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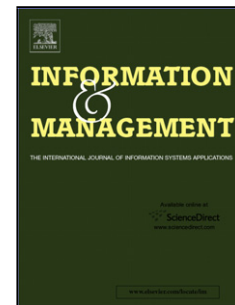
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My Words for Your Pizza: An Analysis of Persuasive Narratives in Online Crowdfunding

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Abstract

We analyze charity requests registered on the Random Acts of Pizza online community and examine the content of postings and non-content characteristics to identify features that are associated with the success of donation. We find that the presence of rational and credible appeals in a message increases the likelihood of receiving a donation, whereas the mere presence of negative emotional appeal does not do so. Our research is useful for those who like to make persuasive charity requests on online platforms.

Keywords: Charity; Donation-based crowdfunding; Content Factors; Appeals; Persuasiveness; Philanthropy.

1. Introduction

According to the industry reports, an amount of US$ 373.25 billion was contributed toward philanthropy in the USA in 2015, which constitutes roughly 2.1% of the country's GDP[1]. According to the 2015 digital giving index report, online giving grew by 9%, whereas the overall charitable giving grew by 2%. The charitable endowments conducted using the Network for Good online dashboard amounted to US$ 242 million worth of donations that were contributed by 1.1 million donors to 41,000 non-profit

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[1] https://www.nptrust.org/philanthropic-resources/charitable-giving-statistics/

organizations[2]. These figures suggest the enormity of the charitable sector and especially the domain of online charity. However, the IS discipline hitherto has not devoted much attention to this domain. The recent development in Web 2.0 has propelled the growth of online charitable platforms or crowdfunding platforms, which integrate the requests for donations under one domain and make it available to everyone who is interested in charitable donations. There are several online crowdfunding sites that host charitable crowdfunding projects, such as Causes, Crowdrise, Network for Good, DonorsChoose, FirstGiving, and Givlet. Furthermore, donations can also be raised by individuals through many social media platforms and online communities. Thus, contributions do not depend on whether an individual who is likely to donate is solicited or not but on how the solicitation request is placed. Online crowdfunding entails request for resources from a large and distributed audience, generally in exchange for a reward, financial or non-financial in nature [1]. The literature on crowdfunding focus mostly on the reward-based model [2], lending-based model [3], or equity-based model [4,5] and delineate the importance of non-content characteristics. However, there is scant literature on altruistic crowdfunding platforms where there are no explicit financial or non-financial gains for the project backers. Most projects that fall under this category focus on social and ecological projects or projects that entail sustainability issues [6]. In our research enquiry, we review one such charitable online community, the "Random Acts of Pizza" (referred to as RAOP henceforth), a subreddit community, that provides donations in the form of pizza to seekers of charity.

Research on the content characteristics of the crowdfunding projects is limited, barring a few [7–12]. Crowdfunding projects are usually associated with a description of the project on how they intend to use the fund [1]. The role of the text is important as project creators seek to persuade the potential backers with a convincing story. In our exploration, we endeavor to demonstrate how different types of argument appeals in a textual message influence the success rate of crowdfunding. Thus, primarily we are interested to address the research question, *how the presence of different persuasive appeals in a charity request increases its likelihood of receiving a donation.* We categorize various factors into content and non-content features and apply Aristotle's theory of persuasive communication to show that among the content factors, the presence of rational appeals, emotional appeals, and credibility appeals in a message content impacts the likelihood of receiving a donation. We also demonstrate the role of non-content factors (the message popularity, comments received for the message, account age of the requestor, prior participation activities of the requestor, length of the message, and presence of an image) in influencing the success of a charity request. Thus, we contribute to the literature by showing how the presence of monetary evidence (rational appeals), negative emotions (emotional appeals), and female-related terms

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[2] http://www.networkforgood.com/digitalgivingindex/2015-online-giving-trends/

and authenticity (credibility appeals) in a message content along with non-content factors influence the likelihood of receiving a donation.

We analyze the RAOP community within the mother social networking platform Reddit.com. This sub-community is devoted to donating free pizzas to strangers who request for one with an impressive narration on why they need a pizza. The RAOP platform integrates the voices of need, and the potential donor can choose to deliver to the one who has the most persuasive and credible narration. Thus, the text assumes supreme importance in such a setting. Pizza seekers post their compelling stories on this platform, and the fellow community members can choose to donate pizza to the requester. Examples of such kinds of requests on the RAOP are "*Had some really bad days lately. I'm really down on my luck. A pizza would really make my day better*" and "*My baby and I haven't had anything to eat and I'm so hungry and she's been crying all day. I'm doing my best to cheer her up but we could really use some food in our tummies. Thank you! God bless*!"

The RAOP is a platform where donors or backers receive no financial or non-financial support in return for their contribution. Charity seekers on this platform do not conform to a particular structure while posting their narrations on why donors should provide them with a free pizza. Requests on this platform range from a single-line request to a nuanced and elaborate application supported by extensive reasoning. Specifically, we inquire the impact of different persuasive appeals on crowdfunding success rate. We believe that our findings can also be extended to various crowdfunding platforms where the fund seekers describe their projects with a persuasive narration. Online platform moderators can also find this research useful and provide recommendations to users on how to post effective requests.

The remainder of this paper is structured as follows. In section 2, we briefly review the two strands of literature: the traditional charitable funding literature and the online crowdfunding literature. In section 3, we delineate the theory and develop related hypotheses. We outline the research method and describe the data set, empirical model, and the measurement of the variables in section 4. The results and associated discussions are provided in section 5. We conclude by highlighting the implications to theory and practice and by discussing future work that can emanate from this research.

2. Literature Review

Because the RAOP is primarily concerned with the distribution of pizza for a charitable cause, first, we briefly review the literature on traditional charity. Although the literature is multi-disciplinary and vast, we concentrate on research papers that deal with enhancing the likelihood of donation by using an appropriate content. Additionally, we study the online crowdfunding literature as the RAOP is an online platform where seekers of charity post their requests, and these requests are fulfilled by a prospective

donor. Furthermore, to illustrate the importance of persuasive text, we refer to theories that are conventionally used in literature on advertising.

2.1. Charitable Funding

Fundraising is a persuasive activity that convinces potential donors to contribute to a worthy cause [13]. Researchers from various disciplines such as economics, clinical psychology, social psychology, anthropology, sociology, and marketing have tried to understand why individuals donate [14]. It has been reported in the literature that people derive utility when they donate, and charity has been described as the consumption of "warm glow" [15] or the purchase of moral satisfaction [16]. A significant number of papers on charity focus on the donor's demographic characteristics and their motivation to donate [4]. Additionally, one of the major concerns for charities relates to donor trust and confidence in the charity. Reducing the information asymmetry between the charity seeker and donor builds trust. Extant literature has tried to understand the features in a charitable request that can improve the chance of receiving a donation. Goering et al. [13] conducted an experiment to understand the important features of fundraising in a direct mail solicitation environment. Furthermore, studies about charitable giving have revealed that donations are higher when victims display a sad facial expression in advertisements run by a charity [17]. Some papers analyzed the importance of positive and negative framing [18–20] in a charity request. Our review of the literature on charitable funding reveals that most papers have used a controlled experiment [13,17,19,20] to ascertain the content characteristics of a message that lead to a higher amount of donation.

Furthermore, from our review of traditional charitable funding literature, we can put forward the following additional points in favor of the RAOP platform. First, donors have latent demands to give, but because of prohibitive search costs of finding their favorite charity, their demand stays unexpressed until they are solicited [21]. Most prior studies on charitable funding share a common assumption that charities randomly select individuals to donate and thus suffer from insufficient fundraising. However, a crowdfunding platform such as the RAOP avoids this problem as it integrates various requests on a single online platform. Prospective donors can log into the platform and choose to donate to the individual who makes the most persuasive request. Second, peer pressure that is associated in settings where a friend [22] or an identifiable victim [23] asks for donations can be avoided in the RAOP platform, where strangers come forward to donate on the basis of the unknown seeker's narration. The above two points suggest the importance of persuasive text in this environment, where the narration of the seekers is the key for receiving a donation.

