



DIGITAL COGNITION AND
DEMOCRACY INITIATIVE

EXPLOITING EMOTIONS

THE DIGITAL COGNITION AND
DEMOCRACY INITIATIVE

LEAH WALKER AND ZOË BRAMMER
OCTOBER 2022

Table of Contents

About the Digital Cognition and Democracy Initiative	3
About this series	3
Why Emotions?	4
Emotions and Politics	5
Affective Technologies	5
Emotions and Disinformation	6
Areas for Future Research: Discouraging Digital Emotionality	7

About the Digital Cognition and Democracy Initiative

Digital technology has become a fixture in everyday life. The landscape has dramatically shifted in recent years, increasingly catering to individualized neurochemical reinforcement. Information mediation is now fast-paced, high-volume, low-friction, and extra-sensorial, garnering increasing concern about the impacts digital ubiquity is having on individuals, society, and democracy more broadly.

Documented risks to the individual include impacts on mental health, particularly among young people; the proliferation of false information; and an overreliance on outsourced information. Impacts at the individual level cumulatively manifest in societal level concerns, such as affective polarization—defined as the tendency to distrust people from the opposite end of the political spectrum—and risks to public health as a consequence of disinformation campaigns. While digital technologies are not the sole cause of these concerns, the facilitatory and amplifying role they play is significant. A sound ability to update one's beliefs and to engage in constructive discourse are key elements of civic engagement and therefore healthy democracy. These skills rely on a concert of cognitive processes that are increasingly influenced by rapid and extensive technological proliferation. The urgency of exploring this web of challenges has grown as the risks to individual and societal well-being have become more evident and the threats to democratic society more immediate.

About this series

Through a series of coalition meetings and discussions with our advisory committee over a period of five months, we coalesced around several key overarching themes and a specific set of cognitive operations that are central not only to how democracy functions, but to how we view and engage with our democratic processes and institutions: critical thinking, trust, and emotion.

This report is informed by the DCDI coalition, interviews with related experts, and past and current cognitive science research findings relevant to the human relationship with digital technologies. Unlike the DCDI papers on [memory](#), [attention](#), and [reasoning](#), this series is not meant to review the literature, but to synthesize our thoughts and research on the effects of digital systems on [trust](#), [critical thinking](#), and [emotions](#).

Why Emotions?

Digital systems exploit and manipulate emotions by design. Emotions prompt people to use digital tools, engage with content, products, and services, respond to advertisements, stay on or return to digital platforms, and even take action offline as a result of online experience. The design of the digital environment, especially its visual nature, also heightens user emotions, often creating an addictive cycle. Because emotions affect how we process, engage with, and often act upon information, they play a central role in the relationship between digital tools and democracy.

Emotion is not a cognitive function in itself, but emotions influence cognitive processes. They especially guide attention and help create memories.¹ Emotional activation can also heighten feelings of legitimacy or belonging, and provide a feedback loop between the digital system and the user's sense of self and place. For example, digitally-presented disinformation tends to appeal to fear and outrage, generating anger, exacerbating polarization, and exploiting inequities.²

The DCDI team's research into the relationship between digital tools and emotions include three key insights:

- Cognitive openings created as a result of difficult life events create a moment of vulnerability. When presented with something that feels like it could solve your emotional problem and give you a purpose, people are easily isolated and radicalized.³
- In social networks, the processes of recognition and status negotiation are intertwined with emotions; the more someone likes/links to your posts, the higher you will be ranked and listed in news feeds. As Javier Serrano-Puche puts it, "Since sharing emotions is essential for creating and maintaining social ties, somehow the status of social networks revolves around the emotions and feelings that users express about themselves, but at the same time find resonance among their circle of contacts."⁴
- Digital technologies are affecting the cognitive processes that interact with emotional responses, including [memory](#), [attention](#), and [reasoning](#).

¹ Chai Tyng et al., "The Influences of Emotion on Learning and Memory," *Frontiers in Psychology* 8, 1454 (2017), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5573739/>.

² Fabiana Zollo et al., "Emotional Dynamics in the Age of Misinformation," *PloS One* 10, no. 9 (2015).

