

# Social Aspects and Successfully Funding a Crowd-Funding Project: The Impact of Social Information

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**Abstract**—Recently, philanthropic crowd-funding -the raising of external funding from a large audience via social networks or social media- emerged as a new funding instrument for the Dutch cultural sector. However, such philanthropic crowdfunding in the US and the Netherlands is less successful than any other form of crowdfunding. We argue that social aspects are an important stimulus in philanthropic crowd-funding since previous research has shown that crowdfunding is stimulated by something beyond financial merits. Put simply, crowd-funding seems to be a socially motivated activity. In this paper we focus on the effect of social information, described as information about the donation behavior of previous donors. Using a classroom experiment we demonstrated a positive effect of social information on the donation behavior in crowdfunding campaigns. Our study extends previous research by showing who is affected by social information and why, and highlights how social information can be used to stimulate individuals to donate more to crowdfunding projects.

**Keywords**—Online donation behavior, philanthropic crowd-funding, social information, social influence, social motivation.

## I. INTRODUCTION

PHILANTHROPIC crowdfunding is a fundraising instrument to fund a project, using an open call, mostly through the internet, to tap a large crowd of (unknown) individuals for small sums of money without providing financial return [1]. Any individual can start a crowdfunding project; the owner of the project is called a ‘creator’. Only those projects that reach the before-defined target amount within the set time are considered successful [2]. On the other hand, if the target amount is not raised/ acquired in time, the creator does not receive the necessary funding and the project will not be realized. Philanthropic crowdfunding is less successful in gathering money than other forms of crowdfunding [1]. Thus, for crowdfunding creators it is essential to understand which factors enhance the success of a philanthropic crowdfunding project.

Previous research has already shown how social aspects of the creator influences funding success. For example, it has been found that the network of the creator [3] or the reciprocity of the creator (i.e. publicly funding other crowdfunding projects) [4], [5] influences crowdfunding success, while previous experience in crowdfunding projects has no influences [4].

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The research reported in this conference article was funded by the Dutch Organization for Scientific Research (NWO).

Other research demonstrates that the specification of particular project characteristics influence funding success [4], for instance; the depth of the project description [6] the target amount [7] or related pictures and videos [4], [7]. Despite the value of previous research on factors which influence the success of crowdfunding projects, the relation between social aspects of the donors (instead of the creator) as additional information remain under-examined. This is surprising considering that social aspects are important factors in crowdfunding, where it has been shown that donor’s interests go beyond just financial merits. In other words, donors seem to be socially motivated to invest [8]. In this line, we question how details of the donation behavior of previous donors (as a form of social information) support funding success [9].

Our analysis is of interest for individuals that intent to use crowdfunding as a funding method for their projects. Our results are relevant to all stakeholders involved in crowdfunding platforms, because the findings help to assess ex-ante whether projects will be successful in funding. With this study, we additionally contribute to the literature on crowdfunding success by providing a more comprehensive view on which factors influence the success of crowdfunding projects. We thereby extend the previous literature by not only taking into account either project-specific aspects or donor-related aspects. Instead, we consider the joined impact of both by providing social information as a project characteristic.

The behavioral evidence in this study comes from seed money donations in a class-room experiment, with students from the VU University, a major university in the capital of the Netherlands. The context was semi-hypothetical: the participants were informed that there was a ten percent chance that their donation would actually be donated to the project. In the literature on social information, the majority of the data has been collected through field experiments. As a result of this approach, the positive effect of social information on donation behavior remains relatively unexplained. The advantage of our methodological approach allows us to search for possible underlying mechanisms. Thus, next to providing evidence on the main effect of social information on donation behavior, we also underline several personality characteristics, which amplify or diminish the effect of social information which provides avenue for further research.

This paper is organized as follows. In the next section, we review theoretical approaches to social information in a charitable context, describing terms like conforming and social norms. Following this, we describe the methodology and research context. Next, we will present the results and conclude with a discussion of the implications for

philanthropic organizations and literature focusing on social situations and donation behavior.

