

It Is All About Criticism: Understanding the Effect of Social Media Discourse on Legal Crowdfunding Campaigns

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Legal crowdfunding is an emerging domain where lawyers and individuals raise funds to fight legal actions. To study how prospective donors can verify the credibility of legal campaigns, we analyzed the conversations surrounding these campaigns on Facebook. We discovered three primary themes associated with the perceptions of the contributors of legal campaigns: supporters posting admiring and appreciative comments, supporters posting critical and disapproving comments, and opponents posting critical and disapproving comments. We observed that while supporters criticized campaigns' opponents, biased media, and dishonest authorities, opponents criticized campaign owners, campaigns' objectives and opaque logistics. To understand the impact of these perspectives on donors, we followed up with an online survey study where we presented a legal campaign with its corresponding social media conversations. We found that critical comments impacted donation decisions more than appreciative comments. We concluded with design implications to better support potential donors to make more informed donation decisions.

CCS Concepts: • **Human-centered computing** → **Empirical studies in HCI**; **Empirical studies in collaborative and social computing**.

Additional Key Words and Phrases: Legal crowdfunding campaigns, social media discourse, information labeling.

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1 INTRODUCTION

A functioning justice system is the cornerstone of a democratic society. While international standards recognize access to justice as a fundamental human right, proper legal services and assistance are often not affordable to a vast majority of the population, even in the United States [66]. Indigent people and marginalized communities are the most vulnerable to this systemic inequity. They cannot protect their civil rights and vital interests such as housing, employment, health insurance, and parental rights [100]. The digital revolution happening through legal crowdfunding offers a possibility to bridge this gap. Apart from a growing echo system of online legal assistance and availability of information, legal crowdfunding is engaging civil societies to arrange for court fees and potentially making the justice system accessible to those who could not previously afford the cost of legal representations.

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In the domain of crowdfunding, legal crowdfunding emerged as a new form of crowdfunding where ordinary people, charities, and local community groups in need of funding may promote their public and private interest legal cases. Potential donors can visit these online legal crowdfunding campaigns, and they may decide to donate when they find a campaign appealing. The motivation behind legal crowdfunding campaigns is to collect money for paying legal fees, thus, making the justice system accessible to everyone regardless of socioeconomic status. Besides democratizing the legal system, legal campaigns can also allow the crowd to support causes close to their belief system. Such participation is bringing more transparency into an otherwise obscure legal system.

With the availability and popularity of a wide range of legal crowdfunding campaigns, we interviewed the past donors of these campaigns to understand their perspective on campaigns' trustworthiness and reliability (explained in detail in Section 2). The findings from the interview study indicated that from donors' perspective, it is essential to examine the credibility of legal campaigns before deciding to donate. These findings are consistent with previous work that showed that empathy and perceived credibility are key factors for receiving donations for charitable crowdfunding [65]. From the societal point of view, it is imperative to verify the credibility and quality of legal campaigns because, unlike any other crowdfunding campaign, legal campaigns can potentially affect social behavior and promote broader social change in several ways. The legal verdict of these cases may impact society for many years [39] by including the use of sanctions or, more subtly, by channeling behavior through default rules or by holding back social change for a long term [38].

For high-profile legal cases, verifying the credibility is not a problem because mainstream news media covers each minute detail of those cases [93, 101]. However, civil rights and social justice cases often do not attract national media attention [27, 55]. These cases focus their attention on local issues which potential donors, without any knowledge of the context, might find hard to verify by themselves. In addition, campaigns for legal cases, in general, contain technical details about court procedures to justify their need for donations. Potential donors without any previous experience in legal procedures may not fully understand all of this information or may find them overwhelmingly complex to process [13, 25]. Theoretically, donors may spend time and effort understanding these case details through self-learning, but they may rarely spend that much time or effort before deciding to donate.

In this paper, we explored how donors of legal crowdfunding campaigns may access additional supporting information beyond what they might see on the campaigns' page to better examine the campaigns before making an informed decision to donate. To this end, we focused on social media platforms. Social media can be one of the most prominent resources for gathering additional information for legal campaigns because although local cases do not receive mainstream press coverage, the followers (supporters and opponents) of these cases still closely monitor the status of these cases. They frequently discuss the strengths and weaknesses of these cases on social media. Unlike crowdfunding platforms that only allow backers to post comments, social media do not impose restrictions on non-backers and allow everyone to express their opinions on these campaigns. Opponents or critics critically analyze these campaigns and ask for explanations when they observe any shortcomings or negligence of the campaign owners through social media platforms. Distant individuals, not directly connected to these cases but somehow passionate about the cause and with some prior knowledge on the topic, also contribute to social media conversations. Researchers have shown that conversations on social media have major impact on social movements [53, 92] and civic engagements [49]. Simple interactions on social media such as posts, comments, and reactions can build a sense of trust and credibility among online communities [98], and perceived sense of trust is critical for seeking donations for charitable initiatives [65]. However, few empirical studies have examined the intricacies of Facebook conversations related to crowdfunding and, more

specifically, how they relate to legal campaigns' perceived quality and credibility. Suppose we can harness the primary objective of the followers of legal campaigns from social media conversations and present them to donors in parallel to regular campaign content. In that case, it might allow donors to make more informed donation decisions to legal campaigns.

We aimed to achieve this goal in two stages. First, we used computational methods to analyze how public social media conversations around legal campaigns are being conceptualized. To this end, we conducted multiple rounds of qualitative coding. We discovered three main themes associated with the attitude of the contributors on legal campaigns: 1) Supporters-Complimenting (i.e., campaign supporters posting appreciative and admiring comments to campaign owners), 2) Supporters-Criticizing (i.e., supporters posting critical and disapproving comments to criticize opponents of the campaigns), and 3) Opponents-Criticizing (i.e., opponents posting critical and disapproving comments to campaigns' primary objectives). Analyzing psycholinguistic cues and thematic structures of these three themes allowed us to observe significant differences in the points of views of the supporters and opponents of the campaigns. For instance, we observed frequent use of offensive and swearing words by the Supporters-Criticizing group. In contrast, the Opponents-Criticizing group delivered a more coherent and thoughtful narrative to present their arguments.

These findings led us to the second stage of this paper, where we aimed to understand how these themes (identified from existing social media discourse) might influence the opinions of prospective donors of legal campaigns. One way to present diverse themes is to label them based on various perspectives of the contributor of these discourses. Researchers have recognized that enhancing exposure to diverse opinions, specifically labeled presentation of social-media discourse, helps people gain a better insight into their topic of interest [61, 63, 64, 81–83, 86]. In legal crowdfunding, we noticed a design opportunity by highlighting the difference in the opinions of the supporters and opponents of the campaigns to prospective donors. To this end, we conducted an online survey study by recruiting 458 workers from Amazon Mechanical Turk. We learned that critical and opposing posts had more impact on participants than complimentary comments. We have elaborated on the effects of such cross-platform interpersonal discourse on perceived credibility, quality, and people's intention to donate to legal campaigns. We conclude the paper with design implications that may allow potential donors to make a more informed decision while donating to legal crowdfunding campaigns.

2 A DONOR'S PERSPECTIVE

Verifying the credibility of campaigns is critical for crowdfunding donors. For a particular type of crowdfunding campaign, donors typically rely on specific signals. For instance, previous studies have found that for enterprise crowdfunding, donors investigate the campaign owners' expertise in making their products [29], the delivery date of the product [57], and the professional look of the campaign to evaluate the credibility of the campaign [75], and to estimate the probability of receiving the product on time. For medical crowdfunding campaigns, where donors do not receive any product in return, donors rely on collective endorsements where the perceived credibility of a campaign is evaluated through personal messages, redundancy across various sources, and, most importantly, online community discussions [59].

Since legal crowdfunding campaigns are relatively new in the crowdfunding domain, it is critical to understand whether potential donors feel the need to verify the credibility of these campaigns and if so, how they attempt to do that. To this end, we intended to interview individuals who have previously donated or wanted to donate to legal crowdfunding campaigns.

2.1 Participants

Legal crowdfunding platforms such as CrowdJustice.com shows the three most recent donors and their donation amount for each campaign. However, there is no direct way to contact individual donors unless someone is not the host of a campaign. The platform only publishes donors' first names (if the donation is not made anonymously) to protect their privacy. Since we could not contact any donors from the campaigns' webpage, we attempted to contact them through Facebook.

We identified the most recent 50 campaigns hosted by Crowdjustice.com and searched on Facebook if we could find any post related to those campaigns. We found at least one post for 39 out of 50 campaigns on Facebook. In the comment section of those posts, we left a brief message to all donors if they would like to talk to a research team about their motivation to donate to legal crowdfunding campaigns. Seventeen individuals responded to our message. Out of 17, five individuals agreed to meet us over online video calls, seven of them agreed to talk to us over the phone, and the remaining five people decided to chat with us on Facebook. All participants donated to at least one legal crowdfunding campaign in the past. We first asked them about their experience viewing and donating to legal crowdfunding campaigns. Next, we asked participants the following questions: 1) whether they ever felt the need to verify the credibility of a legal crowdfunding campaign before deciding to donate, and 2) if yes, we asked them about the signals that they considered to verify the campaign's credibility and different resources that they consulted to access those signals. On average, the phone and video calls were 23 minutes long. Facebook chats continued for 18 minutes on average to complete. Here, we summarized our findings from the interviews.

2.2 Takeaways

All participants mentioned that they had felt the need to verify the credibility of some legal crowdfunding campaigns before deciding to donate. When participants were closely related to the beneficiaries of the campaigns (such as family members or someone from their neighborhood or workplace), they often did not bother to verify the campaigns' credibility. However, when they did not know the campaigns' beneficiaries, they always took the initiative to verify the credibility from both internal and external resources.

For verifying the credibility of the legal crowdfunding campaigns, participants considered various internal signal from the crowdfunding platform. Such signals include but not limited to the following: 1) a number of people who have already donated to the campaign, 2) the amount of details included in the description of the campaign, 3) regular updates provided by the campaign creators, and 4) the amount of money sought by the campaign owners. Participants considered a campaign highly credible when at least a few hundred people have already donated to the campaign. Similarly, they compared the amount of money asked by the creators and the cause described in the campaign. When the requested amount was too high compared to the reason, the participants found the campaign less credible. Participants also preferred detailed descriptions of the incident and regular updates about the legal case, indicating that the campaign creators were passionate about the campaign.

Other than internal resources, participants also consulted the following external resources for credibility checking: 1) local newspapers, 2) online articles, and 3) social media platforms such as Facebook and Reddit. Participants mentioned that any form of news reports (both printed newspapers and online articles) on the same incident (mentioned in the legal campaign) gave them high confidence about the credibility of a legal campaign. This is because news articles were reported by journalists who, they believed, have professional responsibilities to stay unbiased while reporting an incident. However, most participants (14 out of 17) mentioned that news media do not

cover the majority of these incidents unless an incident affects a large population. They observed that it is more likely to find discussions on these campaigns on social media platforms. All but one of our participants have consulted social media conversations on legal crowdfunding campaigns in the past to evaluate the quality of the campaigns. Some participants found it more valuable than news articles as news articles cannot typically cover many minute details about a campaign. On the contrary, social media provided a series of conversations on legal campaigns, which revealed many hidden signals for potential donors. For instance, P14 observed how sincerely campaign owners responded to various questions asked by potential donors and followers of the campaigns in social media conversations. He believed that the owners of credible campaigns typically respect their campaign's followers and thus, reply to their queries with care and promptness. Moreover, some participants relied on social media conversations more because social media provided them with a public opinion (not an individual opinion) about a campaign that they could not access from a news article.