2.2. Crowdfunding

Apart from the literature on charitable donation, we also focus on studies that pertain to crowdfunding, especially the ones that focus on the content of crowdfunding proposals. Crowdfunding projects are usually associated with a proposal from promoters describing how they intend to use the funds, the description of reward, and sometimes a video describing the project [1]. The description of the crowdfunding project is deemed to be very important to create a shared understanding of the project with the prospective backers [2]. The role of the text is important as project creators seek to persuade the potential backers with a convincing story. However, we observe that generally only the length of the textual message [2,24–26] is used to judge the importance of the message. However, few papers have considered the role of information content. In one of the recent studies on crowdfunding, researchers have developed a methodology titled Domain-Constraint Latent Dirichlet Allocation (DC-LDA) topic model for the efficient extraction of topical features from texts on project description and reward description [27]. Mitra and Gilbert [7] analyzed a corpus of 45,000 crowdfunded projects hosted on the Kickstarter site and identified the phrases that predict success. One of the top predictors of successful crowdfunding is the presence of reciprocity phrases. A similar finding on the importance of reciprocal language has been reported previously [8]. For a peer-to-peer lending context, Herzenstein et al. [28] analyzed the role of identity claims embedded in the narrations in influencing lender decision-making. Lins [11] adopted the lens of impression management and considered the role of positive emotion, innovativeness, and supplication strategies to ascertain the success of crowdfunding projects. In another study on debt crowdfunding projects, the role of readability factors, positivity, and deception cues on the tendency to default have been reported by Gao and Lin [9]. Similarly, Siering et al. [12] have shown the importance of linguistic and content-based cues in detecting fraudulent behavior for dynamic and static communication on crowdfunding platforms. Contrary to the above studies that focus on non-charity-based projects, in this study, we show the impact of the appeals made by charity seekers on the success of donation for a charitable platform.

In contrast to content-based research, there are ample research papers on crowdfunding that shed light on the importance of non-content cues [2,5,24–26,29–36]. Wang [29] used the signaling theory to study the Chinese crowdfunding platform Demohour and empirically established that creator's previous experience, backer's comments, and creator's comments positively impacted fundraising. Existing research has considered the importance of the campaign characteristics in terms of the amount solicited, duration of campaign, number of other backers, and personal network of the project creator in deciding about the success of the project [5,24,31]. However, the RAOP does not put a restriction on the duration of campaign or goal amount, and a request is fulfilled when someone chooses to donate.

Crowdfunding literature also focuses on the motives of the creators and the donors who invest [1,4]. Burtch et al. [37] suggested that there can be multiple motivations for contributors for an online journalism crowdfunding platform. First, backers may be driven by a sense of altruism. Second, they may be influenced by concerns to promote their individual social image. Third, contributors may have a personal interest in the topic. However, in this study, we do not explicitly analyze the motives of the backers.

Research articles on online crowdfunding have mostly focused on the importance of non-content characteristics in determining the success of crowdfunding projects. Additionally, we find that the current literature addresses issues that mostly arise in the equity or reward based or peer-to-peer lending contexts. The altruistic crowdfunding setting is different as the donors contribute to strangers without gaining any financial or non-financial favors in return. We notice the importance of reciprocity phrases or gratitude phrases in such an environment. Our main research question aims to ascertain the factors in a text-based request that are important in procuring donations, and therefore, we also review the literature on advertising and persuasive communication to borrow appropriate theoretical lenses. We find that Aristotle's persuasive appeals are the most appropriate theoretical lens in this context.

Moreover, there are certain characteristics attributed to the RAOP platform that address many confounding factors that usually dominate other online fundraising platforms when one seeks to analyze the importance of the persuasive text. First, the value of donation (i.e., equal to price of a pizza) is similar across all requests and does not vary greatly in monetary value. This makes the donations different from those seen in typical crowdfunding projects. Furthermore, as there are no monetary donations, the reward from tax exemption of charity is also not visible in this platform. Second, all the requests are fulfilled by a single donor, and hence, we can ignore the dynamics of herding that are usually present in other crowdfunding platforms. A request is fulfilled by a single individual when the donor chooses to gift the seeker a pizza. Zhang and Liu [38] reported the presence of rational herding among investors who participate in crowdfunding projects. Third, there are no rewards for the donors that govern the motivation to donate. The requests are textual in nature and embedded in a social network platform Reddit. Thus, we can precisely examine the importance of appeals and other social network characteristics (non-content cues) in the success of a request for charity.

3. Theoretical Foundation

We categorize the factors that impact the likelihood of getting a successful donation into two categories: the content-related factors and the non-content factors. Readers rely on the persuasiveness of the message to ascertain whether to donate or not. These individuals analyze the details of the textual message before

making a donation. If they find the message to be appealing and credible, then the potential donors donate. These factors are deemed as content-related factors. The non-content factors consider features that are not associated with the appeal created by the actual textual message. A potential donor can make decisions about whether to donate a pizza by trusting only the non-content features such as the source characteristics and popularity of the message to make a judgment. Additionally, few donors may depend on both the persuasiveness and appeal of the message and also consider the importance of non-content factors such as account characteristics of the donor (account age and prior participation) and the feedback garnered (e.g., popularity of post and comments received) by the post to arrive at a donation decision.

We categorize the content-related features according to Aristotle's theory of persuasion. Aristotle's theory of persuasion is based on three categories of appeals - rational (logos), credibility (ethos), and affective/emotional (pathos). Taken together, these elements reveal the characteristics of a good argument [44]. Rational arguments appeal to the sensible and logical aspects of the reader's mind that highlight the attributes of the object of donation. Affective appeals compel the potential donors to show empathy by igniting their attitudinal and moral values. Credibility appeals showcase the applicant of the charity as trustworthy. We argue that these appeals will influence the content category as it entails a thorough processing of the narrative content. The RAOP platform is flooded with incessant requests from the donation seekers who provide a narration to provide them a free pizza. Donors can effectively estimate the needs of the charity seekers when they are provided with reference information in the form of narratives, experiential or anecdotal information [45]. Such narratives often evoke the psychological, experiential, incident based, or clinical judgments of the potential donors to estimate the need. A narration that can strike a chord in the minds of the donors and illustrate credibility is likely to be successful. We illustrate that the presence of monetary-related evidence in the narration impact the rational appeal dimension, expressing that negative emotions are a part of affective appeal dimension, and the authenticity of the text and the reference toward female group influence the credibility dimension of the message. In the following sections, we describe in detail the persuasive content-related factors and the non-content-related factors. The complete research model is depicted in Figure 1.

3.1. Content Factors

According to this view, the readers of the message put in cognitive effort to evaluate the validity of the message. They consider the appeal of the message to evaluate its persuasiveness. Decision makers are involved in the process and spend time for the comprehension and evaluation of the arguments in the message.

3.1.1. Rational Appeals

Rational arguments appeal to the sensible and logical aspects of the prospective donor's mind by presenting factual, evidence-based information rather than using emotions to persuade the readers. There exists information asymmetry between the seeker of the charity and the donor. The donors have relatively little knowledge about the background of the seeker, and hence, they are often skeptical to provide donation [41]. In our case, this problem magnifies as the seekers do not use any identifying information or real names for their requests. Thus, in this context, the analysis of the narration becomes crucial. Donors preferably want their contributions to be used in an effective manner and expect the one in real need to receive it. The narrations that effectively describe the underlying monetary conditions of the seeker are assumed to have a greater likelihood in obtaining a donation. Parsons [41] reported that provision of firm's positive accounting information reduces the information asymmetry between the donation seeker and donors and thereby increases the likelihood of grants for non-profit organizations. Additionally, information that is factual, statistical, and evokes logical judgments is likely to invite more donations [40]. Use of monetary-related words many times presents factual information about the background of the seeker and logically articulates his/her need for pizza. An example of such usage is shown below:

"*So it's finals week and I haven't eaten all day... I just **payed** off the last of my housing and I've let my mom **borrow** around $400, so I don't have much **money** to get food this week. I would love a pizza, and would love to offer one as soon as I get my money **paid** back. Thanks for this subreddit. I think you are all amazing people.*:)"

Extending this argument to the social charitable setting, we argue that provision of a background story regarding the financial aspects of the seekers increases the credibility of the story. We analyze the impact of the presence of monetary terms in a narration on the success of a request.

