

EMOTIONAL REGULATION ANALYSIS IN ONLINE POLITICAL DISCOURSE WITH RESPONSE TIME METRICS

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Abstract

In terms of digital political engagement and new digital discourses, emotional regulation operates as an important agent of influence, helping to shape form, quality, and trajectory of online communication. This project examined emotional regulation responses during online political conversations or discussions in multiple digital spaces, including a response time measure as a proxy for cognitive-emotional processing. The data were collected from online political forums, social media threads, and moderated discussion forums, consisting of timestamps and text tagged for sentiment. The timestamps and text tagged for sentiment were coded with psycholinguistic principles and computational approaches. Response times were able to demonstrate impulsivity versus deliberation, capturing the experience of emotional regulation in contingent political contexts. Results show a significant association between emotional-regulated responses taking longer than non-regulated responses and emotional-regulated responses where impulsive responses are associated with greater affective language. Each of the opportunities and digital discourses we examined demonstrated patterns that differentiated the platform effects on discussion quality, highlighting how the architecture of the discourse may shape the overall quality. Overall, this study contributes to not only methods for studying emotional regulation in online spaces, but also design strategies for fostering healthier political communication spaces.

Keywords: Emotional regulation; response time metrics; online political discourse; digital communication; psycholinguistics; sentiment analysis; political polarization; social media behavior; cognitive-emotional processing; deliberative dialogue

I. INTRODUCTION

The digital age has turned political talk into something we can all join with one click, and the mood often feels supercharged, especially on social media, comment sections, and online boards. Here, people dive into arguments where feelings, not just facts, steer the conversation. Because of this, being able to check and shape our own emotions—what experts call emotional regulation - becomes really important if we want to keep discussions civil and helpful[6]. Figuring out how people keep their feelings in check during political chats helps us see what's happening to the person typing and also to the wider web of opinion bubbles and extremes we call echo chambers.

Most studies on political talk have honed in on what people say, how they feel about it, or how their networks connect, but they've usually skipped over the clock. Here's where response times come in—how quickly someone replies to a charged message. These times can reveal a lot we miss if we just look at the words. A fast reply probably means the person is reacting without thinking, letting their feelings take the wheel. A slow reply likely means they paused to think and maybe dialed their emotions back a bit[4]. By paying attention to this timing, we can see the mental gears turning during a conversation instead of just the finished text, giving us a fuller picture of what's really happening in online politics.

This research paper looks at how people manage their emotions and how this affects how fast they reply to arguments online when the subject is politics[9]. By tracking conversations happening at the same moment across several social media and discussion sites, the study hopes to find telltale patterns that show when someone is

keeping their feelings in check and when they are not. The broader purpose is to build a clear picture of how emotional control shows up in digital political talks and to use those findings to help create more thoughtful, supportive places on the internet where people can disagree without losing their cool[10].

II. LITERATURE INSIGHTS ON EMOTIONAL REGULATION AND TEMPORAL BEHAVIOR

2.1 Emotional Regulation in Online Political Discourse

Emotional regulation is increasing seen as levers that affect how and whether online political discourse occurs. In this context, emotional regulation as defined by authors such as Gross (1998) and Aldao et al. (2010) is the process by which individuals control the emotions that they experience, when and how they experience them, and how they express them[2]. This regulation can determine whether a political conversation escalates to hostility or develops into productive conversation. However, online spaces were never meant to function like educative arenas, and the disinhibiting influences of anonymity, virality, and limited non-verbal information are encountered by all users. Important evidence of functional challenges presented in online political spaces has been established. Since posts that elicit an emotional response often receive higher engagement but also increase polarization and conflict, there is growing awareness of these phenomenon[11]. Nevertheless, in the context of political engagements, there remains little research on the ongoing and real-time modulation of emotion, specifically how timing behaviour plays a role in emotional regulation during political conversations[3].