We concluded our interviews by asking participants to reflect if they faced any challenges in accessing social media conversations on legal crowdfunding campaigns. Fourteen participants mentioned the additional time it takes to look for such conversations outside the crowdfunding platform. Some participants specifically talked about the challenge of identifying the relevant posts from a bunch of similar posts on social media. As P3 mentioned, "Finding the posts related to a specific campaign is not an easy task. Typically, if I try to find relevant posts using the campaign's title, the search engine retrieves at least 30/40 posts on similar topics. In reality, maybe only 10 of those posts are about the campaign I am interested in. Then, it is up to me to find those ten posts by searching them and discarding the irrelevant ones. Not ideal for someone like me who would like to do a quick credibility check and decide to donate."

In summary, our interview study showed the necessity of verifying the credibility of legal crowdfunding campaigns and identified several sources that our participants explored to assess the credibility of the campaigns. The study also provided us with the first-person accounts of campaign donors about the potentials and challenges of using social media conversations to evaluate the credibility of legal crowdfunding campaigns.

3 RELATED WORK

3.1 Impact of Social Media on Crowdfunding

Previous work found that promotional activities through social media play a critical role in the success of crowdfunding campaigns [67]. Social media ties and activities also correlate with the success of the campaigns [5, 16, 83], for example, Kim et al. [59] have shown how Reddit communities work as community watchdogs for medical crowdfunding campaigns. Campaigners use social media to reach out to not only their friends and family but also a large number of social ties with minimal effort. The number of friends in the social network is found to be positively correlated with the success of the campaigns [74]. Even latent ties in social media positively contribute to reaching campaigns' funding goal [48]. During the lifetime of crowdfunding campaigns, promotional activities and updates at regular intervals in social media keep potential donors positively interested in the campaigns, which helps campaigners to raise desired funding [48, 67]. Other than donating to the campaigns, people in campaign creators' social networks also show their support by giving it a public or social seal of approval. One such example is "Facebook Likes". The social seal of approval can notably impact campaigns' outcomes such as the delivery of funding ratio, the fundraising total, and the number of backers of campaigns [73].

Social networks allow campaigners to reach geographically distant people. The impact of social media varies based on the type of campaign [48]. For example, a viral Twitter feed is more influential

for campaigns that intend to produce private goods since Twitter is more likely to be used for objective information gathering and is, therefore, a better source for information about product or service quality. In contrast, sharing activities on Facebook are more influential for public-good campaigns because Facebook's social ties provide the conditions necessary to manifest social norms. Existing work extensively analyzed the impact of quantitative features extracted from social media ties and promotions on the campaign's success. However, researchers rarely took a qualitative approach to analyze social media content in the context of crowdfunding. Hui et al. [52] qualitatively analyzed the interview responses of the campaigners to understand the challenges that campaigners face in understanding and leveraging social networks and later proposed support tools to address those challenges. In our work, we extend this line of work by investigating social media posts on legal campaigns from the campaign followers' points of view. We observed what people discuss on social media on legal campaigns and identified the themes of those conversations. Our goal is to explore how exposure to social media discourse on legal campaigns accompanied by the corresponding themes may impact prospective donors.

3.2 Factors Impacting People's Decision to Donate to Crowdfunding Campaigns

Research on crowdfunding has primarily focused on identifying the factors that impact the success of the campaigns. Prior work found that static factors such as campaign categories, number of rewards levels, amount of funding goal, and campaign duration [44, 74, 79] and also dynamic factors such as money pledged across time [33] can predict the success of the campaigns. Subsequent studies showed that campaigns' textual content such as types of updates [110] and the use of specific phrases in the campaign's description [71] could positively contribute to raising funding from the crowd. Another important factor that can help campaigners create a close bond with potential backers is the campaign video [28, 74]. Prior studies showed that videos helped entrepreneurs showcase professionalism [57], experience [29], and past success [104], which are crucial to success in crowdfunding.

Unlike rewards-based crowdfunding campaigns, donors to philanthropic campaigns do not receive any reward in return for their contribution. Thus, factors impacting the success of such campaigns differ from reward-based campaigns. Prior work showed that timely recognition of donors' contributions increases the likelihood of a donor's second contribution [8]. Other notable factors that impact the success of the campaigns are the cultural similarity, geographical proximity [20], and social proximity (gender, occupation, and first-name initial) [40] of the lenders to the borrowers. For philanthropic campaigns, gaining the trust of prospective donors is often critical. As Kim et al. [59] showed for medical crowdfunding, collective endorsement plays a vital role in motivating people to donate to campaigns. Perceived credibility is also critical. For instance, Carvajal et al. [21] analyzed the impact of crowdfunding on non-profit journalism. They found that by building a trusted relationship, public interest investigative journalism can enjoy the benefit of transparency, user involvement, and control over where their money will be spent. In our work, we looked into the topics discussed in social media that might impact the perceived credibility of legal crowdfunding campaigns, a form of philanthropic crowdfunding. We analyzed social media posts explicitly addressing legal crowdfunding campaigns to investigate this.

3.3 Perceived Credibility

Perceived credibility is an important factor for a wide range of platforms and organizations, especially for those who maintain direct interaction with their audience. For instance, conventional charitable agencies such as Red Cross, World Food Program, UNHCR, Compassion [3], and ChildFund apply various strategies to signal credibility to their potential donor. Compassion and World

Food Program send personal correspondence directly to the donor from the beneficiary. Child-Fund [54] and UNHCR [14] utilize celebrity endorsements to signal credibility of their organization. Moreover, watchdog agencies and third-party evaluators such as the Better Business Wise Giving Alliance [1] and Charity Navigator [2] monitor charities' adherence to ethical standards. Donors trust these agencies as non-profit organizations that do not charge charities for their ratings to ensure that their ratings remain objective. Instead, they depend on charitable donations to fund their programs.

In this age of the internet and connectivity, perceived credibility is not only a topic of discussion for organizations but also a highly relevant topic for a wide range of online platforms. Some notable platforms are social media platforms such as Twitter and Facebook, informational websites such as Wikipedia, marketing websites such as Amazon, and online crowdfunding platforms such as Kickstarter and GoFundMe. Metzger categorized perceived credibility for online platforms into two levels: "the level of the Web site as a whole" [35, 36] and "the level of the messages residing on Web sites" [69]. However, Fogg et al. focused only on the level of the website and found that most people evaluated the site's credibility via design-related factors [36]. Prior work examining perceived credibility of tweets, identified unique credibility factors based on the site's purpose. For example, Morris et al. [77] found that rather than relying on the credibility of tweets, users paid more attention to the author's username. Wikipedia is another example where users focused on platform-specific factors to evaluate credibility. Wikipedia users rely on the article's author-editing history [91] and hidden article information [60]. Perceived credibility is also a critical factor for the success of online shopping websites such as Amazon.com. Chen et al. [26] found that on Amazon.com, micro-level dynamics of community interactions were more valuable in signaling product quality than aggregate-level scores, which often lack transparency.

With the popularity and diverse applications of crowdfunding platforms, the community around these platforms has started focusing more on the credibility and trustworthiness of crowdfunding campaigns. In a recent study, Huang et al [50] discovered that depending upon the level of certainty of the crowdfunding platforms, signals of entrepreneurs' credibility to be successful and project quality can compensate each other, producing crowdfunding success in different signaling environments. Kim et al. [59] investigated factors that impact the perceived credibility of medical crowdfunding platforms, a crowdfunding community built to help people who need assistance for medical procedures. They discovered at least three communicative and emotional credibility factors unique to medical crowdfunding. Our work was inspired by this work line but focused on a comparatively newer form of crowdfunding, crowdfunding for legal cases. The credibility of legal cases or lawsuits depends on many complex socio-economical factors [58]. Judging donation appeals of such lawsuits only based on the description provided in crowdfunding campaigns often becomes a challenging task. In this paper, we investigated social media comments on these campaigns to better understand how such external information can influence donors' perceived credibility for legal crowdfunding campaigns.

3.4 Effect of Information Labeling

In marketing, the concept of labeling products is not new. Consumer researchers studied the effect of quality labels of food products on consumers' purchase intention [56]. Quality labels of food products positively impact consumers' purchase intent, and the effect is even more substantial for high-risk foods. However, the credibility of food quality labels is not always clearly understood by consumers [107]. Thus, these labels can be abused as simple advertising tricks [37]. Labeling can be not only used to signal positives but also can contain warnings, such as on cigarette packets. Researchers found that when warning labels highlighted specific risk factors [11] using

large, pictorial, and loss-framed warning labels [10], those labels were more effective in creating awareness about the health risks due to smoking.

Labeling is used in various other domains beyond packaging. For example, in television, content labeling was a topic of debate in the 90s when authorities tried to decide whether to label television content for children's appropriateness or not [94]. In the political domain, especially for online political news or political content circulated through social media, researchers focused on the effectiveness of labels in a different context. For instance, Kriplean et al. [61] developed a public forum called ConsiderIt where contentious social topic discussions, including political topics, are labeled as "Pro" or "Con" to encourage civil dialogue. Search engine rankings on political content can have a powerful effect on undecided voters [31], but the impact of biased search engine ranking on voters' voting preferences can be moderated by adding labels [32].

In this work, we labeled social media comments by their themes to demonstrate to the user-study participants how supporters and opponents of legal campaigns had different points of view. Labeling can be an effective way to show the diversity of social media comments on legal campaigns. It can highlight how both supporters and opponents of legal campaigns use social media for active conversation and critical discussion. Without labeling, potential backers may not notice this diversity just by skimming through social media comments of a specific campaign or if they just read the first few comments of a post. We aim to understand how exposure to these systematically labeled discourse content impacts people's perception of legal campaigns. We hypothesized that labeled social media comments would have a more profound impact on participants, and thus, this presentation might influence their intention to donate to these campaigns.

Our motivation and the related literature above led us to the following research questions:

RQ1: Based on social media discourses, are there identifiable themes in comments made by followers of legal campaigns? If so, what linguistic attributes and thematic patterns characterize different themes around the social media discourse on legal campaigns?

RQ2: Does exposure to these comments impact donors' impression of the overall quality of legal crowdfunding campaigns? How will donors' impressions get impacted if these comments are labeled with the themes of the original comments?

To answer our research questions, we took a mixed-method approach. For RQ1 (discussed in section 4), we performed qualitative coding to identify the primary themes of conversations on legal campaigns on Facebook. Later, we applied numerical analysis such as psycholinguistic analysis and topic modeling to understand these conversation themes' characteristics better. For RQ2 (discussed in section 5), we used the identified themes to design an empirical user study. This survey-based user study allowed us to examine how labeled themes of social media conversations on legal crowdfunding campaigns might impact donors' intention to donate to these campaigns.

4 STAGE 1: IDENTIFYING UNIQUE THEMES AND CHARACTERISTICS OF SOCIAL MEDIA CONVERSATIONS ON LEGAL CROWDFUNDING CAMPAIGNS

4.1 Method

To address RQ1, our approach consisted of three phases: 1) collecting social media discourses on legal crowdfunding campaigns, 2) annotating these discourses to identify the unique themes from the followers of these campaigns, 3) performing psycholinguistic and thematic analysis of annotated discourses to understand the inherent characteristics of the social media discourse on legal campaigns. This section details each phase respectively.