H1: The presence of factual and money-related evidence in a charity message is positively related to the likelihood of receiving a donation.

3.1.2. Emotional Appeals

Research in advertising has established an association between emotional persuasive appeals and prosocial behavior [17,42]. All charitable organizations have compelling stories to share, and they are typically designed to take the consumer through different emotional stages [43]. According to the existing literature, a story on charity has an unbalanced state that reflects a problem or an obstacle to overcome. This emotionally engages the potential donor and makes him or her relate to the protagonist of the story [43].

Negative Emotions

Negative emotive appeals are ubiquitous in all charitable requests. Almost all requests are marked with a negative word highlighting the seeker's distress, anxiety, or anger. Some of the negative appeals that have

been studied in the charitable setting and that induce an empathetic reaction from the prospective donors include sadness [44], anger [45], fear [46], and guilt [47], and these serve as a motivational force to donate. In fact, past research has shown that donations are higher when victims display sad facial expressions in charity advertisements [17]. In the RAOP website, the stories describe the distress of the charity seeker and explain how they are broke and are unable to purchase a pizza and why they are posting a story on this platform. The following message provides an example.

 *"Hey RAOPers, today's been a pretty **shitty** day. I've been **suffering** from **depression** all semester long, and it's really affected my school work. I found out from our disabilities services counselor that I won't be able to pass two of my classes this semester. I also had a really **shitty** therapy session today that mainly resulted in a lot of **crying**. **I hate** to post a **sob** story, but a pizza right now would do a lot to cheer up my night, but I'm also really low on cash. I get paid next Friday, and I promise I'll pay it forward after getting my paycheck. Thanks so much*!"

Thus, we argue that the presence of negative emotional words enhances the likelihood of receiving a donation.

H2: The presence of negative emotional words in a charity message is positively related to the likelihood of receiving a donation.

3.1.3. Credibility Appeals

Ethos or ethical appeals are a way to convince an audience of the author's credibility or character. Ethos is the Greek word for "character". An author uses ethos to show that he is a credible source and is worth listening to. Ethos can be highlighted by the use of appropriate language, sounding fair or unbiased, showcasing expertise, etc. The dominance of ethos signifies credibility and trustworthiness of the speaker's words [48]. In this section, we evaluate credibility appeals as demonstrated in the actual information content of a message.

In our research, we connect credibility appeals with reference to the gender and authenticity of the narration. We argue that narrations that highlight female-oriented terms are trustworthy, and these terms enhance the trustworthiness of the message. Moreover, the authenticity of the text highlights the credibility and honesty of the charity seeker's message. Apart from the textual features, there can be other peripheral factors that enhance credibility appeal, such as the characteristics of the seeker, and these are discussed in the section on non-content factors.

Female References

Prior research has reported that women are more likely to be trusted by others as they have a greater tendency for social affiliation [49,50]. In an online investment gaming context, it is reported that a male is more giving toward an anonymous female partner than providing money to a male partner [51]. Extant literature on the success of crowdfunding projects has delineated that unlike the offline world, women are

more successful in the crowdfunding markets [10]. Women use more vivid, inclusive, and positive language that increases the likelihood of successful online fundraising. In the case of the RAOP website, the gender of the requesters is hidden, and thus, textual messages signifying female-oriented terms can highlight cases where either the spokesperson is female or the spokesperson refers to other members who are female. We posit that the presence of female references increases the chance of receiving a donation. The existing literature highlights that if the spokesperson is a female, women are more likely to be trusted than men. Interestingly, Smith et al. [52] have noted that donors contributed more to people who are perceived to be a part of a single, coherent group or in other words perceived as *entitative*. The researchers argued that children in need, who are part of a family, receive more contribution than when they have no explicit group membership. Thus, if the spokesperson is a man but refers to a group that has female members, it shows traits of entitativity, and additionally, the mention of female members enhances the trustworthiness of the request. The following narration was successful in attaining a donation on the RAOP platform.

*"My **Mom** just returned from trying to buy groceries and believes **she** was robbed while she turned **her** back from her cart. About $200 was taken from **her** wallet and so now we're out that money and groceries from tonight. Salt on the wound is that, upon reflection, **she** realized a man had been shadowing **her** almost the whole time in an almost empty store and the store doesn't have video cameras. My husband and I are down visiting, so it's 5 adults total. If you could spare enough for about 2 pizzas, you'd be doing us a great favor."*

In fact, Fienman [53] observed in an experimental setup that female subjects received more help than their male counterparts. In addition, females who were portrayed as dependents received more help than the females and males who were not dependent [54]. Hence, we analyze the impact of female-related terms in a narration on the success of the request.

H3a: The presence of female-related references in a charity message is positively related to the likelihood of receiving a donation.

Authenticity

Authentic narrations build credibility and trust into the minds of the readers. Concerns about online deception are very common and especially when donors have to rely on stranger's online narrations to decide whether to donate or not. These concerns arise owing to the disembodied nature of online communications where physical self is absent, and communications occur through textual means. Lying involves the manipulation of text and the careful construction of narration that appears to be truthful. Although liars may control the content of the stories, their underlying state of mind may be divulged in their style of writing. Deceptive statements are moderately descriptive, distanced from self, and more negative compared to truthful statements [55]. The deceptive linguistic style is often identified through

the use of fewer first person singular pronouns, more negative emotions, more motion verbs, and lesser number of exclusive words [56]. Requests that are more authentic and truthful instill trust in the minds of the donors and increase the chance to obtain a donation. We argue that a message that exhibits more authenticity has a greater chance of receiving a donation.

H3b: The authenticity of the charity message is positively related to the likelihood of receiving a donation.

3.2. Non-content Factors

Many readers of the post spend limited cognitive effort to determine the validity of the message. They tend to rely more on the easily accessible information that involves the consideration of the source's characteristics and other non-content cues. Readers de-emphasize detailed information processing and depend on simple rules or cognitive cues [57]. On the basis of our review of the extant literature, we include the following non-content factors that readers often use for evaluating a textual message.

3.2.1. Text Length

The depth of narration drives potential donors to formulate a favorable decision as longer text includes a more detailed background of the seeker's case and emphasizes their need in a more elaborate way. Research in social psychology posits that increasing the number of arguments in a message enhances its persuasive impact [58]. It also signals that the seeker is genuinely putting an effort for others to listen and alleviate his/her distress.

H4a: The length of the message is positively related to the likelihood of receiving a donation.

3.2.2. Popularity of the Post

The popularity of the charitable request is another indicator of the persuasiveness of the message. Li et al. [59] delineated the concept of popularity of an idea in terms of likes an idea in a user community generates and found its impact on the likelihood of the implementation of the idea to be significant. The popularity of the message signifies that the request is successful in striking a chord with the members of the community. Attaining a positive approval from the community members also emphasizes the credibility of the post.

H4b: The popularity of the message positively impacts the likelihood of receiving a donation.

3.2.3. Comments Received

Posting comments act as a screening mechanism for potential backers as it suggests that the community is interested in the narration and will like to develop a better understanding of the current status of the charity seeker by reducing the information asymmetry [29].

H4c: The number of comments received positively impacts the likelihood of receiving a donation.

3.2.4. Account Age

A person who has been a part of an online community is aware of its norms. The longer the person has been around in an online community, the greater is the chance of that person being trustworthy. Furthermore, with increased experience with the community, the member may know the right balance of features to be included in a narration that can enhance the likelihood of obtaining a donation.

H4d: The account age of the requestor of charity is positively related to the likelihood of receiving a donation.

3.2.5. Past Participation

Research on charity has indicated that multiple asks in a fundraising solicitation tend to generate a higher degree of compliance than solo asks [14]. Members who have posted before are aware of the norms of the community and will portray honesty in their requests. Research also has indicated that learning in crowdfunding endeavors occurs in a feedback cycle [26] where creators alter their subsequent behavior depending on their prior experiences. Donation seekers become aware of the features that are more likely to obtain success and hone their narrative skills accordingly. Additionally, a platform like the RAOP is a closed platform, and active participation signals to the community the genuine interest by the requestor to keep the platform alive through their dedicated contribution.