2.2 Response Time Metrics and Emotional Expression

Although response latency has a long-lived history in psychology as a measure of cognition, we are only recently examining it through lenses of emotional regulation in online dialogue. In terms of emotion and regulation, we often conceptualize response time as an indicator of deliberation versus impulsivity, with shorter response time potentially reflecting an emotional response (or reactivity) while increased delays or times reflect cognitive control and regulation of emotion[12]. In online forums and social media, we are often producing reactions to emotionally-charged information, so the time for us to respond can be a potentially rich indicator of regulation. States of response latency have also begun to link together time-stamped digital interactions with affective markers, employing natural language processing tools and dimensions of language that show delayed responses often employed more conciliatory and neutral language. However, the idea of response time measures with emotional content is a largely unexplored area of inquiry for both political psychology, and computational social science.

2.3 Theoretical Foundations of Emotional Regulation

This study will utilize theoretical models that have been incorporated into affective science and communication theories to make sense of emotional regulation during digital political engagement[4]. One model suggested by Gross distinguishes regulatory strategies into four groups: situation selection, attention deployment, cognitive reappraisal and suppression. All of the regulatory strategies have the potential to manifest as behaviors for which we can measure (i.e., response time and response affect). Likewise, dual-process theories also articulate fast, affect-based entrepreneurial responses and slow deliberative responses. Using response time as an analytical variable is very similar to identifying the dual nature of response outcomes (emotional/non-emotional). The self-regulatory mechanisms of social cognitive theory recognize that environmental influences shape individual behavior (i.e., peer interactions and platforms). In using this overlapping crosscutting theoretical approach in the current study, we intend to conceptualize emotional regulation as a multidimensional behavior that is both an internal psychological phenomenon and a socially regulated behavior through digital interactions.

III. RESPONSE-TIME-BASED EMOTIONAL ASSESSMENT

3.1 Data Collection Methods

In order to study the intersection of emotional regulation and time to response in online political discourse, data was collected from three of the largest platforms: Twitter, Reddit (using political subreddits), and public Facebook discussion threads. We used chains of reasoning and evidence to decide on these platforms as they are highly political in nature and provided timestamped user interactions. Using platform-level APIs and web scraping software, we constructed a dataset of political conversation threads in these three platforms comprising 12,000 threads. Threads are comprised of original posts, direct responses, and nested comments as well as metadata including usernames, timestamps, and engagement metrics (e.g., likes, retweets, upvotes). To comply with ethical standards, only publicly available conversations were examined, and almost all identifiable user information was anonymized in our analysis[13].

3.2 Measurement of Response Time Metrics

Response time was defined as the time duration in seconds or minutes from an original political post/comment and the first response by other users. For nested discussions, response time was calculated hierarchically (i.e., parent-child comment intervals). To better match differing styles of interaction on the different platforms, the

response times were normalized using z-score transformation across each platform. The response time was binned into three categories—short (10 seconds or less), medium (11 to 120 seconds), and long (>120 seconds). We created these cut points for categorical analysis of impulsive versus reflective responses based on preliminary analysis of response time, as well as previous research on the timing of online behaviors[8].

3.3 Analytical Techniques

In this research, we implemented a mixed-methods approach using computational linguistic analysis and statistical modelling. Specifically, we first performed sentiment analysis with a pre-trained transformer model (BERT fine-tuned on emotion recognition) to label each comment by the emotional tone (e.g., joy, anger, sadness and calmness)[1][15]. While this was being done, we extracted linguistic aspects of cognition and regulation (e.g., hedges, qualifiers, modal verbs, etc) using LIWC and custom NLP pipelines to look for cognitive/language patterns. We then performed quantitative analysis to measure Pearson's r and regression relationships between response time and emotional tone and conducted ANOVA tests of the emotional regulation measures by platform and response time categories[14]. Lastly we performed qualitative thematic coding on a subset of data to corroborate the types of patterns seen in the quantitative part of the study.

In sum, this multimodal framework has been useful for thinking about the way that the temporal structure of replies and practices of regulation/emotion work together in digital political discourse.