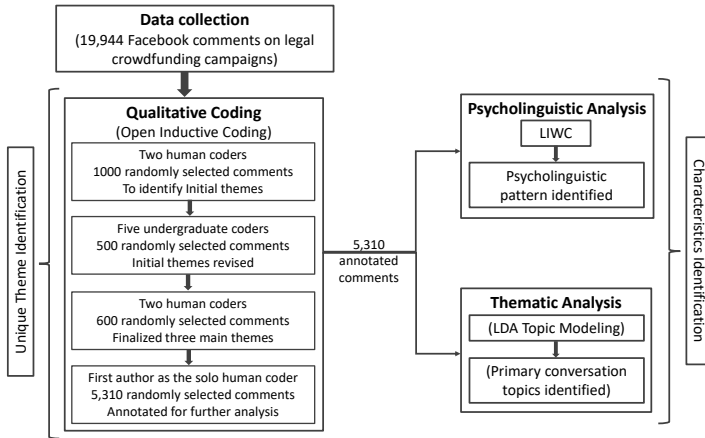


Fig. 1. A flow diagram showing the steps we followed in processing the dataset. We started by qualitatively coding the social media comments on legal crowdfunding campaigns to identify the primary themes of conversation in the community. Later, we applied psycholinguistic analysis (LIWC) and thematic analysis (LDA) to the annotated comments to identify the characteristics of the conversation themes.

4.2 Collecting Social Media Discourse regarding Legal Crowdfunding Campaigns

The first step in this phase was selecting a crowdfunding website to analyze legal campaigns. There are several crowdfunding websites for funding legal battles. Popular websites are CrowdJustice, FundedJustice, Chuffed, GoGetFunding, and GoFundMe. We decided to analyze campaigns from CrowdJustice for two reasons: 1) CrowdJustice was the only site that hosted campaigns exclusively for legal battles and 2) In the last few years, CrowdJustice was featured in several major news media as the most promising site for funding legal cases [68, 80, 95, 106]. Please refer to Appendix D for a brief overview of the platform.

To collect social media discourses on legal crowdfunding campaigns, we collected URLs of all campaigns available on CrowdJustice from the beginning of the platform until July 2019. CrowdJustice hosts campaigns in 29 sub-categories. Some of the popular sub-categories are human rights, environment, judicial review, public interest, and immigration. In total, we collected 860 campaigns from this platform. For each campaign, we manually searched any Facebook posts containing the campaign’s title using Facebook’s search tool. In order to avoid personalized bias during the search operation, we created a new Facebook profile with minimum information and only used that specific profile for searching campaign titles. The profile was not used for any other activities. Some Facebook posts contained the full title of the legal campaigns, whereas other posts contained a link to the crowdfunding campaign. Some of these posts also used the same cover pictures that were used in the legal campaigns. We manually checked all the posts returned by the search engine and only considered those directly related to our corresponding campaign. To ensure that the posts found through our manual search process were related to the desired campaign, we also took screenshots of all the posts we included in our dataset. Two undergraduate students checked all screenshots to ensure that they were related to the target legal crowdfunding campaign. A high inter-rater reliability score (Cohen’s Kappa score of 0.91) suggested substantial agreement and offered credence to our data collection process.

We found that 621 campaigns (72%) were mentioned on Facebook in at least one post. Among them, for 63 campaigns, there was only one post for each campaign. All these posts received no public comments in response. We discarded those posts since they did not add any new information in understanding the interaction between campaign creators, their opponents, and supporters. Finally, we chose Facebook posts of 558 campaigns for further analysis. We manually copied all the comments from those posts. Since we aimed to analyze the followers' perspectives of legal crowdfunding campaigns, we did not include the original Facebook posts in this analysis. Instead, we only considered comments posted in those Facebook posts. Future work may emphasize the effect of social media posts on legal campaigns. In total, 558 campaigns were linked to 2,810 Facebook posts. On average, we found 5.03 (SD = 4.74) posts per campaign. From these posts, we collected 19,944 comments posted by 6608 unique Facebook users (mean 3.02 (SD = 4.85) comments per user). On average, we collected 35.74 (SD = 7.32) comments per campaign from Facebook. The campaign with the maximum number of comments had 273 comments whereas the campaign with the minimum number of comments had 17 comments. Each comment contained 36 (SD = 14.81) words on average, including articles and prepositions. In order to comply with Facebook's data collection policy, we collected only publicly available comments and did not use any automatic script for data collection. The first author of the paper manually copied all comments. It took 14 days (4 hours a day) for one person to copy all data for further investigation manually. The process was pre-approved by the IRB office of the affiliated institution.

4.3 Annotating Social Media Discourses to Identify the Themes from the Comments of the Followers of Legal Campaigns

To address our first research question (RQ1), we sought to identify any identifiable themes manifested in Facebook discourses on legal campaigns. Since the comments in our dataset did not have any ground truth labels, we performed qualitative coding. Two human coders (one of them was the first author of this paper) familiar with legal crowdfunding examined a random sample of 1000 Facebook comments from our dataset for which they adhered to an open inductive coding approach [42]. We organized three brainstorming sessions where both coders discussed their preliminary thoughts with experts in communication studies, social science, and researchers who have experience conducting ethnographic studies. We followed an iterative process, and after multiple iterations, we identified 16 initial themes.

Next, to avoid any bias imposed by the first author of this paper and to make this annotation process more applicable in general, we invited five undergraduate students, all with backgrounds in communication studies, social science, and behavioral psychology, to examine another random sample of 500 comments. This new set did not contain any comments from the previous set. To provide background on the annotation process, we conducted an hour-long information session that involved discussing themes identified earlier along with specific example comments. All coders independently coded the new set of 500 comments following this discussion. They could either apply any theme from the existing pool of 16 themes (if applicable) or create a new theme for each comment based on their judgment. Finally, we discussed their coding experiences and received feedback about potentially ambiguous, misrepresented themes, and possible new themes.

We modified, removed, and added a few themes based on the discussion with undergrad coders. Next, to assess the effect of the changes, the first author and a social science expert coded another random sample of 600 comments (did not include comments from any previous set). The disagreements in annotations were resolved through discussion until consensus was reached. After two rounds of discussions and coding, we achieved a substantial agreement based on Cohen's kappa test ($K = 0.88$). Combined efforts in the three stages resulted in three main themes: 1) *Supporters-Complimenting* (appreciative or admiring comments made by the supporters of the campaigns), 2)

Table 1. Main themes and sub-categories identified from the social media comments posted by the followers of legal crowdfunding campaigns. We performed qualitative coding to extract these themes from Facebook comments posted by the followers of these campaigns. We identified three broad themes where each themes contained three fine-grained sub-categories. We provided a short description for them along with an example comment.

Main Themes	Fine-grained Sub-Categories	Issues discussed
		Example Social Media Comments
Supporters Complimenting (N = 26%)	Complimenting campaign owners'	Encouraged owners for fighting the litigation, arranging promotional events, and updating supporters on court hearings; Acknowledged their financial inability to donate;
		"[...] Thank you so much for all your time and energy in this. I only wish that I was in a position to contribute financially. You've done a great service to our community."
	Arranging Promotions events	Used social media for arranging promotional rallies and flash mobs; Used the media to inform supporters about any last minute update on promotional events
		"We are tweeting the hell out of this! If anyone else is on Twitter please help! We need to go nationwide on news this morning as people with money/celebs see it then and generally want to help."
	Using Facebook for additional communication	Used social media to query about issues that were not clarified in campaign description such as how to donate in cash; Owners posted warnings about false groups and online adversaries; Supporters posted suggestions on appealing for a retrial.
		"I have removed/ deleted the fake group from my fb and am urging everyone else to do the same , thank you Janet for clarifying this to all of us"
Supporters Criticizing (N = 33%)	Criticizing campaign's opponents	Utilized social media to criticize the group who queried about the expense reports of the campaign's donation, who supported respective authorities (since the legal action was taken against the decisions taken by the authority); Used the media for personal attacking and accusing the group who did not support the campaign unquestionably
		"You know nothing about this route. You are just an outsider. An outsider who has no right to raise question against our campaign. In fact, we do not care what you have said. Only real sufferers will sympathize with our cause."
	Criticizing Authorities	Employed social media to discuss the overarching trend of dishonesty and insensitivity of authorities; Accused government policies taken without addressing the sufferings of the minorities and low-income communities (such as gentrification); Discussed the long-term effect of winning the litigation on the community or other neighboring community experiencing similar situation
		"[...] It never ceases to amaze me that people working for the public services - public servants! - whose wages are paid by the taxpayers proceed to deliberately ignore what the public needs and adopt such a high and mighty attitude! Who the hell do they think they are working for? Certainly not for the benefit of their paymasters - US!!!"
	Criticizing news media	Criticized news media for not reporting about the litigation or for reporting inaccurate information; Blamed news media for reporting in favor of the authority/other party of the legal action;
		"They have reported it all wrong. The city council never reached us to find a mutual solution. I know the producer of the show. He has always been on their side. Perhaps, he gets money from those mean politicians."
Opponents Criticizing (N = 38%)	Opposing the idea of the campaign	Claimed that winning litigation against the authority would be an impossible goal to achieve; Explained how the legal action would be harmful for the community's welfare; Reported discrepancies between the information presented in campaign's website and information reported by news media
		"[...] When have the self serving bureaucrats ever listened to the voice of the people it represents? You'd be better off forgetting about winning any legal action. No matter what, you are gonna lose the battle anyway."
	Criticizing campaign owners	Criticized campaigns' owners for making donation appeal despite of their affluent economic condition; Showed skepticism about the justification of the legal action because of the campaign owners' past behavior against authority.
		"Well, last year, Richard spent \$60 million to buy a new office as well as giving \$10 million to a basketball club. And now he wants money to fight this case! This is ridiculous. Trust me, he has enough [money] to fight this battle on his own. Don't waste your money. This is no place for crocodile tears."
	Criticizing the campaigns logistics	Blamed campaign owners for irresponsibly spending campaign's donation money for promotional ads or events; Criticized owners for hiding or not updating about important facts from the audience of the crowdfunding campaign; Criticized owners for overestimating the money required to fight a certain type of legal action
		"I think it is time for the owners to say the truth to their supporters. They lost this appeal. Supporters need to know that. They can't hide it from the supporters. At the very least, the owners owe a timely update to their supporters."

Supporters-Criticizing (critical or disapproving comments made by the supporters of the campaigns), and 3) *Opponents-Criticizing* (critical or disapproving comments made by the opponents of the campaigns). Each of these themes contained three fine-grained sub-categories, which are explained in Table 1 in the next subsection. Each central theme represented the unique perspective of a specific group of followers.

Using this coding scheme (three main themes), we annotated a new set of 5,538 Facebook comments (this set did not include any previously annotated comments), approximately 28% of the dataset. With 558 total legal crowdfunding campaigns, we randomly sampled ten comments from every campaign. While most of the campaigns had more than ten comments in the dataset, some had fewer (14 campaigns). The first author of this paper did all annotations over a period of 25 days using NVivo [4] — a qualitative data analysis tool for manual annotation. We discarded a little more than four percent comments from the analysis (239 comments, 4.31%) since they were only one-word comments and was not often interpretable without considering the context of the preceding comment or the original post (such as “agreed”, “bravo”, and “noted”).

Our human coder identified a user account as a supporter or an opponent based on the perspective of all of their comments. In this final dataset, 63 users (out of 2232 users) were identified as supporters for some comments and opponents for some other comments. Since we could not identify those users either as a supporter or an opponent based on all of their comments, we discarded all comments from those 63 users (197 comments) from our dataset. Moreover, for a few comments (208 comments), we identified two themes in a single comment. We divided those comments into two parts and coded each part based on the appropriate coding scheme. Considering those comments as two separate comments, we annotated 5310 comments ($5538 - 239 - 197 + 208$) in this final stage. We used **only** this final set of 5,310 annotated comments to identify the psycholinguistic characteristics and thematic patterns of the social media conversations of the followers of legal campaigns.