H4e: Past participation positively impacts the likelihood of receiving a donation.

3.2.6. Presence of Image

We posit that the presence of an image in a text that describes the plight of the seeker in a snapshot provides an illustrative signal to the decision maker, and he/she can decide promptly whether to donate or not. Research has indicated that presence of pictorial evidence can enhance the likelihood of success in a crowdfunding platform [24]. Thus, we state that

H4f: The presence of an image in a charity request positively impacts the likelihood of receiving a donation.

3.2.7. Controls

Prior studies on altruistic giving behavior have indicated that gratitude or expressing thanks and the use of reciprocity phrases are important predictors of success of charity requests [8, 60]. Thus, we use the presence of gratitude words and reciprocity phrases as control variables in this analysis. We also control for the length of the title of the narrative in our model. In the RAOP platform, the consolidated titles are shown to the prospective donors, and the donor can click on a particular request to analyze the narration in detail. A lengthy title may provide more evidence and may grab the attention of prospective donors.

Non-content Factors

Content Factors

Rational Appeals
Money-Related Discussion

Request Popularity, Comments Received, Account Age of Charity Seeker, Past Participation of Charity seeker, Text Length, Presence of Image

Emotional Appeals
Negative Emotions

Charity Received

Credibility Appeals
Female References
Authenticity

Linguistic Controls
Title Word Count, Presence of Gratitude Words, Presence of Reciprocity Phrases

Fig 1: Research Model.

4. Research Method

4.1. Data

The data used in this research are collected by a team of researchers from Stanford University from the RAOP subreddit [8]. Apart from the textual requests, the data also contain user features such as the user's history of posts, comments, and his/her account age. Written permission has been obtained from the researchers to use the dataset. The data are in JSON format and are converted using Python to a comma separated values file format. All requests are registered in English. The majority of the requests are from users based out of the US. In some cases, the textual requests are accompanied by images that enhance the trustworthiness of the postings as they provide visual evidence about the requestor's narration. There are 5671 textual requests in the dataset, out of which 4274 requests have failed to receive a pizza, and the remaining 1397 requests have been successful in receiving a donation. A charity request is deemed successful when the request for pizza is fulfilled by a member of the community. The data gathered are

from December 8, 2010 to September 29, 2013. The descriptive statistics of the variables are provided in Table 1, and Table 2 provides the correlation between the variables. It is normal to observe a high correlation between the presence and extent of money-related terms, negative emotions, and female-related references.

Table 1

Description of the Variables.

Variable	Mean	Std. Dev.	Min	Max
PizzaReceived	0.246	0.431	0	1
TitleLength (words)	11.616	7.086	0	56
ReciprocityPhrases (1=yes)	0.133	0.340	0	1
Gratitude (1=yes)	0.325	0.468	0	1
Popularity	0.462	0.365	-1	1
CommentsReceived	2.870	5.181	0	120
AccountAge (days)	252.905	302.626	0	2809.75
PastParticipation	0.058	0.311	0	5
TextLength (words)	78.691	76.018	0	1416
PresenceOfImage	0.025	0.155	0	1
PresenceOfMonetaryEvidence (1=yes)	0.677	0.468	0	1
PresenceOfNegativeEmotions(1=yes)	0.582	0.493	0	1
PresenceOfFemaleReferences(1=yes)	0.204	0.403	0	1
ExtentOfMonetaryEvidence	2.534	2.787	0	28.57
ExtentOfNegativeEmotions	1.644	2.602	0	100
ExtentOfFemaleReferences	0.557	1.495	0	16.67
Authentic	63.563	33.464	0	99

Table 2

Correlation of Variables.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
[1] TitleLength	1															
[2] ReciprocityPhrases	0.00	1														
[3] Gratitude	-0.03	0.09	1													
[4] Popularity	-0.01	0.00	0.02	1												
[5] CommentsReceived	0.02	-0.01	0.07	0.07	1											
[6] AccountAge	0.13	0.03	0.00	0.05	-0.02	1										
[7] PastParticipation	0.00	-0.02	0.00	-0.02	-0.01	0.03	1									
[8] TextLength	-0.03	0.09	0.25	0.04	0.16	-0.04	-0.03	1								
[9] PresenceOfImage	0.00	0.01	0.03	0.03	0.09	0.00	0.00	0.10	1							
[10] PresenceOfMonetary Evidence	-0.09	0.24	0.14	0.03	0.02	0.00	-0.02	0.34	0.01	1						
[11] PresenceOfNegative Emotions	-0.05	0.05	0.10	0.03	0.07	-0.01	-0.02	0.35	0.03	0.21	1					
[12] PresenceOfFemale References	-0.04	0.00	0.11	-0.03	0.08	-0.06	0.00	0.30	0.01	0.11	0.14	1				
[13] Authentic	-0.09	0.16	0.05	0.05	-0.01	0.04	-0.03	0.18	-0.04	0.29	0.16	-0.05	1			
[14] ExtentOfMonetary Evidence	-0.04	0.24	0.00	0.01	-0.04	0.03	0.00	0.02	-0.04	0.63	0.00	-0.05	0.2	1		
[15] ExtentOfNegative Emotions	-0.01	-0.03	-0.06	0.00	0.01	0.02	-0.01	-0.01	-0.01	-0.03	0.53	0.00	0.01	-0.03	1	
[16] ExtentOfFemale References	-0.02	-0.03	0.04	-0.02	0.04	-0.02	0.00	0.11	-0.01	0.02	0.08	0.74	-0.15	-0.05	0.01	1

4.2. Empirical Model

Because the dependent variable is binary, suggesting whether the seeker receives a pizza or not, we use a logit model with robust standard errors. To better appreciate the impact of content factors and non-content factors, we run three different models. Model 1 is the controls only model. The extant literature reveals that there are a number of papers that consider the source characteristics and non-information content cues [59]. Hence, Model 2 considers the non-content factors. We incrementally add the linguistic features to analyze the impact of persuasive factors on the success of receiving a donation. Model 3 highlights the scenario where we study the influence of rational, emotional, and credible appeals on the success of receiving a donation.

Model 1 (Controls only model)

$$\text{Probability (PizzaReceived} = 1) = \alpha_0 + \alpha_1 \text{TitleLength} + \alpha_2 \text{ReciprocityPhrases} + \alpha_3 \text{Gratitude} + \varepsilon$$

Model 2 (Non-content factors)

$$\text{Probability (PizzaReceived} = 1)$$
$$= \alpha_0 + \alpha_1 \text{Popularity} + \alpha_2 \text{CommentsReceived} + \alpha_3 \text{AccountAge}$$
$$+ \alpha_4 \text{PastParticipation} + \alpha_5 \text{TextLength} + \alpha_6 \text{PresenceOfImage} + \alpha_7 \text{TitleLength}$$
$$+ \alpha_8 \text{ReciprocityPhrases} + \alpha_9 \text{Gratitude} + \varepsilon$$

Model 3 (Presence of non-content and content factors)

$$\text{Probability (PizzaReceived} = 1)$$
$$= \alpha_0 + \alpha_1 \text{PresenceOfMonetaryEvidence}$$
$$+ \alpha_2 \text{PresenceOfNegativeEmotions} + \alpha_3 \text{PresenceOfFemaleReferences}$$
$$+ \alpha_4 \text{Authentic} + \alpha_5 \text{Popularity} + \alpha_6 \text{CommentsReceived} + \alpha_7 \text{AccountAge}$$
$$+ \alpha_8 \text{PastParticipation} + \alpha_9 \text{TextLength} + \alpha_{10} \text{PresenceOfImage} + \alpha_{11} \text{TitleLength}$$
$$+ \alpha_{12} \text{ReciprocityPhrases} + \alpha_{13} \text{Gratitude} + \varepsilon$$