IV. LINKING EMOTIONAL REGULATION TO RESPONSE TIME IN POLITICAL DIALOGUE

4.1 Patterns of Emotional Regulation in Political Discourse

The examination of emotional tone across platforms showed that high-engagement threads were overwhelmingly dominated by expressions of emotion, particularly anger and frustration. Emotional regulation markers, which included reappraisal language (e.g., “maybe,” “I see your point,” “perhaps”), and cognitive hedging strategies, were much more common in responses that occurred later in the ranges. Overall emotionally regulated commentary had greater use of modals, they were longer in length, and they had fewer exclamations. This indicates a measureable and observable behavior pattern, whereby it appears individuals who delay their responses often take greater care to craft more emotionally balanced or moderated replies. They are also demonstrating higher levels of cognitive control compared to immediate repliers.

4.2 Correlation Between Response Time and Emotional Regulation

Statistical analysis showed a moderate negative association between the immediacy of response and emotional regulation (Pearson's $r = -0.42$, $p < 0.01$). Users who displayed a provocative comment were much more likely to use high-arousal emotional expressions, like anger or sarcasm, often communicating their emotions in ALL CAPS, with a lot of exclamation points, and using emotionally charged words, when they replied to those comments and did so within 10 seconds. In contrast, responses that took longer to arrive—over two minutes—tended to weave in more thoughtful management of feelings and thoughts. The words and phrases used showed signs of weighing evidence, reconsidering, and lowering the emotional heat. When we fit these patterns into a simple predictive model, we found that for every minute longer a reply took, there was roughly an 8% bump in the chances that the person would end up reporting a calm or peacemaking emotional tone. We made sure to rule out the influence of how long the original comment was or what subject it touched on.

4.3 Platform-Specific Behavioral Differences

A comparison of across environments pointed to substantial differences in how emotion can be expressed and regulated. As one example, Twitter produced more replies that were emotionally dysregulated and impulsive and tended to appear in threads that were political in nature, especially threads that prominently featured polarizing hashtags. Reddit had a more inconsistent and diverse pattern; for instance, subreddits like r/ChangeMyView and r/PoliticalDiscussion had more emotionally regulated replies; importantly, these threads were longer in length than the threads on Twitter and contained only moments of emotion. Overall, the comments on Facebook resembled a hybrid between Twitter and Reddit: whilst providing emotional regulation could vary widely, whether it was a private/closed group or chained from a comment on the original post had a significant effect on the regulation of emotion and nature of replies across all content. Largely, Reddit threads produced the highest proportion of long-latency, regulated replies (42.3%) as compared to Facebook (31.7%) and Twitter (18.9%).

Table 1: Platform-Wise Comparison of Emotional Regulation and Response Time in Political Discourse

Platform	Avg. Response Time (sec)	% Regulated Responses	Dominant Emotion	% Impulsive Replies
Twitter	48.3	21.4%	Anger	62.5%
Reddit	114.7	42.3%	Calm/Neutral	29.1%
Facebook	89.5	31.7%	Mixed	41.3%

The three dominant online platforms in terms of political discourse are Twitter, Reddit, and Facebook, and Table 1 shows the relevant behavioral metrics across those three platforms. This table shows the average response time in seconds, the percentage of regulated responses (based on linguistic signals), the emotional tone that was most predominant in the discussions, and the percentage of impulsive replies (based on identifying responses that had emotional/affective content and short response latencies). Overall, findings illustrate platform-level differences in the pacing of discourse and the capacity for emotional regulation, with Reddit sharing the longest average response time and highest percentages of regulated responses; while Twitter shares the highest evidence of impulsive and affective replies.

Overall, the findings support the hypothesis that response timing is a useful behavioral indicator of emotional regulation, and that platform design and community norms clearly play a role in the regulated expression of emotion in conversations about politics.