We want to address the ethical concern of publishing research papers by analyzing publicly available social media comments. There has been a growing concern about the privacy of social media users. Many social media users are not aware of how easily their tweets and comments can be used to re-identify them outside of the context of a publication [89]. In this paper, respecting the privacy of the Facebook users (whose comments on legal campaigns are mentioned here for explanation) we followed Bruckman’s [19] recommended moderate level of disguise. We removed all identifiable information from Facebook comments before including them in the paper to maintain the anonymity of the users. In addition, we either included at least two additional words or replaced two words with appropriate synonyms in each quoted comment to avoid re-identifying those Facebook users easily through a simple Facebook search. These changes were done carefully to ensure that the meaning and the tone of those quotes remained the same. An expert in psycholinguistic research also carefully examined all those comments before and after the inclusion of those additional words or the replacement of those words to make sure that the original meaning and point of view conveyed through those comments did not change due to the addition of those words.

4.4 Analyzing Annotated Content to Identify Linguistic Attributes and Thematic Patterns of the Social Media Discourse on Legal Campaigns

To identify linguistic attributes and thematic patterns of the social media discourse on legal campaigns, we performed the following analyses: 1) psycholinguistic analysis using LIWC and 2) thematic analysis using LDA topic modeling technique. Next, we discuss the steps that we followed to apply these two techniques to our dataset.

4.4.1 Psycholinguistic Characterization of Social Media Comments. We intended to see whether we could identify cohesive linguistic characteristics of the supporters and opponents of legal campaigns by analyzing their comments from a psycholinguistic perspective. To this end, we utilized Linguistic Inquiry and Word Count, or LIWC [102]. LIWC is a text analysis program that looks for and counts words in psychology-relevant categories from text content. These word counts may later be used to infer critical psychological cues to understand people's thought processes, emotional states, intentions, and motivations. Based on prior work [97], we decided the following processes from LIWC as the most appropriate to study the linguistic characteristics in this context: 1) affective processes (positive/negative emotions, anxiety, anger, sadness); 2) cognitive processes (causation, discrepancy, inhibition, tentative, insight); 3) linguistic dimensions (pronouns, verbs, swear words); and 4) personal concerns (work, home, money, death, achievement).

4.4.2 Primary Discussion Topics of Social Media Conversations. In addition to LIWC, we used the main topics of social media discourses of legal crowdfunding campaigns for further analysis. For this, we adopted an unsupervised topic modeling technique called Latent Dirichlet Allocation LDA [12]. LDA is a widely used statistical model to discover latent topics in various documents. We treated each comment as a document. The model output was a set of latent topics represented as a set of related words that tend to co-occur in similar comments.

One important step in this process is setting the model's hyperparameters. The model is initialized with Dirichlet prior values $\alpha = 0.01$ and $\beta = 0.1$, where α controls the sparsity of document-topic distribution and β determines the sparsity of topic-word distribution. A low value of α is preferred (less than 1), because it produces a sparse distribution, leading to very few topic assignments per comment. This approach intuitively makes sense because it is almost unlikely to mention many topics in a single Facebook comment. Similarly, lower values of β favor fewer words per topic.

The LDA model also takes the number of topics k as an input parameter. We chose $k = 26$ for this model based on the coherence value. Please refer to Appendix B for more details of the fine-tuning of the hyperparameters and number of topics of the LDA model. Once the topics were identified, two human coders familiar with legal campaigns independently reviewed those 26 topics and the top words in each topic. Following an inductive open coding method, they individually identified the non-overlapping themes from those topics. In the process, they merged two or more topics when they were thematically overlapping. Finally, they resolved disagreements through discussions. We identified nine thematic categories across all three main themes.

4.5 Results

4.5.1 Psycholinguistic Characterization. Table 5 in Appendix A shows the mean percentages calculated from LIWC analysis on all four processes (affective processes, cognitive processes, linguistic dimensions, and personal concerns). Since annotated comments were not equally distributed in all three main themes, we used a non-parametric Kruskal-Wallis test to find out if there are any significant differences among the three observed themes based on the psycholinguistic analysis. The last column of Table 5 reports the H-Statistics of the Kruskal-Wallis test.

We observed that first-person plural pronouns and present tense of verbs appeared more in comments in the Supporters-Complimenting category as compared to any other categories. In this category, supporters have posted comments like, "Thank you very much for all your persistence in achieving what we've been robbed of. Keep the faith. We will win this challenge together." Supporters showed a strong sense of social bonding and loyalty toward the group members by using first-person plural pronouns [99]. Moreover, the present tense of verbs indicates a greater sense of closeness and positivity among the members of the Supporters-Complimenting group [45]. On the contrary, the Supporters-Criticizing group used more third-person plural pronouns, and the

Opponents-Criticizing group used more second and third-person pronouns than the Supporters-Complimenting group. Second and third-person pronouns are commonly used to express negative opinions, anger, and hatred which is consistent with the perspectives of the Supporters-Criticizing and Opponents-Criticizing groups [45]. Supporters-Criticizing group used a significantly larger number of swear words in comments mainly to criticize campaign opponents and the authorities for their dishonesty and negligence, e.g., as expressed in the comment “Never mind traffic; it’s their audacity even contemplating it. However, then again the bastards have always done what they want and given a middle finger to people’s wishes, heritage, and land.”

Next, for the parameters grouped under cognitive processes, comments made by the Supporters-Criticizing group included the highest occurrences of tentative words. One possible explanation can be that members of the Supporters-Criticizing group were unsure of the allegations they made against the opponents and authorities. Hence, we observed a hint of insecurity in their comments. This tendency was more prominent when members of the Supporters-Criticizing group commented on the authority. In contrast, the Opponents-Criticizing group used more inclusion words (with, and, include) and conjunctions (such as and, also, although) compared to any other groups. Exclusion words are used to differentiate between multiple competing solutions, whereas conjunctions help people to integrate multiple thoughts that are important for creating a coherent narrative [43]. This indicates that Opponents-Criticizing used these words to explain why they thought the idea of launching the campaign was bad in the first place. Since they were the opponents, perhaps they considered themselves minorities in the community; hence they felt the pressure to justify their arguments which motivated them to present their arguments coherently.

Among the concerns in the affective process group, naturally, the Supporters-Complimenting group used more positive emotion words than any other groups, whereas more anger words and negative emotion words occurred on the comments of the Supporters-Criticizing group. Finally, we found some significant occurrences among the personal concerns parameters. For instance, the Supporters-Complimenting group naturally used achievement words to congratulate campaign creators for their success in the legal action. Because of the contextual relevance, all three groups used money-related words many times, although the differences were not statistically significant.

4.5.2 Summary of Psycholinguistic Characterization. Psycholinguistic analysis of the annotated comments allowed us to understand the unique characteristics of all three groups of followers of legal crowdfunding campaigns. We found that the Supporters-Complimenting group primarily showed their affinity with campaign creators. They used social media conversations to strengthen their group identity and present their campaign as appealing to a broader audience. On the other hand, the supporters-Criticizing group used social media to attack others who were not in favor of their campaign. The key features that distinguished this group from the other two groups were their use of swear words and the lack of confidence in their allegations. Automatic classifiers can use such linguistic features to identify conversations in this category with high probability. Finally, the coherent-narrative writing style, a potentially helpful property for the automatic classifiers, was the critical feature of the Opponents-Criticizing group. This feature shows how opponent communities, deprived of access to the main platform (due to the lack of access to crowdfunding platforms by non-donors), might use social media platforms to express their point of view to potential donors.

4.5.3 Primary Discussion Topics Identified by LDA. Table 2 shows all nine topics identified by our human coders from the initial list of 26 topics extracted by LDA across all three themes. To understand the relevance of these topics to our three main themes, we reported the top five contributing topic words for each theme. Our results suggest that the major topics revolve around

Table 2. Themes identified by LDA Topic Modeling , their descriptions, and top contributing words

Theme	Description	Top Words
Encouragements	Good wishes posted by supporters	good, luck, congratulations, fingers, crossed
Judicial Procedure	Discussion on legal action	judge, illegal, law, case, evidence
Authorities	Authorities involved in the legal action	government, council, city, agency, board
Offensive words	Offensive and swear words used mostly by Supporters-Criticizing group	fuck, racist, rob, bullying, fake
Financial Challenges	Financial challenges faced by the campaign owners because of legal action	funding, cuts, fees, pressure, payment
Neglected Community	Community required social protection	save, vulnerable, support, care, women
Public services	Public services that are often the primary focus of legal campaigns	school, system, national, park, hospital
News media	New media covering the progress and promotional events of legal campaigns	news, report, message, edited, write
Actions/initiatives	Actions taken by campaign owners, supporters, and opponents	review, reply, hard, work, reaction

socio-cultural challenges (“Financial Challenges”, “Neglected Community”), legal processes (“Judicial Procedure”, “Actions/initiatives”), and social interactions around ongoing high-impact actions and events (“Encouragements”, “Offensive words”).

Some common topics are equally important in the discourses of all three themes; however, they were used from different perspectives by each group. For instance, “Authorities” is a major topic for all three groups. However, the Supporters-Complimenting group used this topic to discuss how concerned authorities had reacted to their legal action. On the other hand, the Supporters-Criticizing group primarily used this topic to highlight dishonesty and irresponsible decisions made by authorities. Finally, the Opponents-Criticizing group mentioned this topic either to support the authority’s activities or to explain why they thought that legal actions taken against the authority would be futile. Another topic that followed the same pattern was “Judicial procedure”. Since the primary objective of the social media discourse was to discuss legal actions presented in the crowdfunding campaigns, finding the “Judicial procedure” topic across all three themes was not surprising.

Not all topics were shared proportionally across all themes. For instance, “Encouragements” was a major topic for the Supporters-Complimenting group, but it was never used by the Supporters-Criticizing or Opponents-Criticizing groups. On the contrary, the “Offensive words” topic occurred frequently in the comments made by the Supporters-Criticizing group. It indicated anger and irritation of the supporters against the opponents, especially when opponents raised concern that the donated money was not spent according to the commitment made in the initial campaign. Here, it is worth mentioning that although opponents also criticized the campaign creators, they did not often use offensive words in their comments. Instead, they kept their comments more informative, perhaps to justify their arguments or make them more palatable to critical supporters or undecided readers.

Overall, these topics highlighted the dominant discussion areas on legal campaigns on social media. This analysis revealed the thematic patterns of the social media discourse of the followers of legal campaigns. While supporters primarily focused on building and maintaining social bonds between the supporters and the campaign creators, opponents took this opportunity to express their skepticism. Assuming that opponents did not want to donate to the campaigns, they could not post comments on the crowdfunding platform (as only backers are allowed to post comments on the platform’s comment section). Instead, they used social media to raise their voices against

campaign creators. Prior work has found evidence that the feeling of anonymity strongly influences people to be more aggressive [76, 112]. However, because of Facebook's real name policy, people who actively participated in the discourses of legal campaigns were not completely anonymous. Due to this accountability and lack of true anonymity, opponents did not simply post offensive messages and hate speeches; rather they made an effort to justify their arguments using publicly available information and newspaper articles. Finally, the Supporters-Criticizing group utilized the medium to express their anger not only toward the opponents but also toward the authority and the news media. One possible explanation could be that they tried to create a stronger bond with the Supporters-Complimentary group and campaign creators through these critical comments. This behavior aligns with the findings of previous work where it was shown that shared negativity is more effective in promoting closeness than shared positivity [17].

4.5.4 Summary of LDA Analysis. LDA topic modeling process revealed context-specific topics such as authorities, judicial procedure, and public services that generic dictionary-based linguistic analysis (LIWC) could not identify. This process also showed how various communities use context-specific terms from different perspectives. Moreover, LDA analysis found additional support for some of our previous findings, such as the use of encouraging words by the Supporters-Complimenting group and the use of swearing words by the Supporters-Criticizing group.