4.3. Measurement of Variables

The dependent variable studied in this research is binary in nature and indicates whether a charity request successfully receives a pizza or not in the RAOP platform. We code the value as 1 if a pizza is received and 0 otherwise. Further, we incorporate content and non-content factors in our model. The information content-related factors are categorized into rational, emotional, and credibility appeals. The lexicon analysis is conducted with the help of the Linguistic Inquiry Word Count (LIWC) software. We compute the scores for different textual features by using the LIWC dictionary. Past research [61] has reported that the LIWC software is a valid tool for measuring the verbal expressions of emotions. The LIWC software has been widely used by various academic researchers [3,9,10,55,61–67], and it has shown reasonable predictive validity for various psychological measures [56,68]. A detailed description of how the software

functions is provided in the Appendix. The linguistic categories chosen to operationalize the concepts of rational, emotional, and credibility appeals in the LIWC software are money, negative emotion, and female and authentic respectively. We analyze the presence of rational, emotional, and credibility appeals in a narration. To compute the presence of particular appeals, we check whether the particular category of word is present in a narration or not. For example, *PresenceOfMonetaryEvidence* assumes a score of 1 if it finds a match in the money category list of LIWC. This signifies the presence of money-related evidence in the text. Similarly, *PresenceOfNegativeEmotions and PresenceOfFemaleReferences* assume a score of 1 if it finds a match in the negative category list and female category list of the LIWC software, respectively. The *authentic* factor based on prior research in the area of linguistics is computed from the LIWC software by considering the use of fewer first person singular pronouns, more negative emotions, more motion verbs, and fewer exclusive words [56]. To check the validity of the scores obtained using the LIWC software, we recruited two coders for the project and asked them to manually identify the presence of words that were money-related, negative emotions-related, and female-related in the message requests. We randomly selected 110 message requests from the dataset and found that the inter rater reliability between the LIWC software and the first human coder was 0.86, 0.80, and 0.95 for money-related, negative-emotions related, and female-related words, respectively. The inter rater reliability between the LIWC software and the second human coder was 0.87, 0.75, and 0.90 for money-related, negative-emotions related, and female-related words, respectively. A reasonable alignment is seen between ratings provided by the human coders and those provided by the LIWC software.

Further, we focus on the measurement of the non-content factors. Request popularity (*Popularity*) is the ratio of the difference of upvotes and downvotes to the total number of upvotes and downvotes received. This value ranges from −1 to +1. Upvotes are the positive approval for the request as registered by the fellow members of the platform. On the contrary, downvotes indicate disapproval of the request. A negative value for request popularity suggests that the overall reception has been negative for the post. *CommentsReceived* is the total number of comments a charity request receives at the time the data are collected. *AccountAge* indicates the experience of the requestor on the RAOP platform and is measured as the total number of days spent by the charity seeker on the RAOP platform. The number of charity requests posted on the RAOP by the seeker is denoted as *PastParticipation*. It captures the activities of the charity seeker on the RAOP platform. We next calculate *TextLength* as the total word count of the narration. *PresenceOfImage* is a binary variable that assumes a value 1 if a narration is associated with an image and 0 otherwise.

Furthermore, we add some linguistic control variables in our model. Prior research [8] has suggested the presence of *reciprocity* phrases such as "pay it forward," "pay it back," or "return the favor" or *gratitude* (thanks related) phrases can impact the success of a narration. The length of the Title (*TitleLength*) of the

narration can also be a significant predictor of success as some readers like to take decisions on the basis of the evidence furnished in the title of the narration without reading the information in the body of the narration. We control for this effect in our model as well.

5. Results and Discussion

Table 3 provides the estimation results for all three models. Model 1 studies the impact of control variables only. Model 2 considers the non-content factors and their impact on the likelihood of success of a donation. Model 3 focuses on the presence or absence of terms related to money, negative emotions, or female references along with other variables used in Models 1 and 2. The last block designated as year dummies provides the results for Model 3 when the years are controlled. The detail of this analysis is explained later in the discussion on robustness checks. Table 3 reports the coefficients and marginal effects of the logistic regression and some of the fit statistics (pseudo R^2, log likelihood, and AIC). We specify three forms of pseudo R^2 in our research. The increase in the value of pseudo R^2 suggests that the inclusion of content-based factors increases the explanatory power of the model. For example, the pseudo R^2 increases from 11.7% (Model 2) to 12.3% (Model 3). Similar figures are observed for the other two measures of R^2 as well. The results demonstrate that it is important to consider the features of the message content along with non-content characteristics.

Table 3

Estimation Results.

Variables	Controls Only Coeff	ME	Non-content Factors Coeff	ME	Content Factors Coeff	ME	Year Dummies Coeff	ME
TitleLength	0.010**	0.002**	0.008	0.001	0.011**	0.002**	0.013***	0.002***
	(0.004)	(0.001)	(0.005)	(0.001)	(0.005)	(0.001)	(0.005)	(0.001)
ReciprocityPhrases	0.268***	0.049***	0.304***	0.049***	0.172*	0.027*	0.175*	0.028*
	(0.087)	(0.016)	(0.092)	(0.015)	(0.094)	(0.015)	(0.094)	(0.015)
Gratitude	0.602***	0.110***	0.462***	0.074***	0.446***	0.071***	0.446***	0.071***
	(0.064)	(0.011)	(0.071)	(0.011)	(0.070)	(0.011)	(0.070)	(0.011)
Popularity			0.782***	0.125***	0.781***	0.124***	0.720***	0.114***
			(0.089)	(0.014)	(0.090)	(0.014)	(0.092)	(0.014)
CommentsReceived			0.139***	0.022***	0.140***	0.022***	0.136***	0.022***
			(0.015)	(0.002)	(0.015)	(0.002)	(0.015)	(0.002)
AccountAge			0.0004***	0.000***	0.0003***	0.000***	0.0001***	0.000***
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PastParticipation			0.940***	0.150***	0.971***	0.154***	1.006***	0.159***
			(0.099)	(0.016)	(0.103)	(0.016)	(0.103)	(0.016)
TextLength			0.002***	0.0002***	0.001	0.0001	0.001	0.0001
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

	(1)	(2) Coeff	(2) ME	(3) Coeff	(3) ME	(4) Coeff	(4) ME
PresenceOfImage		0.865*** (0.200)	0.138*** (0.032)	0.937*** (0.198)	0.149*** (0.031)	0.925*** (0.199)	0.146*** (0.031)
PresenceOfMonetary Evidence				0.357*** (0.084)	0.057*** (0.013)	0.348*** (0.084)	0.055*** (0.013)
PresenceOfNegative Emotions				0.020 (0.073)	0.003 (0.012)	0.017 (0.073)	0.003 (0.012)
PresenceOfFemale References				0.183** (0.085)	0.029** (0.013)	0.175** (0.085)	0.028** (0.013)
Authentic				0.003*** (0.001)	0.001*** (0.000)	0.003*** (0.001)	0.001*** (0.000)
Year Dummies							
2012						-0.173** (0.083)	-0.028** (0.014)
2013						-0.329*** (0.096)	-0.052*** (0.015)
Constant	-1.496*** (0.066)	-2.592*** (0.102)		-3.042*** (0.132)		-2.871*** (0.144)	
Pseudo R^2	0.017	0.117		0.123		0.125	
ML (Cox-Snell) R^2	0.019	0.123		0.129		0.131	
McKelvey & Zavoina's R^2	0.029	0.219		0.231		0.232	
Log Likelihood	-3112.52	-2790.7		-2771.59		-2765.301	
AIC	1.099	0.989		0.984		0.982	
No. of observations	5671	5671		5671		5671	

* p<.1; ** p<.05; *** p<.01. Coeff-Coefficients. ME-Marginal Effects. Standard errors in parentheses.