³ Mykola Makhortykh and Juan Manuel González Aguilar, "Memory, Politics and Emotions: Internet Memes and Protests in Venezuela and Ukraine," *Continuum* 34, no. 3 (2020): 342-362.

⁴ Javier Serrano-Puche, "Internet and Emotions: New Trends in an Emerging Field of Research," *Comunicar. Media Education Research Journal* 24, no. 1 (2016), https://www.scipedia.com/public/Serrano-Puche_2016a.

Emotions and Politics

People have emotional reactions to political content. Not all emotions affect democratic participation, and those that do affect political choices do not do so in the same ways. Anger, anxiety and enthusiasm are often cited as the emotions most likely to increase political participation, for example. But these emotions also narrow the kinds of information that people seek, focusing them on narrative that confirm or justify their emotions.⁵ This cycle fosters the growth of conspiracy theories and disinformation.⁶

Political online emotional appeals are most effective among individuals with the highest level of news media consumption.⁷ This may be because the volume of information on digital devices and platforms drives people to take shortcuts to make conclusions, and those consuming the highest volume need the heuristics that emotions provide. We do not have time to think through the many aspects of an issue we see online, so instead we focus on emotionally-informed gut reactions. People then believe they are informed because they have learned so much about the topic.

The modern public sphere is increasingly a digital one, as social media allows citizens to bring their beliefs, views, and debates to a space that can reach more and more of their fellow citizens.⁸ The shift to a digital public sphere has also meant a shift in information sharing towards more flexibility and interactivity, which opens up the possibility for targeted searching, focused, for example, on particular issues across a diverse set of sources.⁹ With targeted searching, individuals who might be vulnerable to a certain emotional messaging can be targeted with messages tailored to their cultural and political identity.

Affective Technologies

Affective technologies are technologies that are “designed to sense and respond based on human emotions.”¹⁰ In short, many of the digital technologies that allow us to socialize and have a personal presence on the Internet engage with our emotions, whether we realize it or not.

⁵ Nicholas A. Valentino et al., “Is a Worried Citizen a Good Citizen? Emotions, Political Information Seeking, and Learning Via the Internet,” *Political Psychology* 29, no. 2 (2008): 247-273, <https://doi.org/10.1111/j.1467-9221.2008.00625.x>.

⁶ Alexander Plencner, “Critical Thinking and the Challenges of Internet,” *Communication Today* 5, no. 2 (2014): 4-19, <https://www.cceol.com/search/article-detail?id=73524>.

⁷ Philip Edward Jones et al., “Online Emotional Appeals and Political Participation: The Effect of Candidate Affect on Mass Behavior,” *New Media & Society* 15, no. 7 (2013): 1132-1150, <https://doi.org/10.1177%2F1461444812466717>.

⁸ Omar V. Rosas and Javier Serrano-Puche, “News Media and the Emotional Public Sphere—Introduction,” *International Journal of Communication* 12 (2018): 9, <https://ijoc.org/index.php/ijoc/article/view/6785>.

⁹ Nicholas A. Valentino et al., “Is a Worried Citizen a Good Citizen? Emotions, Political Information Seeking, and Learning Via the Internet,” *Political Psychology* 29, no. 2 (2008): 247-273, <https://doi.org/10.1111/j.1467-9221.2008.00625.x>.

¹⁰ Tara Brigham, “Merging Technology and Emotions: Introduction to Affective Computing,” *Medical Reference Services Quarterly* Volume 36, no. 4 (2017): 399-407, <https://www.tandfonline.com/doi/abs/10.1080/02763869.2017.1369289?journalCode=wmrs20>.

When our post is liked, retweeted, or receives a complimentary comment, we feel validated, happy, and proud. When we see something we are offended by on social media, or are left with an angry comment, we feel disgusted, angry, or even anxious. Digital communication technologies do not make us any less human; rather, they allow us to interact with more humans than ever, more quickly than ever. Posts on social media give clues about author emotions or overtly signal how the author is feeling generally, and about a particular subject.

"Since sharing emotions is essential for creating and maintaining social ties, somehow the status of social networks revolves around the emotions and feelings that users express about themselves, but at the same time find resonance among their circle of contacts."¹¹

- Javier Serrano-Puche, "Internet and Emotions: New Trends in an Emerging Field of Research."