4.6 Summary of Stage 1

Our analysis provided a better insight into the primary themes, linguistic characteristics, and thematic patterns of the social media comments of the supporters and opponents of legal campaigns. It showed how different groups use social media to share their line of thoughts with a broader audience. Qualitative annotation helped us identify three unique points of view of the supporters and opponents of the campaigns. We identified subtle differences in their perspectives and their attitude through manual coding. On the other hand, psycholinguistic analysis assisted us to shed light broadly on the cohesive linguistic styles and features of each user group which we often miss to notice during manual coding. Similarly, LDA topic modeling provided us with a holistic overview of all the themes and topics across all user groups rather than focusing on the minute details. Although outcomes of these three processes are not mutually exclusive, in combination, they complemented each other and provided a complete overview of the opinions and perspective of the stakeholders of legal campaigns, which is hard to achieve from the outcome of just one process.

Before introducing legal campaigns in the crowdfunding domain, legal cases were largely broken down into technical legal documents, and outside courtrooms; they were primarily discussed in news articles after being filed or ruled on. Crowdfunding campaigns allowed public participation in these legal actions before, during, and after they occurred. It enables people who are not directly related to campaigns to closely follow the legal cases and even directly contribute to the success of these campaigns. So, we asked the question: how does social media conversations influence the impression of the broader audience toward legal campaigns? Do they create a more favorable attitude towards the campaign and inspire people to donate, or do people find more reasons to feel unfavorably and decide *not* to donate at all? This is what we were interested to understand as part of RQ2.

5 STAGE 2: STUDYING THE IMPACT OF EXPOSURE OF LABELED SOCIAL MEDIA CONVERSATIONS ON LEGAL CROWDFUNDING CAMPAIGNS

In the second stage, our primary objective was to understand how exposure to social media comments from different themes might impact the overall impression of the prospective donors

regarding these campaigns (RQ2). To this end, we conducted a between-subject survey-based online user study. We divided participants into three groups: 1) the Labeled-Exposure group (participants who read social media comments on legal campaigns labeled by the main themes), 2) the Unlabeled-Exposure group (participants who read social media comments without any label), and 3) the Non-Exposure group (participants who did not read any social media comments). We considered the Non-Exposure group as the control group in our study.

5.1 Measures in the Surveys

We divided the survey measures into three steps (Figure 2): 1) survey measures for quantitative analysis of the quality of the legal campaign, 2) recall the most useful comment, and 3) ranking themes.

In the first step, we included measures for perceived credibility, quality of the campaign, and donation intention. In prior work, the credibility of content was typically measured as a multidimensional construct, and different measures have been evaluated for their validity [41, 70, 109]. We chose the credibility measurement questions based on the Meyer modification of the Gaziano-McGrath scales [41, 70]. This measurement has been used widely in many research studies, including studies on online media credibility [103, 105]. Five factors are considered to measure credibility: accuracy, fairness, trustworthiness, bias, and completeness. Besides, we included two factors to measure the quality of the campaign: whether they were well-organized and had a convincing presentation. Finally, we included one measure to know the intended donation amount decided by the participants for each campaign. Initially, we asked them to imagine that they had \$50 to donate. Later, we asked them to mention an amount less than or equal to \$50 as the intended donation amount. Please refer Appendix C for the list of all the survey questions.

In the second step, we asked participants to recall one social media comment that they found the most useful to evaluate the quality of their assigned legal campaign.

In the third step, we asked participants to rank different themes extracted from social media comments in the following order of their importance: most useful, 2nd most useful, and least useful. In addition, we asked them to answer (using an open-ended format) how comments from each theme seemed useful to them or why prospective donors of legal campaigns might find them useful.

5.2 Study Procedure

In the user study, we randomly assigned each participant to one of the three user groups (1) the Labeled-Exposure group, 2) the Unlabeled-Exposure group, and 3) the Non-Exposure group). We asked participants to read the description of a custom-built legal crowdfunding campaign as if it were real and react to it as if it were real. We carefully prepared four legal campaigns for the user study and randomly picked one campaign from this pool to assign to each participant. The strategy followed to prepare these campaigns are discussed in Appendix E. After showing the campaign's description, we allowed participants to freely explore the campaign's updates, goal amount, and amount of donation collected so far.

Next, we presented a list of pre-selected, labeled (based on the themes of the comments) social media comments on their assigned campaign to participants in the Labeled-Exposure group and asked them to scrutinize those comments (as shown in Figure 3). We also presented those same set of comments to participants of the Unlabeled-Exposure group, but those comments were **not** labeled based on the themes identified in the first stage. Participants were free to spend as much time as needed to examine those comments. Participants of the Non-Exposure group were not exposed to any social media comments.

Afterward, all participants completed a survey. Figure 2 shows the steps of the survey completed by each user group. Participants of the Labeled-Exposure group completed all three steps of the

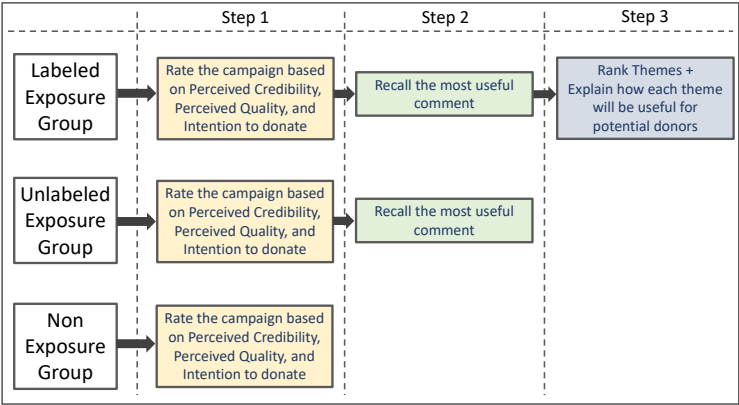


Fig. 2. A flow diagram showing the steps followed by each user group during the user study. The labeled-Exposure group completed all three steps of the survey. The unlabeled-Exposure group completed the first and the second steps of the survey, whereas the Non-Exposure group completed only the first step of the survey.

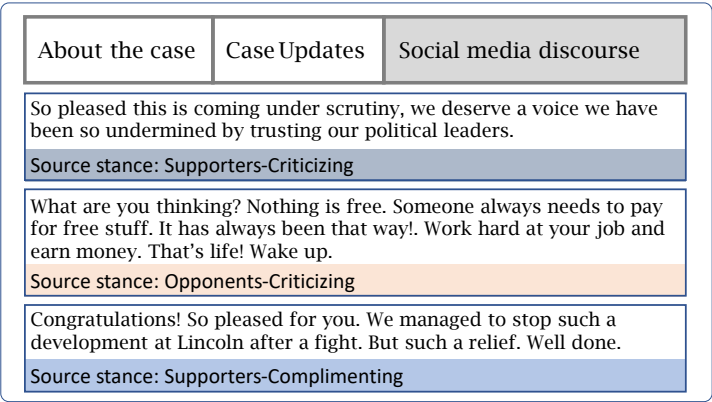


Fig. 3. A screenshot of social media comments shown to participants of the Labeled-Exposure group. We reported the theme of the comment along with color coding for each comment.

survey (as discussed in section 5.1). Participants of the Unlabeled-Exposure group completed the first and second steps of the survey but skipped the third step. As they were not exposed to the themes of the social media comments, they could not rank the themes based on their usefulness. Participants of the Non-Exposure group completed the first step of the survey but skipped the second and third steps as they were never exposed to any social media comments. In the end, we asked all participants to complete a demographic survey. We decided to conduct this ranking process in the end for the Labeled-Exposure group to make sure that it would not impact participants' opinions during the rating survey conducted as the first step.

5.3 Participants

We recruited 458 participants from Amazon Mechanical Turk who either donated to legal crowdfunding campaigns in the past or were interested in legal crowdfunding campaigns. Participants' average age was 34.18 (SD = 13.84), and 53% were females. The majority of the participants (89.13%) were familiar with crowdfunding platforms, such as Kickstarter and GoFundMe. More than half of the participants (61%) identified themselves as Caucasian, 20% as Asian, 10% as African-American, and 9% as others. All participants were at least high school graduates, and 38% of participants held a bachelor's or graduate degree. Out of these 458 participants, 153 participants were assigned to the Labeled-Exposure group, 154 participants to the Unlabeled-Exposure group, and 151 participants to the Non-Exposure group.

Credibility or quality assessment tasks are found to be done reliably with the help of crowd workers [22, 77, 90]. To maintain the quality of the tasks, we recruited only those crowd workers who had more than a 95% approval rate. We discarded the survey responses of 21 participants since they either did not complete all the modules of the study or they failed to answer attention check questions (we included five attention check questions) correctly. Additionally, we discarded the responses of 14 participants since they spent less than 10 minutes completing the task. On average, the Non-Exposure group participants spent 27.58 minutes, the Unlabeled-Exposure group participants spent 33.25 minutes, and the Labeled-Exposure group participants (who had additional questions about the ranking of the themes) spent 47.81 minutes to complete the study. To improve the quality of the tasks, we explained the concept of legal crowdfunding campaigns along with two examples of successful campaigns to each participant. We also included a short tutorial about three themes (along with an example comment from each theme) that we used to label social media comments before introducing them to Labeled-Exposure group participants. Prior work has shown that training crowd workers by providing examples is an effective strategy for obtaining higher quality subjective responses from crowd workers [72]. Participants received \$6 for their participation.

5.4 Results

5.4.1 Analysis of the First Step of the Survey. We had three between-subject dependent variables in the first step: perceived credibility, perceived quality, and donation intention. Our independent variable was the assigned group for each participant (Labeled-Exposure, Unlabeled-Exposure, or Non-Exposure). We aimed to determine whether there are any statistically significant differences between Labeled-Exposure, Unlabeled-Exposure, and Non-Exposure groups. To this end, we performed one-way MANOVA analysis, which extends the one-way ANOVA analysis but for multiple dependent variables. Table 3 shows the descriptive statistics of all three dependent variables.

MANOVA combines all dependent variables to form a new dependent variable in such a way that can maximize the differences between the user groups of the independent variable. We found that the differences between three user groups based on the combined dependent variable were statistically significant, $F(4,838) = 12.39$, $p < 0.001$; Wilks' $\Lambda = 0.43$; partial $\eta^2 = 0.56$. This means that at least two user groups were statistically significantly different. To further investigate the differences between each pair of user groups, we conducted follow-up univariate ANOVAs.

Follow-up analysis showed that all three dependent variables, perceived credibility ($F(2, 420) = 21.65$, $p < .001$; partial $\eta^2 = .59$), perceived quality ($F(2, 420) = 19.33$, $p < .001$; partial $\eta^2 = 0.54$), and donation intention ($F(2, 420) = 23.73$, $p < .001$; partial $\eta^2 = 0.63$) were statistically significantly different between three user groups, using a Bonferroni adjusted α level of ($\alpha = 0.05/3 = 0.016$). We also conducted post-hoc Tukey tests that showed that for perceived credibility ($p < 0.001$), perceived quality ($p < 0.001$), and donation intention ($p < 0.001$) factors, mean scores of the

Table 3. Mean scores of the participants of the three user groups (Labeled-Exposure group, Unlabeled-Exposure group, and Non-Exposure group) on perceived credibility, perceived quality, and donation intention

User Groups	Mean (SD)		
	Perceived Credibility	Perceived Quality	Donation Intention
Labeled Exposure	6.10 (0.43)	5.89 (0.63)	38.12 (3.12)
Unlabeled Exposure	4.20 (0.49)	4.09 (0.49)	24.14 (3.59)
Non Exposure	3.91 (0.52)	3.95 (0.79)	20.16 (4.87)

Labeled-Exposure group were significantly higher than those of the Unlabeled-Exposure group and the Non-Exposure groups. However, we did not find any statistically significant differences between Unlabeled-Exposure and Non-Exposure groups. Our findings were consistent with our initial assumption that labeling the comments with their themes would significantly improve legal campaigns' perceived credibility and quality. Thus, participants' intention to donate to legal campaigns would become stronger.