The significance of "PresenceOfMonetaryEvidence" implies that H1 is supported. H1 illustrates the importance of rational appeals for persuading donors to donate. We do not find support for H2, and it indicates that the mere presence of negative emotions in a charity request has no significant impact on the success of receiving a donation. Requests that describe the drudgery of the requestor cannot persuade a donor. Almost all requests describe the distress of the seeker, and hence, the presence of a negative emotion cannot explain the cause of success for a donation. The support for hypotheses H3a and H3b indicate that female references and authenticity of the text increases the trustworthiness of the narration and is more persuasive. In fact, Goering et al. [13] in an experimental setup showed that credibility appeals have the largest impact on the success of receiving a donation. From the estimation results of Model 3 (as shown in Table 3), we can say that the presence of monetary words and female-related references increases the log-odds of getting a successful donation by 0.357 and 0.183, respectively, when all other independent variables remain constant. The presence of monetary words and female-related references (from not having any monetary words or female-related references) increases the likelihood of

receiving donation by 5.7% and 2.9%, respectively. Furthermore, for every unit increase in the authentic score, there is a 0.1% unit increase in the likelihood of receiving a donation.

Apart from the content-related appeals, we also find support for the non-content factors. The popularity of the post (H4b), comments received (H4c), account age of the creator (H4d), seeker's past participation activities (H4e), and presence of an image (H4f) increase the likelihood of receiving a donation. We find partial support for the length of the text (H4a) as the relationship is statistically significant in Model 2 (Non-content model) but turns out to be insignificant in Model 3. Among the non-content cues (Model 2), the marginal effect of "PastParticipation" of the requestor is the highest (15%), signifying that a unit increase in the value of past participation is associated with a 15% increase in the probability of success. This is followed by the presence of an image (13.8%) and popularity of the request (12.5%). Among the non-content factors that are included in Model 3, for every unit increase in the score of popularity, comments received, account age, past participation, and presence of image, the likelihood of receiving a donation increases by 12.4%, 2.2%, 0.01%, 15.4%, and 14.9%, respectively. We also observe that control factors such as expression of gratitude and presence of reciprocity phrases are significant for all the models. From the estimation results, it is evident that both content and non-content factors have a significant impact on the likelihood of receiving a donation. However, from the results, we cannot claim that content-based factors are superior to non-content factors or vice-versa. The estimation results are summarized in Table 4.

Table 4

Results of Hypotheses.

Hypothesis	Result
H1: The presence of factual, money-related evidence in a charity message is positively related to the likelihood of receiving a donation.	Supported
H2: The presence of negative emotions in a charity message is positively related to the likelihood of receiving a donation.	Not supported
H3a: The presence of female-related references in a charity message is positively related to the likelihood of receiving a donation.	Supported
H3b: The authenticity of the charity message is positively related to the likelihood of receiving a donation.	Supported
H4a: The length of the message is positively related to the likelihood of	Partially supported

receiving a donation.

H4b: The popularity of the message positively impacts the likelihood of receiving a donation.	Supported
H4c: Comments received positively impacts the likelihood of receiving a donation.	Supported
H4d: The account age of the charity requestor is positively related to the likelihood of receiving a donation.	Supported
H4e: Past participation positively impacts the likelihood of receiving a donation.	Supported
H4f: The presence of an image in a charity request positively impacts the likelihood of receiving a donation.	Supported

5.1. Robustness Checks

As a part of post-hoc analysis, we run some additional tests to understand why H2 is not supported. Almost all requests portraying the need for a pizza are shown with a negative emotion highlighting the agony of the requestor, and thus, the presence of negative words may not be an important differentiator that predicts success. However, we observe that for experienced users, this relationship is significant at the 10% level of significance. Table 5 shows the results. We find that for experienced users, the presence of negative emotions has a significant impact on the likelihood of receiving a donation. We determine experienced users as requestors whose account age (in days) is greater than the mean account age of requestors and observe that for such users, the presence of negative emotions has a positive impact on the likelihood of obtaining a pizza. The community trusts and values an experienced member, and hence, their use of negative emotions is a significant predictor of success. We conclude that the community members treat their narration of suffering as more reliable and believable. An important implication of this observation is that sometimes content-based cues may impact the tendency to donate for some section of the population only.

Table 5

Estimation Results for Experienced Members.

Variables	Coeff.	ME
TitleLength	0.013*	0.002*
	(0.007)	(0.001)
ReciprocityPhrases	0.176	0.030
	(0.149)	(0.025)
Gratitude	0.514***	0.087***
	(0.108)	(0.018)

Popularity	0.665***	0.112***
	(0.146)	(0.024)
CommentsReceived	0.115***	0.019***
	(0.029)	(0.005)
AccountAge	0.0001	0.000
	(0.0001)	(0.000)
PastParticipation	1.155***	0.195***
	(0.163)	(0.027)
TextLength	0.0002	0.000
	(0.001)	(0.000)
PresenceOfImage	0.562*	0.095*
	(0.339)	(0.057)
PresenceOfMonetaryEvidence	0.359***	0.061***
	(0.129)	(0.022)
PresenceOfNegativeEmotions	0.199*	0.034*
	(0.114)	(0.019)
PresenceOfFemaleReferences	0.237*	0.040*
	(0.139)	(0.023)
Authentic	0.003*	0.0004*
	(0.002)	(0.0002)
	-2.886***	
Constant	(0.218)	
Pseudo R^2	0.1089	
No. of observations	2138	

Second, we conduct some additional analysis and try to decipher how the extent of presence of these appeals affects the success of receiving a donation. In our main analysis, we studied only the presence of these appeals in the textual request. However, now we seek to understand the impact of the extent of presence of such appeals in a textual message. In particular, we wish to know, if extent of presence of money-related terms, negative emotions, or female-related terms with respect to the length of the message increases the likelihood of success or not. We believe that with the increase in the extent of money-related terms and female references, the likelihood of success enhances. However, we argue that an over-emotional message characterized with negative words decreases the likelihood of success. It signals to the members of the community that the requestor is trying hard to sell his/her story, and these messages may not portray the true picture. We have noticed that the presence of mere negative emotional words is not a determinant of a successful donation barring experienced members. Donors will support charitable requests that represent the needy in an acceptable way [14]. Prior research suggests that there ought to be a balance of evidence in a charitable request. Thus, requests that talk too much about the agony of the seeker's life may not be effective. Over usage of negative appeals may sound manipulative [14]. Additionally, Cialdini's "Negative State Model" indicates that individuals seek to reduce their negative emotions [69]. In fact, Tversky and Kahneman [70] compared the impact of positive and negative frame valence, operationalized as describing outcomes in terms of "lives saved" versus "lives lost" and

concluded that positively framed messages yield successful outcomes. Thus, individuals may not appreciate the excess use of negative emotions. The following request did not receive any donation: "*Trying to hang, but severe stomach pangs are making it hard, and our jester pockets are, alas, empty*." We argue that as the extent of negative emotions increases in a request, the likelihood of receiving a donation decreases. Alternatively, extending from the arguments in our hypothesis development section, we believe that as the extent of the presence of factual, money-related evidence, and female-related references in a charity message increases, it will be positively related to the likelihood of receiving a donation.

Model 4 (Extent of the presence of content-related factors)

Probability (PizzaReceived = 1)

$$= \alpha_0 + \alpha_1 \text{ExtentOfMonetaryEvidence}$$
$$+ \alpha_2 \text{ExtentOfNegativeEmotions} + \alpha_3 \text{ExtentOfFemaleReferences} + \alpha_4 \text{Authentic}$$
$$+ \alpha_5 \text{Popularity} + \alpha_6 \text{CommentsReceived} + \alpha_7 \text{AccountAge} + \alpha_8 \text{PastParticipation}$$
$$+ \alpha_9 \text{TextLength} + \alpha_{10} \text{PresenceOfImage} + \alpha_{11} \text{TitleLength} + \alpha_{12} \text{ReciprocityPhrases}$$
$$+ \alpha_{13} \text{Gratitude} + \epsilon$$

We test Model 4 using logistic regression, and the results are shown in Table 6. We calculate the extent of the presence of words for each appeal in a request as the ratio of the total number of words pertaining to a particular category in the LIWC dictionary to the total length of the request. To compute the extent of the presence of appeals, we adopt the following procedure. *ExtentOfMonetaryEvidence* is computed as the ratio of the total number of times monetary-related words that are part of the money dictionary of LIWC are used to the overall length of the text of request. A similar procedure is followed for negative emotions and female references.