As technology amplifies the visibility, reach, and social value of our emotions, it allows for "large scale emotional contagion,"¹² as viral, emotionally charged content like memes, sad stories, pleas for help, and heartwarming videos and pictures go viral.

Emotions and Disinformation

Our emotional reactions to digital information and technologies increase our vulnerability to disinformation, which often preys on emotional reactions. The technology business model is usually advertising or subscription-based, both of which necessitate a captive audience. That audience is often best retained by emotional manipulation, as experiencing both negative and positive emotions maintains engagement.

"Emotion may be actively and uniquely promoting heightened belief in fake news relative to a baseline condition, and heightened reliance on emotion appears to be underlying susceptibility to fake news above and beyond a simple lack of reasoning."¹³

- Cameron Martel et al., "Reliance on Emotion Promotes Belief in Fake News."

¹¹ Javier Serrano-Puche, "Internet and Emotions: New Trends in an Emerging Field of Research," *Comunicar. Media Education Research Journal* 24, no. 1 (2016), https://www.scipedia.com/public/Serrano-Puche_2016a.

¹² Ibid.

¹³ Cameron Martel et al., "Reliance on Emotion Promotes Belief in Fake News," *Cognitive Research: Principles and Implications* 5, no. 1 (2020): 1-2, <https://doi.org/10.1186/s41235-020-00252-3>.

Not only does emotionality make people more vulnerable to disinformation, it also increases the difficulty of countering disinformation narratives.¹⁴ When individuals feel like they are “emotionally right” or feel in their gut that they are right, they are far less likely to look for contradictory information. Should they seek out disconfirming information online, they are likely to be submerged in information silos where peers and in-group members express similar emotions. This adds to the sense that their gut emotional reaction is a correct one and is one shared by most of the world, even if it is only a response felt by a small siloed group.

Disinformation that uses highly emotional messages (confrontational and solidarity-focused) can be some of the most efficient for recruiting, especially when paired with images.¹⁵ Such tactics fuel the deliberate exploitation of emotions by malicious actors in digital spaces.

Cognitive vulnerabilities can be leveraged by digital actors and systems to provide those suffering from emotional distress and/or insecurity with easy access to communities and content that feel validating or safe. Not only can vulnerable people be pulled into isolated communities, but with the advent of microtargeting, these individuals can be targeted and exploited not only by online actors, but also by algorithms themselves. The resulting addiction to heightened emotional states, as outlined above, is worrisome at both the individual level and at the larger societal level. Effectively, these digital systems serve as the proverbial “gasoline” on the emotional fire, with expansive impact on our ability to employ cognitive functions including reasoning and decision making.

Areas for Future Research: Discouraging Digital Emotionality

The DCDI coalition focused on problem identification, building hypotheses, and developing a core set of indicators. But more fundamental research is needed to explore the links between emotions and digital technologies. Some of the questions that future research must explore include:

- How can technology be designed to be less emotionally provocative?
- How can the economic incentive structure change to be less emotional reaction driven?

¹⁴ Nicholas A. Valentino et al., “Is a Worried Citizen a Good Citizen? Emotions, Political Information Seeking, and Learning via the Internet,” *Political Psychology* 29, no. 2 (2008): 247-273, <https://doi.org/10.1111/j.1467-9221.2008.00625.x>.

¹⁵ Sarah Gaby and Neal Caren, “Occupy Online: How Cute Old Men and Malcolm X Recruited 400,000 US Users to OWS on Facebook,” *Social Movement Studies* 11, no. 3-4 (2012): 367-374, <https://doi.org/10.1080/14742837.2012.708858>.

We are not suggesting that humans must engage in emotional restraint at all times, or even that it is reasonable or desirable to do so. The problem we are unpacking centers on how the underlying cognitive processes that affect emotions are, in turn, affected by digital technologies.

Our conversations and research have made clear that there is inherent value in encouraging people to be less emotionally reactive, despite emotional tendencies of human nature.

It is crucial that people are made aware of the various ways our digital life manipulates and shortcuts our emotions, understand repercussions of that interaction, and adopt proper preventative and mitigation strategies.