5.4.2 Summary of the First Step of the Survey. All three user groups completed the first step of the survey. The statistical analysis followed by post-hoc tests showed that the participants of the Labeled-Exposure group found their assigned campaigns significantly more credible and of higher quality than the other two groups. Hence, the Labeled-Exposure group intended to donate more money to their campaigns than the other groups. We did not observe any significant differences between Unlabeled-Exposure and Non-Exposure groups though. These findings indicate that although all groups evaluated the same campaigns in terms of content, their opinions were impacted by the exposure of the labeled social media conversations. Labeled conversations improved their overall opinions on those campaigns. In the next two steps, we look further to understand the internal process that helped the Labeled-Exposure group develop a more positive opinion about the campaigns than any other group.

5.4.3 Analysis of the Second Step of the Survey (Recall the Most Useful Comment). Both participants of the Labeled-Exposure and Unlabeled-Exposure groups reported one comment that they found as the most useful one. We used this measure because the recall task would indicate whether participants carefully examined the social media comments. One human coder manually checked all recalled comments and marked the theme of each comment.

In the Labeled-Exposure group, all but three participants correctly recalled one post that they found the most useful. 75 participants recalled a comment from the Opponents-Criticizing category, 44 participants from the Supporters-Criticizing category, and finally, 20 participants from the Supporters-Complimenting category. Unlabeled-Exposure group participants also recalled one post that they found as the most useful. Six participants could not recall any specific post. 39 participants recalled a post from the Opponents-Criticizing category, 46 participants from the Supporters-Criticizing category, and the remaining 49 participants from the Supporters-Complimenting category. Unlike the Labeled-Exposure group, participants in the Unlabeled-Exposure group did not show a preference for any specific theme during their recall task. We also performed a Chi-Square test to identify any significant differences in the distribution between the Labeled-Exposure and

Table 4. Ranking of the comments provided by the participants of the Labeled-Exposure group. Each participant was asked to rank the themes of the comments from the most useful to the least useful. Most participants (71 participants) found comments in the Opponents-Criticizing category as the most useful, whereas only 18 found comments in the Supporters-Complimenting as the most helpful category.

Main Themes	Ranked 1	Ranked 2	Ranked 3
Supporters Complimenting	18	36	88
Supporters Criticizing	53	60	29
Opponents Criticizing	71	46	25

Unlabeled-Exposure groups. We found that there is a statistically significant difference among the frequency of distribution of these two groups (χ^2 (DF = 2, N = 282) = 17.72, $p < 0.01$).

5.4.4 Summary of the Second Step of the Survey. Non-exposure group did not attempt the second step of the survey. Among the remaining two groups, the Labeled-Exposure group recalled more comments from the Opponents-Criticizing category than any other themes. However, the Unlabeled-Exposure group did not show such behavior. One possible explanation is that since the Unlabeled-Exposure group did not see the labeled comments, they might have read only a few comments from the top of the list. Since we randomly shuffled the position of the comments in the list for each participant, they did not show any preference on the theme of the comments at the time of recall. On the other hand, the Labeled-Exposure group most likely checked at least a few comments from each category; thus, at the time of recall, many of them preferred to mention a comment from the Opponents-Criticizing category. This finding indicates that comments presented with labels might receive more attention from the audience than a list of comments presented with no labels.

5.4.5 Analysis of the third Step of the Survey (Ranking Themes). Only Labeled-Exposure group participants completed the third step of the survey. Hence, we could not compare three groups for the first part of the survey. Instead, we independently analyzed the responses of the Labeled-Exposure group participants (146 participants) for the first step and performed between-group comparisons for the third step only.

Table 4 lists the ranking provided for the three main themes by the participants of the Labeled-Exposure group. Comments in the Opponents-Criticizing category were ranked as the most useful ones by the highest number of participants (N = 71), whereas comments in the Supporter Complimenting category were ranked as the least useful ones. We performed a Chi-Square test to identify any significant differences among the ranking of these three groups. We found that there is a statistically significant difference among the ranking of these three themes (χ^2 (DF = 4, N = 142) = 257.91, $p < 0.001$).

Labeled-Exposure group participants also answered three open-ended questions explaining why comments from each theme could be useful for prospective donors of legal campaigns. One human coder (the first author of the paper) carefully read those responses and identified the main reasons why participants thought that comments from each theme would be useful to prospective donors of legal campaigns. These reasons are explained below:

How will the comments from the Opponents-Criticizing category be useful? Most of the participants found comments in this category as the most useful. Most of the time, comments in the Opponents-Criticizing category offered some new points of view on the campaign which were

not already discussed in the description of the campaign or on social media by the supporters of the campaign. Participants mentioned that skeptical comments proved that there was a group of vigilant people who carefully verified all the information claimed by the campaign creators which indirectly increased the credibility of the campaign. In this category, participants not only examined the comments from the opponents but also carefully read all the responses of the campaign owners and supporters. They observed that when the allegations made by the opponents were not valid, campaign creators immediately responded to those allegations and argued against them. Observing those responses gave participants a sense of credibility toward the legal campaigns. Some participants even analyzed further and believed that when campaign owners were confident that the allegations were not valid, they argued against them more logically and with more supporting information instead of using offensive language.

How will the comments from the Supporters-Criticizing category be useful? Participants found the comments in this category useful because public bashing toward the authorities showed them “how out of touch the local politicians and decision-makers are”. They felt that in the future, critical social media discourses would be a powerful tool for common people to hold authorities accountable toward the community residents. Some participants claimed that comments from this theme helped them realize how litigation could revolve through so many twists and turns that even an experienced lawyer might not anticipate them all upfront. Finally, some participants mentioned that although comments in this category were deemed useful, they did not support the use of profane language found in some of these comments. They argued that profanity might create a long-lasting but negative impression about the campaigns among prospective donors. Some participants did not find the comments in this category useful because “in the end, most of the comments would be devolved into the typical online discussion dumpster fire”.

How will the comments from the Supporters-Complimenting category be useful? Participants of the Labeled-Exposure group found that the comments of Supporters-Complimenting were the least useful ones since they did not report any new information on legal campaigns. However, some participants ($N = 15$) argued that although complimentary comments did not add any new information, they showed how passionately the supporters felt about the progress of the campaign. Furthermore, some participants of the Labeled-Exposure group ($N = 6$) mentioned that they found these comments as an indicator that, unlike many social movements, at least the campaign was not suffering from a *bystander effect*. In fact, they expressed higher confidence in the campaign’s credibility after observing the reaction of passionate supporters and well-wishers. Some participants argued that complimentary comments could be a reliable way to overcome the challenges and reach milestones of legal campaigns. They also described that these comments would probably give hope to others facing similar issues personally or as a community but finding it intimidating to seek legal assistance. Finally, participants believed that campaign owners might also find complimentary social media discourses beneficial for winning their legal actions. Lawyers might also find these comments valuable to support their legal case in court.

5.4.6 Summary of the third step of the survey. The ranking process in the third step of the survey showed that participants of the Labeled-Exposure group ranked the comments of the Opponents-Criticizing category as the most useful comments among all three themes. In the open-ended section of the survey, most of the participants agreed that the use of profane language on social media by campaign owners or supporters indirectly lowered the quality of the legal campaigns. They found that it exhibited a distinct lack of confidence in the campaign owners and supporters, reflecting perhaps an insecure and uncertain attitude toward the campaign. As P92 said “I am not here to know about the opponents. I am here to know about the campaign, the owners, and the

people who are supporting the cause. How these people are handling the allegations and criticism of the opponents on social media tells a lot about the campaign owners.”

5.5 Summary of Stage 2

Our mixed-method analysis showed that exposure to social media comments from different themes could potentially assist prospective donors in analyzing legal campaigns from a unique point of view. Labeled-Exposure group participants paid more attention to critical discourse since critical comments revealed new information not only about the campaigns but also about the owners and their attitude toward the campaigns. Notably, participants focused on the two-sided arguments (where supporters tried to address the allegations made by opponents) to understand how passionate campaign owners were about their campaigns. This approach is consistent with previous research, which found that two-sided arguments are more persuasive than one-sided arguments [6]. Finally, our statistical analysis showed that labeled social media discourse does not necessarily polarize people’s opinions on any topic and deter them from making donations. Instead, when this design strategy is used for non-sensitive and low-profile issues and presents point-of-views from all possible groups, it can educate people more about the topic. Therefore, it can allow them to make more informed decisions to donate.

6 LIMITATIONS AND FUTURE WORK

We acknowledge that our work has limitations, many of which suggest directions for future research. We did not consider any population-centric dataset. In our work, we only considered social media (Facebook) comments on campaigns launched on CrowdJustice.com. Thus, it cannot be considered wholesome online conversations on legal crowdfunding campaigns. Instead, our work should be seen as a proof-of-concept study to examine how social media discourse may assist prospective donors in making an informed decision to donate. Future work that studies a wide range of legal campaign platforms and includes a variety of social media platforms should also consider the caveats concerning the missingness and volatile nature of social media datasets. Moreover, we created a new Facebook profile to avoid any personalized bias for search operations. Although we believe this approach was more efficient than searching using our personal profile, the Facebook algorithm might also have some bias for new accounts. Our study design did not consider that potential bias factor.

Additionally, we had to sacrifice some external validity to test the effect of comment labeling. In everyday life, those that comment on legal crowdfunding may have more knowledge or a higher stake than those that do not. Due to this, our findings primarily apply to observers or those seeing the conversation around fundraising on social media rather than effects on the commenters themselves. However, crowdfunding for legal actions has increasingly been in the public spotlight and thus, effects on those who are observing are important. Future work should look at commitment level and the effects on commenters as well as the conversation overall. Moreover, participants of the Labeled-Exposure group received one additional tutorial about three unique themes that we used to label social media comments. That tutorial might influence participants’ opinions positively about their assigned legal campaign. Our current study design has not addressed this possibility.

Furthermore, our dataset and the processes that we applied to our dataset were themselves subject to limitations. First, we manually coded our dataset for identifying the inherent themes of the conversations of the followers of legal campaigns. Although it was not in the scope of our work, advanced machine learning classifiers and natural language processing techniques can be applied to classify a large pool of social media comments on legal campaigns. This can be useful for crowdfunding platform designers, especially when they may try to notify campaign owners in real-time about their campaigns’ social media activities. Moreover, in our dataset, we considered

only "public" campaigns hosted by CrowdJustice. The platform also hosts campaigns marked as "private" by the creators and are not publicly visible to the general audience. Naturally, we could not include them in our dataset, which may affect our findings. Finally, in stage 2, we chose four campaigns and custom-designed their content for the user study. Although we paid careful attention to selecting a diverse range of campaigns, naturally, we could not incorporate all types of campaigns, and thus, we could not show all possible varieties of social media comments to study participants. It is always possible that participants could have a unique reaction to those social media comments that we could not capture with the current study setup.

The crowd's reaction to various types of legal campaigns may vary significantly. To understand the eligibility of prospective jurors for a specific legal battle, lawyers use a range of surveys, such as community attitude survey and change of venue survey [84]. Crowdfunding platforms similar to CrowdJustice also host a wide range of legal campaigns. A limitation of this work is that we have not considered how people's sensitivity and point of view might vary based on the presented campaigns' topic and type (such as civil vs. criminal). Situating our findings and other parameters such as user-specific features constitute an important area of future work.

