they were bothered by various aspects of depression, like having a poor appetite or low energy, on a scale from 1 (not bothered at all) to 5 (bothered every day). The average score was 1.9 (SD=1.0). On the anxiety screener, subjects answered Yes

Table 1: Sample posts from the three social media feed conditions in our experiment

(Dogs)

(Popular Posts)



(Donald Trump)

or No to questions about symptoms of anxiety like "Do you experience excessive worry?" and "Is your worry excessive in intensity, frequency, or amount of distress it causes?". Subjects answered yes to 61.3% of the questions.

With respect to the background questions that relate to the content subjects viewed, our sample had some clear biases.

The subjects overwhelmingly disapproved of Donald Trump as President with 91.2% disapproving, 2.7% approving, and 6.1% Neural or with no opinion. This survey was administered while the US Government was shutdown from December 2018 to January 2019 which may be responsible for the higher-than-normal disapproval rates. For reference, the Washington Post - ABC Poll data from the same time period showed a disapproval rating of 58% with 37% approval [1].

We also asked subjects to rate how much the statement "I love dogs" applied to them. The vast majority, 93.7% said it applied strongly or somewhat while 2.0% were neutral and 4.3% said not much or not at all.

While this indicates a biased subject sample, we are able to control for this to some extent, as discussed in the results below. Furthermore, our goal is not to offer an objective assessment of what content is good for people's well-being, but rather to illustrate the viewing different types of content does have a significant impact on individuals.

4 RESULTS

Overall, subjects' initial scores on the PEECE survey averaged 3.28 on a 1 to 5 scale, where 5 represents the highest well-being. There was no significant difference in average initial score among the three experimental conditions (dog-viewers, popular post-viewers, and Trump-viewers). When dividing subjects by anxiety level, into those who answered Yes to 3 to 4 of the 4 anxiety questions from those who answered Yes to 2 or fewer, there were significant differences in initial sense of well-being. The less anxious people had an initial well-being score of 3.54 vs 3.08 for more anxious subjects.

Group	Before	After
Trump	3.27	2.08
Dogs	3.27	3.81
Popular	3.29	3.43

Table 2: Average PEECE scores before and after viewing the experimental content for each group. All results are significant for $p < 0.001$.

After viewing the content, there were significant changes among all three experimental groups, shown in table ??. Viewing Donald Trump's tweets led to a large and significant decline in sense of well-being, while the other two conditions led to significant increases. Dogs generated the highest increase. All results are highly significant, with $p < 0.001$.

Given that Donald Trump was so unpopular among our subjects, we analyzed the impact of viewing his content on the people who did not disapprove of him. Only 16 of our 1,808 subjects approved of the job he was doing and were placed in the condition where they viewed his tweets. Their sense of well-being appeared to decline from 3.64 to 3.58, but the change was not statistically significant, as would be expected with such a small sample. If we included both people who approved and who were neutral or had no opinion about Trump, we found the decrease in well-being was significant, from 3.39 to 3.30 ($p < 0.05$).

Among people who were neutral or negative on dogs, only 19 saw the dog condition. Even with this small sample, the increase in well-being ratings increased significantly from 3.09 to 3.59 ($p < 0.001$)[1]

Both the more and less anxious sub-groups saw changes in well-being that mimicked the overall population. All had large, significant decreases in well-being after viewing Trump's account while they saw increases in the other two conditions, and the largest increase with the dog condition.

5 DISCUSSION

As mentioned above, the point of this research was not to establish that dogs (or any other content type) were universally and objectively good for well-being or that Trump was universally bad viewing. Instead, we have established that, for a large sample, the content someone sees does have a significant, immediate impact on their sense of well-being.

While our results here may not be surprising to some people, it lays the foundation for discussions about how content recommendation systems should work. Currently, most are engineered to increase engagement. However, accounts that have high engagement can still damage well-being in the short term. Donald Trump's account is often recommended as a follow for new Twitter users, but our results show that for at least some - and potentially a substantial number - of users, seeing his content can make them feel worse.

[1]We note this group is markedly less happy initially than the average. We hypothesize, with some bias, that if they liked dogs, they might be happier.

We are also not arguing that we should all only look at things that make us happy. However, if we circle back to work that looks at the impact of social media on users, it is important to consider how content in general, and recommended content in particular, is impacting them. Obviously, social media platforms want to increase engagement and time users spend with them, since this increases the potential for profit. However, that does not mean that engagement is a good measure of people's enjoyment on their platform. Indeed, highly engaging posts can often be quite toxic [13].

We suggest that an important area for future research is into recommending well-being-enhancing content on social media. This will require new methods for measuring well-being, as users obviously cannot be completing questionnaires after each browsing session. Once such metrics are developed, creating mechanisms for including this as a feature in recommender systems will be important. Users may want to manually balance well-being vs. engagement in their timelines (e.g. I may want to see almost exclusively things that make me happier vs. someone who wants a mix of well-being-enhancement and news, even if the news makes them feel worse) or algorithms may seek to strike this balance automatically. The correct approach remains to be seen, but we believe this is a promising and important area of future work.

For individual users, this research suggests that they may want to more carefully curate their social media feeds. Whether through lists or multiple accounts, it could be beneficial to have a curated set of content that will improve well-being separate from content that may be useful but detrimental to well-being.

6 CONCLUSION

In this paper, we studied the impact that different types of social media posts had on subjects' immediate sense of well-being. We had 1,880 subjects complete a short survey about their present well-being, and then had them spend time looking at one of three experimental conditions: pictures and videos of dogs; popular, generally funny social media posts; and Donald Trump's Twitter account. After browsing, subjects re-took the well-being survey. We found significant increases in well-being after viewing the dog and popular post conditions, with dog posts driving the biggest increase. Viewing Donald Trump's Twitter account led to a significant decrease in subjects' sense of well-being.

We believe this work lays the foundation for a larger body of future research focused on measuring how different types of content impact an individual's sense of well being which, in turn, can be incorporated into content recommender systems. With all the concern about the impact social media has on its users, algorithms that bring people content that makes them feel better has a clear place in the research discussion. We have shown that such effects do exist, and call for new work to make these initial insights operationalizable.

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