The results (as shown in Table 6) are significant and indicate that the extent of the presence of rational, emotional, and credibility appeals impacts the likelihood of success of receiving a donation. From Table 6, we can also conclude that a single unit increase in the extent of monetary evidence, female references, authenticity, and negative emotions is associated with 0.4%, 0.7%, and 0.1% increase and a 0.6% decrease in the probability of success, respectively. We find support for our argument that as the extent of negative emotions increases in a text with respect to its length, the likelihood of receiving a donation decreases. The above results show that the amount of appeals may be an important determinant of favorable donation. The last block designated as year dummies provides the results for Model 4 when the years are controlled. This is explained later in the section.

Table 6

Estimation Results for the Extent of Variables.

Variables	Model 4 Coeff.	ME	Year Dummies Coeff.	ME
TitleLength	0.010**	0.002**	0.012***	0.002***
	(0.005)	(0.001)	(0.005)	(0.001)
ReciprocityPhrases	0.200**	0.032**	0.199**	0.032**
	(0.096)	(0.015)	(0.095)	(0.015)
Gratitude	0.461***	0.073***	0.460***	0.073***
	(0.070)	(0.011)	(0.070)	(0.011)
Popularity	0.772***	0.123***	0.709***	0.112***
	(0.090)	(0.014)	(0.091)	(0.014)
CommentsReceived	0.141***	0.022***	0.136***	0.022***
	(0.015)	(0.002)	(0.015)	(0.002)
AccountAge	0.0003***	0.000***	0.001***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
PastParticipation	0.953***	0.151***	0.991***	0.157***
	(0.100)	(0.015)	(0.100)	(0.016)
TextLength	0.001***	0.0002***	0.001***	0.0002***
	(0.000)	(0.000)	(0.000)	(0.000)
PresenceOfImage	0.937***	0.149***	0.925***	0.146***
	(0.200)	(0.031)	(0.200)	(0.031)
ExtentOfMonetaryEvidence	0.027**	0.004**	0.028**	0.004**
	(0.012)	(0.002)	(0.012)	(0.002)
ExtentOfNegativeEmotions	-0.037**	-0.006**	-0.036**	-0.006**
	(0.016)	(0.003)	(0.016)	(0.003)
ExtentOfFemaleReferences	0.045**	0.007**	0.045**	0.007**
	(0.022)	(0.004)	(0.023)	(0.004)
Authentic	0.004***	0.001***	0.004***	0.001***
	(0.001)	(0.000)	(0.001)	(0.000)
Year Dummies				
2012			-0.186**	-0.031
			(0.083)	(0.014)
2013			-0.346***	-0.055
			(0.096)	(0.015)
	-2.881***		-2.709***	
Constant	(0.129)		(0.140)	
Pseudo R^2	0.122		0.124	
No. of observations	5671		5671	

* p<.1; ** p<.05; *** p<.01. Coeff- Coefficients. ME- Marginal Effects

Third, we also conduct some additional robustness checks concerning the timing of the registered requests. Prior reports on online charity funding suggest that a significant portion of donation occurs in the month of December as it marks the holiday season in the Western countries[3]. We remove the observations that may be attributed to the seasonality factor and find that our results still hold true. We

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[3] http://www.networkforgood.com/digitalgivingindex/

further analyze the contributions made in the last 3 months of the season as that marks the holiday season[4] and find similar results. In our case, almost 20% of all contributions occurred in the last quarter. The results are similar to those obtained in the main analysis for both the presence and extent of rational, emotional, and credibility appeals. Thus, our findings related to the impact of appeals on the success of a charity request are robust enough to account for any seasonality effect.

Fourth, we further check whether our results are consistent across the years or change with the change in the year of request. We introduce year dummies and observe that qualitatively the relationship between the presence of appeals and extent of appeals and its impact on success in receiving donation is similar across all years. This is also true for non-content factors. The results are shown in the last block of Table 3 and Table 6.

Finally, logistic regression is a popular method for cases where the dependent variable is binary because of its simplicity and ease of interpretation. However, the model assumes that the error term has a logistic probability distribution. The probit model takes an alternative assumption of the distribution of error term, and our analysis using the probit model also reveals similar results. Additionally, to ensure robustness of our findings, we remove requests with a blank title or blank message from our analysis and find that the results still hold true.

6. Implications, Limitations, and Future Research

6.1. Theoretical Implications

We differentiate between content-related factors that entail careful consideration of the message posted by the charity seeker and the non-content cues. We delineate the roles of logos (use of money-related terms), pathos (use of emotional terms), and ethos (use of female references and authenticity) in determining the success of a charitable request. Thus, we suggest that narration should contain evidence about the monetary condition of the charity seeker and use female references in the text to increase the likelihood of obtaining a pizza. In fact, literature on charity indicates that in an experimental setup for direct fundraising messages when the three appeals are present, the credibility appeals increase the amount of donation received the largest [13]. In general, the mere presence of negative emotions does not act as a significant predictor of success, although for experienced members of the platform, this relationship is significant. Additionally, we observe that an excessive use of negative emotions may sound manipulative, and it reduces the likelihood of securing a donation.

Moreover, we note that the popularity of the post, comments received on the post, account age of the requestor, past participation of the requestor, length of the text, and presence of an image positively

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[4] http://www.usatoday.com/story/news/nation/2014/11/11/charitable-giving-holiday-season/18822153/

impact the success of receiving a narration. Our results further suggest that in an environment where there are no explicit financial gains for the donors, reciprocity phrases and display of gratitude play an important role.

6.2. Managerial Implications

Our research provides distinct recommendations for individuals who rely on the online platforms to raise funds and where there are no returns for the donors. Causes, Crowdrise, Network for Good, DonorsChoose, FirstGiving, and Givlet are platforms that host charity projects, and insights from our research can benefit the seekers of charity who participate in these platforms. There are issues of "donor fatigue" in an environment where a prospective donor may become tired of receiving too many appeals for donations [71]. Thus, formulating a persuasive request that will grab the attention of the potential backer is of utmost importance.

We illustrate the importance of narration and features of the text that increase the likelihood to obtain a donation. Traditionally, women are unsuccessful in offline entrepreneurial fundraising, but success of online crowdfunding tells a different story [10], and our results also suggest that the presence of female-related terms increases the likelihood of success as it instills trust in the minds of the prospective donors. We further find that messages that mention the monetary situations of the seekers have a greater likelihood of success. Interestingly, we find that the presence of negative emotions is not a significant predictor of success. Almost all narrations talk about the distress of the seeker, and therefore, its persuasive power is limited. If the extent of negative emotions rises in a narration, the donors may feel that the seekers are trying hard to sell their stories, and this may adversely impact the success. Furthermore, from the robustness checks, we observe that for experienced members, the use of negative emotions increases the likelihood of receiving a donation. Among the non-content factors, we find that seekers who have posted before on this platform and have used images to enhance the credibility of the request have a higher chance of receiving a donation. Apart from these, the use of reciprocity phrases and indication of gratitude improves the likelihood of receiving a donation. Thus, organizations or individuals can use the appeals illustrated in our study to post donation requests.

Additionally, our research educates prospective donors who are keen to donate. Our recommendations can encourage them to consider the more persuasive or credible narrations when deciding to which campaign they should donate.