In stage 2, we designed the user study to test the impact of labeled social media conversations on potential donors of legal crowdfunding campaigns. We found that the *Unlabeled-Exposure group* did not consider the campaign as highly credible and of high quality as the *Labeled-Exposure group*. One might argue that the Unlabeled-Exposure group would have had the same opinion as the Labeled-Exposure group if they were explicitly asked to examine the type/label of the social media conversations before completing their surveys. Our study did not include this explicit instruction because we assumed that careful examination of social media conversations would take more time and effort for potential donors. In real life, most potential donors might not be interested in spending more time and effort before making their donation decisions. Future studies might consider incorporating explicit instructions in their design to understand the opinions of the Unlabeled-Exposure group better.

As in most text analyses, our research using LIWC did not capture the uncommon language, especially unique conversation topics related to legal crowdfunding campaigns (e.g., legal terms and acronyms). Future work should develop advanced dictionaries that are more suitable for analyzing conversations on litigation and court procedures. Lastly, we applied both manual and computational techniques to identify the unique themes of conversation from social media comments. However, we did not interview the supporters and opponents of the campaigns for the same. Although our approach provided us a unique viewpoint to the social media comments on legal campaigns, it would be interesting to interview the supporters and opponents of legal campaigns in future studies for further investigation of their motivation to this activity.

7 DISCUSSION

This paper has laid out how supporters and opponents of legal campaigns utilize social media as an alternative medium to share their thoughts with a larger audience. Our computational analysis revealed the conversation themes of the supporters and opponents of legal campaigns on social media. We have also shown how they adopt different strategies to express their thoughts. While supporters felt more confident using offensive and swear words to express criticism, opponents chose a more carefully crafted narrative in the public forum. A follow-up mixed-method analysis showed that exposure to labeled social media comments could improve prospective donors' perceived credibility, quality, and donation intention.

The crowdfunding industry is expanding rapidly in the last few years. More domain-specific platforms (such as CrowdJustice, CrowdPac, and GiveForward) are emerging who are attracting a niche community of supporters that are particularly interested in that specific topic. In a survey

conducted by CrowdsUnite in 2014, it was found that the most popular crowdfunding platforms such as Kickstarter or GoFundMe might not be the best-suited platforms for all kinds of campaigns [34]. Thus, these niche platforms are gaining popularity in the crowdfunding community over time. Although these niche communities have created diverse opportunities for campaign creators to showcase their appeal to their target audience, the idea of having various types of platforms has made it even more challenging to verify the authenticity of the campaigns. As a result, supporters, prospective donors, and other stakeholders have started putting more effort into investigating the credibility and quality of each campaign [59, 65]. Since many crowdfunding platforms do not allow non-backers to communicate through their comment sections, social media such as Facebook and Reddit have become convenient places to have such conversations and communications. Our work has shown how critical analysis of such social media conversations can become important factors for prospective donors to gain confidence in these campaigns before donating.

Prior work in this direction uncovered donors' motivations and thinking process primarily through interviews [9]. This paper advances that direction of research. More importantly, this paper shows ways that can be applied to a large amount of publicly available social media conversations without conducting interviews which are often difficult to arrange on a large scale. Our analysis shows how opponents and supporters of these campaigns construct their comments based on their beliefs and opinions. The user study conducted in the second stage showed that if presented systematically using labels, these comments not only convey the issues discussed on social media by the supporters and opponents of the campaign but also the underlying compassion, confidence, authenticity, and diligence which we often cannot get access to just from the campaign materials. In this section, we draw attention to some of the possibilities it provides for system designers of crowdfunding platforms to include social media discourses in their platforms as well as a more cautionary critical take on the same.

7.1 Impact of complimenting and critical comments on potential donors

Our user study showed that when we exposed participants to social media discourse on legal campaigns, participants found critical comments more useful than compliments. Although we presented both complimentary and critical comments simultaneously, they still showed a hint of negativity bias (inclination to negative information over positive information) in their opinions. However, this behavior did not necessarily negatively impact their intention to donate. Instead, these negative comments created a sense of confidence among the participants that they felt they learned better about the campaigns' supporters and opponents. They carefully considered arguments from both sides of the campaigns and adjusted their decision accordingly. This additional bit of information most likely helped them to overcome their indecision and thus, made them more self-assured about their overall judgment.

Here, one aspect to keep in mind is that although we showed an equal number of comments (5 comments) in each theme, we had **two** themes that were conveying critical comments but only **one** theme for showing complimentary comments. Getting exposed to more critical comments naturally by the study's design might impact participants' opinions and their inclination to negativity bias. Prior work showed that negative news and perceived validity have a direct association as more negative news is often deemed as more valid [47]. In future research, it will be interesting to investigate how varying amounts of complimentary and critical comments may shape users' perceived opinions on legal crowdfunding campaigns. These design variations might have implications for a better understanding of the overall impact of social media conversations on legal campaigns.

7.2 Impact of Labeling Information

Labeling misinformation, conspiracy theories, and misleading content on social media platforms have become topics of mainstream public debate and heated arguments in the last few years [7, 78]. In the past, researchers examined the impact of position indicators (including expertise indicators) on the source of the comments in an attempt to reduce selective exposure for online content [61, 63, 64, 81]. However, the utility and impact of position indicators have primarily been studied for sensitive information such as politically partisan topics. Not much work has investigated the effect of labeling insensitive or moderately sensitive online information.

We took inspiration from existing designs of position indicators [61, 63] and applied them for insensitive or moderately sensitive information. Our results showed that when social media conversations on typically non-sensitive and non-partisan legal campaigns were labeled with the themes of the comments, it did not bias participants' opinions toward legal campaigns; rather, they found them as useful information to consider before deciding to donate. They intended to donate more than other groups who were not exposed to those labels. This finding is consistent with previous work where researchers had shown that when online discussions were presented using a summarized visual structure, it helped readers identify and explore the main topics better [111]. This finding also supports the need of potential donors of legal crowdfunding campaigns as our preliminary study showed that many donors could not follow social media conversations because of the lack of additional time(section 2.2). However, before generalizing this finding across all legal campaigns, it is essential to remember that legal campaigns can deal with sensitive topics. Understanding the impact of labels on sensitive legal campaigns remains for future work.

Finally, it is worth mentioning that the contribution of this work is not only limited to observing the impact of information labeling. Instead, it also involves reflecting on the impact of lack of information labels for social media comments of legal campaigns and how individuals may process them. Our analysis showed that comments without levels had little to no impact on participants. One possible way to explain this is through "cognitive fit theory" [108] which claims that we can achieve better performance when there is correspondence between the information presented and the task that must be performed. Labeled comments directly highlighted the strengths and weaknesses of legal campaigns, which might have helped participants evaluate the campaigns' quality with minimum cognitive effort. Although unlabeled comments conveyed the same information, the information was not as easily interpretable as the labeled ones. That may be the reason why participants in the Unlabeled-Exposure group could interpret less number of comments, and thus, they had little to no impact of those comments on their opinion. It would be interesting to verify this cognitive process in future research to reveal the full potential of information labeling.

7.3 Broader Impact of Legal Campaigns and Social Media Conversations

Previous work on legal procedure found that extensive pre-trial media publicity can potentially bias the juror pool and the judge [85]. Unwanted publicity can hinder the court procedure because of events such as a change of trial venue. Although the concept of the legal campaign is still new to the broader community, the popularity of these campaigns may create similar challenges because of the exposure of the thematically organized social media conversations. Social media conversations on legal campaigns may have more impact on the jurors because of the widespread availability. Someone may find more fact-based information on traditional media, whereas people's opinions on social media may have a more substantial bias toward one side over the other. Prior work, analyzing the effect of social media on court cases, primarily focused on the usage of social media by judges, lawyers, and jurors [15, 30]. Little research has been done to date to explore the possible effects of social media on the verdict of court cases. Future investigation is needed to understand the impact

of social media in the context of crowdfunding and how the amount of donation and moral support may influence the decision of the judges or the jurors.

7.4 Design Implications

Our work showed the impact of labeled social media conversations to validate the quality and credibility of legal crowdfunding campaigns. One critical factor about applying our findings for legal campaigns is the lack of any existing platforms or infrastructure that can present these labeled social media conversations to potential backers. Facebook does not label any comments on legal campaigns right now. However, adding labels to social media posts or comments (i.e., warning labels) is not a new concept. Social media platforms such as Twitter and Facebook often label posts to limit the spreading of misinformation and disinformation. They apply a combination of human coders and learning algorithms to identify these posts that cannot appear on Twitter without warning labels [96]. A similar approach can be applied to comments on legal campaigns on social media. The audience can also contribute to this process through a voting system to identify the source and the type of comments for labeling.

Another possible way to introduce human coders into labeling social media conversations on legal crowdfunding campaigns is to introduce crowd workers into this cycle. Using crowd workers entirely for this labeling job might achieve a high level of accuracy yet might be considered prohibitive because of the high cost and time involved in this approach. On the other hand, entirely machine-operated labeling might be time- and cost-effective yet would probably perform below standard for more complex items residing at the tail of the dataset. A more acceptable solution would be using a Crowd-AI architecture where crowd workers would be used predominantly at the beginning of the installation. They would label a good chunk of comments at the beginning, which would be used to train the machine learning engine. Once trained, the engine would take over the bulk share of labeling tasks. In the later phase, crowd workers would be involved intermittently to resolve corner cases. Previous work has applied this approach for a wide range of applications such as conversation assistant [51], video clips labeling [24], image labeling [23], and solving mysteries [62]. If applied considering the platform dependencies, we anticipate that such a Crowd-AI approach would be a practical solution for linking legal crowdfunding campaigns with their corresponding social media conversations.

Platforms such as CrowdJustice may also consider linking these labeled conversations to their website as an extension of their regular comments posted by the backers. Our findings indicate that providing a mechanism for the audience to analyze the ongoing social media discourses may benefit campaign owners by receiving more donations. These discourses may give confidence in the campaign's credibility and urgency, motivating potential donors to donate. Here, platform designers must also remember that exposing potential donors to social media discourses will not be an effective strategy unless all stakeholders do not contribute equally to this process. For instance, campaign owners' would have to actively follow social media conversations to promptly address any legitimate concerns of the critical followers of the campaigns. Platforms may send timely alerts to campaign owners when they must address such critical comments. This design will support campaign owners in creating a dynamic two-way relationship with the followers of the campaigns. In this emerging digital age, maintaining leadership and two-way interactions are critical not only for acquiring new donors but also for retaining old donors [18]. In summary, the logistics of labeling and presenting social media conversations on legal campaigns will remain something that future work will address. We believe our findings will inspire future researchers as a first step to further exploring this direction.

8 CONCLUSION

This paper studied the social media discourse on legal crowdfunding campaigns made by the supporters and opponents of these campaigns. Adopting a combined qualitative and quantitative approach, this paper examined the social media comments and made three primary contributions. First, we identified three unique themes that were actively discussed on legal campaigns on social media. Second, we found the psycholinguistic characteristics and thematic patterns of those themes. Finally, we conducted a survey-based online user study to understand how exposure to social media comments might impact the impression of potential donors toward legal campaigns. We found that when participants were exposed to social media comments on legal campaigns labeled with the comments' primary themes, it significantly impacted their opinion on the quality of those campaigns. We believe our work bears the potential to help potential donors in making more informed decisions to donate to legal crowdfunding campaigns.