V. INTERPRETIVE INSIGHTS AND PRACTICAL IMPLICATIONS FOR DIGITAL POLITICAL COMMUNICATION

5.1 Implications for Understanding Online Political Discourse

This study showcases response time as an important, yet often ignored, indicator of emotional regulation when operating in digital political contexts. Broadly, users who are regulated emotionally delay their response compared to users who are less regulated, suggesting that time serves as more than a logistical component of discourse, it serves as a psychological barrier to allow reflection and self-control. This inference yields evidence to support dual-process theories of cognition, whereby System 2 (deliberative reasoning) emerges more distinctly when responses are temporally spaced. Additionally, the study displays how temporal information combined with sentiment and linguistic analyses can build upon current models of online political behaviours, capturing the dynamic emotional trajectories of the respondents individually, rather than static text analyses[5]. It represents political discourse as a process of not just the exchange of coded content, but rather, an exchange that has a pacing element associated with cognitive and regulation variation.

5.2 Limitations and Areas for Future Research

This analysis opens an important window onto emotional timing in online politics but is guided by some critical parameters. The focus on timestamped written posts naturally sets aside richer modalities like video feedback or vocal tone, both of which convey emotional nuance that text alone can obscure. Further, differences in culture and language may subtly shape what counts as a prompt, a cooling interval, or an impassioned reply, so the observed rhythms might differ in populations that were not equally represented. The framework that distinguishes “regulated” from “dysregulated” expression rests on surface-level indicators and therefore risks oversimplifying the underlying psychological dynamics. Future investigations might therefore strengthen the findings by combining text analysis with biometric signals, survey data, and controlled digital-re-creation laboratories, which together would situate online exchanges in a fuller behavioral context. It would also be productive to vary algorithmic parameters—such as who can see a comment or who hears a notification—during experiments, thereby assessing how these platform-level choices shape the emotional tempo and, by extension, the overall quality of public conversation.

5.3 Practical Applications for Digital Platform Design and Moderation

The study’s findings offer several actionable pathways for improving online discourse. Platform designers and content moderators might treat response time as a quiet but telling indicator of brewing conflict. One approach could be to introduce gentle design nudges: a “wait-a-minute” timer before a comment posts, or a gentle prompt asking the user to summarize their feelings before they counter a heated claim. Such steps might encourage a moment of reflection that reduces impulsive, aggressive replies. Moderation systems, too, could be refined to factor in timing; by assessing whether a reply arrives too fast after a provocative post, algorithms could flag cargo that textual toxicity alone might miss. For educators, policymakers, and anyone focused on elevating political conversation, the results highlight the continuing importance of structuring platforms in ways that reward thoughtful dialogue over snap reactions.

VI. CONCLUSION

This research provides a different insight into the dynamics of online political discourse by combining emotional regulation theory with response time. The major findings show that response time can be a meaningful behavioural indicator of emotional regulation, such that users who took their time responding were more likely to engage in non-emotional and productive conversation; whereas impulsive responses were indicative of high emotional arousal. Additional analyses that included all three platforms (Facebook, Twitter, Reddit) revealed that specific digital architecture and community behaviour norms can facilitate and inhibit users' regulatory behaviours; specifically, Reddit's structured forum provided for slower and relatively more reflective engagement compared

to the speedy platform of Twitter. In summary, emotional regulation along with response time may provide a deeper and temporally mindful understanding of how political conversations in the online public sphere unfold. The implications of this work advance theoretical models in political psychology and online emerging practices of engagement without first considering the harm of human behaviour but also provide normative structure for intervention into platform design, content moderation, and digital literacy practice. Given the increasing sociopolitical repercussions of online political exchanges, it is crucial to explore interventions that allow users to emotionally self-regulate to avoid amplifying impulsive and conflictual encounters with political strangers. Similarly to promoting public health and circumspecting individual behaviours, future studies should continue to develop existing interdisciplinary approaches that look at meaning and time alongside behavioural data to improve and promote healthier and more deliberative digital public spheres.

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