6.3. Limitations and Future Research

This research is not without limitations. First, our insights are applicable only for a donation-based altruistic crowdfunding platform where there are no explicit financial or non-financial benefits for the

donors. The equity-based, lending-based or reward-based crowdfunding models have a different mechanism that drives fundraising, and our insights may not be generalizable to those platforms. However, fundraising is a persuasive activity that seeks to convince the donors to contribute [13]. At the heart of any charitable donation lies the presence of compelling stories that persuade prospective donors by taking them through different emotional stages [43]. Thus, the persuasiveness of the content is a key to convince donors to donate, and charitable giving uniquely involves "generating consumer sympathy for other people and worthy causes" [17]. In the case of pure monetary donation as well as in our case, the prospective donors process the information provided and go through different emotional stages and provide donation to the most persuasive narration. Furthermore, for both cases, there is a sense of concern whether the donation is going to the one in need or to a credible source, and hence, donors scrutinize the message relying on content and/or non-content factors related to the message. In addition, pizza coupons are not free of cost and have a certain monetary value attached to them. Thus, although we have analyzed a pizza donation charitable platform, we believe that the decision-making process will be representative across other online charitable platforms. Second, we have studied a single platform and provided our insights on the basis of this platform. Although the RAOP platform is unique and controls for many confounding factors that dilute the impact of textual narration, a future research direction can be to use another altruistic platform to study the linguistic features used in that platform's narrations with that of the RAOP in a comparative manner. Additionally, the object of donation here is a pizza coupon, and the insights may change when donors are requested to donate money. Third, we have shown a bag-of-words approach method to understand the impact of text on the success of the donation. However, additional automatic extraction techniques to characterize text can be explored in future research. Fourth, literature on the psychology of donors in the crowdfunding platform has not been studied well. Future research can focus on analyzing the personality and psychological traits of the user who donate in an altruistic platform. Finally, the Aristotlean appeals that are studied in this research have been operationalized using monetary terms, negative emotions, female-oriented terms, and authenticity. However, it is possible that a more efficient method of operationalization of these appeals can be made, and researchers can examine that in future. Despite these limitations, we believe our paper addresses many gaps that are inherent in the literature on crowdfunding and charitable donations.

7. Conclusion

Our research illustrates the importance of textual factors in determining the success of a charity request in an online platform. We develop our research model depending on the content and non-content categorization and further expound on the role of rational, emotional, and credibility appeals amongst the

content features. We show how some of the persuasive appeals, as well as the non-content cues, have a significant impact on the success of the charity request. Specifically, we find that presence of money-related terms and female references increases the probability of success, and as the extent of use of money-related evidence and female references in a text increases, it positively impacts the likelihood of success. Alternatively, as the extent of use of negative emotions increases in a request, it negatively impacts the likelihood of success. Additionally, some of the non-content factors such as the popularity of the post, comments received, account age of the requestor, prior participation, length of the text, and presence of an image in a text enhance the likelihood of success in an online altruistic platform. Our research will be beneficial to all those charity seekers who post their requests on philanthropic crowdfunding platforms.

Appendix

The lexical analysis in this research is conducted with the help of the Linguistic Inquiry Word Count (LIWC) software. We compute the scores for different textual features by using the LIWC dictionary. The linguistic categories chosen to operationalize the concepts of rational, emotional, and credibility appeals in the LIWC software are money, negative emotion, and female and authenticity, respectively. According to the LIWC 2015 version of the software, there are 226 words in the money category, 744 words in the negative emotion category, and 124 words in the female references category. Some of the words present in the money, negative emotion, and female reference categories are as follows: money: *bank, budget, stipend, buck, cash, bill, revenue, recession, dollar, dues*; negative emotions: *agony, poor, sick, weep, suffer, hopeless, pain, lonely, upset, unlucky*; female: *aunt, girl, mom, maid, sister, woman, her*. It is to be noted that this is only a representative sample of words for each category.

The LIWC manual describes the following steps in the creation of the dictionary. First, a grand list of words pertaining to different word categories is prepared by a panel of judges (around 4- 8). Second, in the judges' rating phase, the exhaustive word list prepared in the first stage is assessed qualitatively in terms of goodness of fit. In the third stage, texts from many sources (huge corpus consisting of blog posts, language studies, social media data, novels, etc.) are analyzed to understand how the words in the dictionary are used in different context. In the fourth stage, candidate word lists are generated for words that are not added previously by judges but those that frequently occur in many texts. Stage five constitutes psychometric evaluation of the categories. The above processes have been carried out iteratively to compute the LIWC dictionary.

In our study, we first analyze the presence of rational, emotional, and credibility appeals in a narration. To compute the presence of these appeals, we check whether the particular words in a category are present in a narration or not. For example, *PresenceOfMonetaryEvidence* assumes a score of 1 if it finds a match in the money category list of LIWC. This signifies the presence of money-related evidence in the text.

We compare the LIWC dictionary against the charity requests and determine the extent of presence of words for each appeal in a request as the ratio of total number of words pertaining to a particular category in the LIWC dictionary to the total length of the request and multiply the number obtained by 100. To compute the extent of presence of appeals in a charity request, we adopt the following procedure. *ExtentOfMonetaryEvidence* is computed as the ratio of total number of times monetary-related words that are part of the money dictionary of LIWC are used to the overall length of the charity text. A similar procedure is followed for negative emotions and female references.

The *Authentic* factor based on prior research in the linguistic area is computed using the LIWC software by taking into account use of fewer first person singular pronouns, more negative emotions, more motion

verbs, and less number of exclusive words [56]. A higher number of authentic features are associated with a more honest, personal, and disclosing text, while a lower number suggests a more guarded and distanced form of narration.

In Table A, we incorporate the scores for the extent of presence of monetary evidence, negative emotions, and female references. These values have been used for building Model 4. If the scores have a non-zero value, then a value of 1 (otherwise, 0) is assumed in Model 3.

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Table A

Messages and Corresponding LIWC Scores for Different Appeals.

Text	Monetary Evidence	Negative Emotions	Female References
Its been a rough week i've been having some family problems and work problems and shits and today is just not going right I know i've asked and received before but hopefully someone can take pity and hook me up	0.00	10.00	0.00
Louisiana native here. My bike broke down and I had to spend money to get it repaired at my shop... that being said, I'm broke now. I don't get paid until Wednesday so a pizza would really help keep me from going hungry for the next 3 days.	8.33	4.17	0.00
After a tiring two-weeks, including an ambulance ride for one kid, a hospitalization (she's okay now), 1 with a head ache (she's only 4, and has cluster head aches), and 1 that's home schooled due to bullies (Autism). This mommy is TIRED and could use a pizza night! We can't afford it right now. I'll make it up to you guys and pay it forward when things are not so crazy around here! Also, for verification of the medical stuff I can forward you to our facebook page for our kids medical updates, I just don't want to post it publicly. Thanks in advance!	0.95	2.86	2.86
I'm going into a residential rehab tomorrow for 6 months. It's finally time to get my life together once and for all. A pizza from a random redditor would be a great going away gesture. Thanks	0.00	0.00	0.00
Everyone I live with is either hours away or visiting family and i'm sitting here doing nothing.	0.00	0.00	0.00
"Hello RAP, I am a student at UNT in Denton, TX and I would like some pizza please."	0.00	0.00	0.00
I just want a pizza. I'm tired of eggs, ramen, and grits. A pizza for dinner would be rad. That's all. Thank you	0.00	0.00	0.00
I'm a U.S. history major that would love a pizza to help get me through this long day of studying ahead.	0.00	0.00	0.00
These three dogs are a handful and are making me hungry! Would love a pizza this New Years Eve as my spouse/in-laws are out of town and I'm feeling kinda lonely. Thanks in advance :)	0.00	2.78	0.00
To whom it may concern, I just bombed a Math test and now I will be up all night studying for Finals and doing most of my Math work that is do tomorrow. If anyone could take pity on a brother I would greatly appreciate it.	0.00	2.17	0.00
My kids are home for the summer, and I have NOTHING good to cook tonight. Payday is a few days away and (despite my epic culinary skills) I can't muster up anything tasty. Last night I tried to make a spicy noodle dish with broccoli that caused the kids not speak to me for the rest of the evening. Please help me reclaim my position as a cool mom. The kids have different tastes, but a nice pepperoni pizza would do the trick. Thank you for considering me and the little ones.	1.09	1.09	1.09
Currently home on leave for a few days with my kid, I'm currently in a money situation until the 1st. Trying to see if I	2.22	0.00	2.22

could get a little help till then to put a smile on my daughters face. It will be greatly appreciated.			
Hey guys, my roommate/partner in rhymes lost his job yesterday and I've been unable to find work for months. We've no money (at all) for at least another few days and we're down to three potatoes. These boys are heavily craving some za to break the monotony and lift our spirits a bit. Thanks in advance to anyone wishing to send some good karma our way!	1.49	1.49	0.00
I'm broke again, fridge empty. Did not have enough money after bills and such to do any food shopping. I only have my carfare to and from work on a metrocard. I would appreciate a pizza, please and thanks a million. :)	7.14	4.76	0.00