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Table 5. Results of the Kruskal-Wallis tests performed on the percentages calculated using LIWC engine. Mean percentages of each theme are presented in the 2nd, 3rd, and 4th column. Statistical significance along with H-statistics are reported using (*) symbol in the 5th column. Bonferroni correction applied to compensate multiple comparisons ($\alpha = 0.05/22$)

Category	Supporters Complimenting	Supporters Criticizing	Opponents Criticizing	H-Statistics (Significance*)
Affective Process				
Positive Emotions	3.61	2.85	2.69	12.55*
Negative Emotions	1.74	2.91	1.84	13.87*
Anxiety	0.37	0.41	0.32	2.87
Anger	0.57	1.98	0.66	14.78*
Sadness	0.40	0.47	0.43	1.89
Cognitive Processes				
Discrepancy	1.51	1.39	1.49	2.11
Exclusive	1.17	1.09	2.81	15.73*
Tentative	2.58	3.88	2.44	12.11*
Insight	2.13	2.22	2.17	2.32
Linguistic Dimensions				
Pronouns: 1st Person Singular	4.92	4.86	4.99	2.56
Pronouns: 1st Person Plural	2.69	1.13	0.98	14.89*
Pronouns: 2nd Person Singular	1.77	1.99	2.89	13.21*
Pronouns: 3rd Person Singular	1.81	1.75	1.82	1.96
Pronouns: 3rd Person Plural	0.71	2.67	2.50	12.59*
Verbs: Present Focus	9.94	7.89	8.01	12.87*
Verbs: Past Focus	4.59	4.48	4.64	2.51
Verbs: Future Focus	1.38	1.27	1.44	2.06
Conjunction	5.85	5.49	7.32	14.71*
Swear Words	0.22	2.45	0.45	15.34*
Personal Concerns				
Work	2.61	2.57	2.59	1.78
Money	3.61	3.67	3.64	2.41
Achievement	1.90	0.77	0.84	11.84*

A APPENDIX A: RESULTS OF THE KRUSKAL-WALLIS TESTS PERFORMED ON THE PERCENTAGES CALCULATED USING LIWC ENGINE

B APPENDIX B: FINE TUNING OF LDA PARAMETERS

The performance of the LDA model depends on the choice of hyperparameters α and β and the number of topics (k). To tune the value of the hyperparameters, we followed the similar procedure that was proposed by Pathik et al. [87]. We considered k (number of topics) = 20 as a seed value and ran the LDA model for a range of values of α and β . We considered all values in the range of [0.01 0.99] at regular intervals of 0.05. We ran the model for each unique combination of alpha and beta and recorded the coherence score. Thus, we chose $\alpha = 0.01$ and $\beta = 0.11$ as the best-fitting hyperparameters for our dataset since the coherence score of the model was the highest for this combination.

Once the values of α and β were identified, we followed the same procedure to tune the number of topics (k). With $\alpha = 0.01$ and $\beta = 0.11$, we ran the model for all values in the range of [10 50] at regular intervals of 2. We observed the highest coherence score at $k = 26$ and the score did not increase significantly after that. We also investigated the topics themselves, and increasing the value of k beyond 26 resulted in repeated appearance of the same keywords in multiple topics which were not intended in our context. Finally, we decided to run the model for $\alpha = 0.01$, $\beta = 0.1$, and $k = 26$ and generate topics for further analysis.

C APPENDIX C: SURVEY MEASURES: PERCEIVED CREDIBILITY, QUALITY OF THE CAMPAIGN, AND DONATION INTENTION

In the third step of the survey, we asked participants to rate their campaign based on perceived credibility, quality of the campaign, and donation intention. Here is the list of questions we used to measure these three parameters.

C.1 Scale for measuring perceived credibility of the campaign

We used a 7-point Likert scale to measure the perceived credibility of the campaigns. We considered five factors to measure perceived credibility: accuracy, fairness, trustworthiness, bias, and completeness. For the bias factor, we used the negative form "biased" instead of "unbiased," which helped us determine whether a participant was blindly choosing the same option for all the questions. We calculated the credibility score by taking the average of five credibility factor scores. We reverse coded the bias score for analysis (i.e., converted 1 to 7, 2 to 6, etc.) since the question was stated in the negative form. For perceived credibility, we provided the following instruction:

On a scale of 1 to 7, please indicate whether you agree or disagree with the following statements about the campaign using a 7-point Likert scale where 1 means "agree strongly", 4 means "undecided", and 7 means "disagree strongly".

- The campaign was accurate.
- The campaign was fair.
- The campaign was trustworthy.
- The campaign was biased.
- The campaign was complete.

C.2 Scale for measuring the quality of the campaign

Similar to perceived credibility, we used a 7-point Likert scale to measure the quality of the campaign. We considered two factors to measure the campaign's quality: well-organization and convincing presentation. We calculated the quality score by taking average scores of the two factors. For the quality of the campaign, we provided the same instruction as we did for perceived credibility.

- The campaign was well-organized.
- The campaign was convincingly presented.

C.3 Scale for measuring the intention to donate to the campaign

Finally, we asked the following two questions to determine the intention of the participants to donate to the campaign.

- Would you like to support this campaign by donating?
- If you have \$50 to donate, how much would you like to donate to this campaign? (in dollars)

D APPENDIX D: LEGAL CROWDFUNDING PLATFORMS AND CAMPAIGNS

Legal fees can be overwhelming for any individual. There are several programs operated by federal and state governments and various private nonprofit organizations that can help people pay both legal fees and lawyer's fees for their lawsuits. In many scenarios, pro bono lawyers (lawyers who offer legal services free of charge for the public good) can be an excellent resource for those who may not afford to hire a lawyer for their case. Although all these resources can be helpful at the time of need, there is a shortage of them compared to the demand. In those times, financing lawsuits through crowdfunding can be a promising alternative.

Many mainstream crowdfunding platforms such as Indiegogo and GoFundMe host campaigns that help people raise money for their legal battles. In 2014, two crowdfunding platforms, CrowdJustice and FundedJustice (officially transferred to FundRazr in 2019) were launched to host only campaigns related to legal actions. Among these two, CrowdJustice was initially launched in the United Kingdom, but in 2017 the platform expanded its operation in the United States and eventually, they moved their headquarter from London to New York. Till 2017, the platform raised two million dollars as a donation. However, their expansion in the United States helped them grow much faster in the last few years. So far, the platform has raised more than 12 million dollars from more than 200,000 backers. One hundred fifty law firms have used CrowdJustice so far. Some of the most famous campaigns are listed on the platform website.

When someone wants to create a campaign in the platform, they can either create it as a private campaign (only visible to others through invitation) or a public campaign that anyone can access directly from the platform or share on social media and other news media. Anyone can create a campaign on this platform to fight their legal journey. However, the only requirement is that they need to have a lawyer instructed or work with a registered organization (such as a charity).

The campaigns generally set two fundraising targets: an initial target and a stretch target. If the initial target is not met in 30 days, the backers are not charged, and no fees are collected. Once the initial target is met, the fund (after deducting the platform charges) gets transferred directly to the lawyer's account, and the beneficiary can keep raising money as part of the stretch target. The platform charges a 3% administrative fee and a third-party payment processing fee from the raised fund. Any money raised that the campaign owner does not use or recovers will go to a charity that supports access to justice and the provision of free legal advice or to another campaign on CrowdJustice. Currently, CrowdJustice designated the Access to Justice Foundation as their approved charity supported by the excess funding.

E APPENDIX E: MATERIALS FOR USER STUDY

We prepared four legal crowdfunding campaigns for our user study. To prepare these campaigns, we took inspiration from four existing campaigns published in CrowdJustice. These four campaigns were discussed many times on social media (at least more than ten conversation threads on social media on these campaigns). We picked these four campaigns from four categories (health, disability,

Table 6. Each row represents a factor that was discussed in social media on legal crowdfunding campaigns. Each column represents one campaign (Cam 1 - Cam 4) that we used in our user study. The dots indicate that for a specific campaign, we showed comment belonged to that factor. (Cam 1) A campaign for saving a regional medical center in a rural area; (Cam 2) A campaign for keeping a special education school local; (Cam 3) A campaign against making voter ID card mandatory for everyone; (Cam 4) A campaign to sue government for not taking necessary action to minimize the effect of climate change. (Com) A complimentary supporting factor; (Crit) A critical supporting factor; (Opp) A opposing factor; and (Neu) A neutral factor.

Main Themes	Fine-grained Sub-Categories	Cam 1	Cam 2	Cam 3	Cam 4
Supporters Complimenting	Complimenting Campaign owner's	•		•	•
	Arranging Social Promotions		•		•
	Using Facebook for additional communication	•	•	•	
Supporters Criticizing	Criticizing campaign's opponents		•	•	•
	Criticizing Authorities	•		•	
	Criticizing news media	•	•		•
Opponents Criticizing	Opposing the idea of the campaign	•	•		•
	Criticizing campaign owners	•		•	•
	Criticizing the campaigns logistics		•	•	

voting right, and climate change) to bring diversity to our selection. We did not use the campaigns available on the platform directly in our user study as they were varied significantly in terms of the length of the description and donation amount. Since our goal was to minimize all external effects and capture the reaction of the participants to the social media comments on legal campaigns, we modified the description of these campaigns to be broadly equivalent on key dimensions such as overall length (between 750 and 650 words), number of paragraphs, the main theme of each paragraph, and source attribution. These factors are known to be important determinants of message persuasiveness and argument strength [46, 88].

To identify the content of each paragraph of these campaigns, we consulted 30 successful legal campaigns from CrowdJustice and identified the following 6 major items that campaign owners discuss in their campaigns: 1) owners described the situation that prompted them to take legal actions, 2) they explained why they need financial support to continue fighting the litigation, 3) they mentioned the consequences of not receiving the financial assistance from the crowdfunding campaign, 4) they reported a list of activities for which the donated money would be spent, 5) they mentioned what they expected to achieve by winning the litigation, and 6) they acknowledged how the community/supporters have extended their support so far to their cause. While designing our custom-built campaigns, we included the same issues for all the campaigns so that based on content, they were comparable to each other. Along with the description of a campaign, a standard campaign has other important elements such as the amount of money donated, the goal of the campaign, and the comments left by the crowd. We set the goal of our custom campaigns between \$15,000 to \$20,000 since \$16,000 is the average goal amount for the campaigns on that platform.

Moreover, since we wanted to show a moderate amount of support for these campaigns, we showed that the campaigns had reached between 65% to 70% of their target amount.

Finally, since these campaigns did not have an equal number of social media comments, we decided to show 15 comments for each campaign. For each campaign, we balanced the types of comments that were shown to participants. We showed five sets of comments from each theme. We labeled each set with its stance. Figure 3 shows a screenshot taken from the online platform that showed a list of social media comments labeled with the main themes to Labeled-Exposure group participants. Table 6 lists the campaigns that were used in the user study. The dot in each cell represents the sub-categories of comments that were made available for the participants of the Labeled-Exposure and Unlabeled-Exposure groups.

From each sub-category of comments, we picked those comments which were liked the most on Facebook (assuming that the most liked comments had the maximum impact on the audience). Moreover, we showed comments from each sub-category for at least two to three campaigns to ensure that comments from all sub-categories were incorporated in our study design. One caveat of this design is that comments from all three main themes were presented at equal proportion for each campaign (five comments from each main theme), although they were not equally distributed in our dataset. For instance, in our annotated dataset, 39% comments were criticism from opponents, whereas 28% were compliments posted by the supporters. Despite this caveat, we decided to show an equal number of comments from each theme because we intended not to influence participants' opinions by the proportion of the comments; instead, we aimed to capture their reaction to each theme.

To ensure that each of these four campaigns was equally appealing to the audience, we conducted a pretest of the description of the campaigns. We recruited 30 mechanical MTurkers and asked them to read the description of each campaign. We asked them to rate each campaign on the following seven criteria: 1) comprehension, 2) attractiveness, 3) acceptance, 4) believability, 5) involvement, 6) relevance, and 7) motivation. In the end, we also asked them one question from each campaign to verify how difficult it is to recall information from these campaigns. For example, from campaign 2, we asked participants the name of the new special education school where the residents would have to take their children once their local school would be closed. There was no significant difference among the four legal crowdfunding campaigns on the criteria mentioned above.

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