## II. THEORY AND HYPOTHESIS

Our paper is structured according to the theoretical model in Fig. 1. First we discuss the main effect of social information on donation behavior. Next, we discuss several personality characteristics, which amplify or diminish the effect of social information.

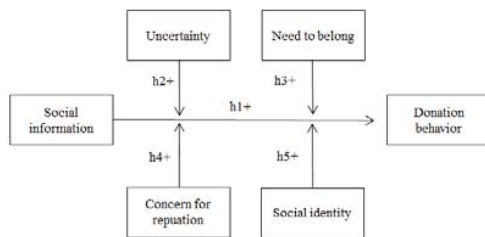


Fig. 1 Theoretical model

### A. Philanthropic Crowd-Funding

Crowdfunding developed in 2006, since then several studies have investigated which factors influence the success of crowdfunding projects [4]. For instance, only those projects that reach the previously-defined target amount within time are considered successful [2]. Thus, it is important to consider the donation behavior as an essential factor for crowdfunding, since the behavior of the donors essentially determines the success. We further specify donation behavior as (1) the average an individual donates, (2) the number of donors and (3) the total assembled amount.

We chose to study philanthropic crowdfunding, in which donors receive no financial compensation (i.e. donation-based crowdfunding) or a small reward, tokens of appreciation or small tangible rewards such as tickets or photos (i.e. reward-based crowdfunding). Philanthropic crowdfunding has received less attention from researchers than commercial crowdfunding, and as a result we know less about possible stimulants for increasing the success rate (i.e. assembling the amount in time) of philanthropic crowdfunding projects. This is despite expected differences in what assuagingly drives donors in commercial crowdfunding (i.e. desire to use a new product) and philanthropic crowdfunding. For example, as a result of the absence of a financial compensation, prosocial behavior is expected to have a dominant influence in philanthropic crowdfunding [10], [11].

Previous research has confirmed that providing *project* information to platform members and visitors is an important factor for success [4], [6]. For example, providing a descriptive video [4], [7], updates and progress reports [4], [12], specific words in the project description [13] and general project characteristics [2] have a positive influence on successfully assembling the target amount.

Other researchers focused on providing information about the *creator*. Demonstrating that publishing whether the creator has funded other crowdfunding projects has a positive effect

on their own crowdfunding success [4], [5], while information about whether the creator has previously created a crowdfunding project has no influence [4]. These studies focus on two of the building blocks of crowdfunding, namely the project and creator, and ignore the third building block: the donor. These studies have in common that they do not consider the question of whether providing potential donors with information about the behavior of previous donors influences the success of a crowdfunding project.

To summarize, previous research either focus on the factors influencing funding success from a project perspective or focus on the question whether information about the behavior of the creator has an influence. However, as important as both aspects are for funding success [4], previous research is neglecting another potential influence: the donor. Consequently, we close this research gap by researching whether information about the donation behavior of previous donors increases the chance of success, to provide a more comprehensive view.

### B. Social Information, Previous Donation Amount

A growing number of researchers have focused on variables and tactics that affect an individual's willingness to yield to a request. One stream focuses on the social situation facing a donor, concluding that in general the donation context has an influence on the donation behavior [15]. In this paper we aim to quantify the effect of one such context: that of the donation behavior of previous donors referred to as social information [9]. To be specific: we focus on one type of social information, namely the donation amount of previous donors. In general, publication of social information positively influences donation behavior: e.g. on the amount an individual donates [9], [15], [17], the number of donors [14], [17]-[19] and realized amount [9], [14], [17]. Generally speaking, publication of social information positively correlates with donation behavior [1].

**Social norm:** Social information can be perceived as a social norm, since it helps individuals to align their behavior with others' behavior. Based on the social influence literature, it is suggested that two types of social norms underlie prosocial behavior: injunctive and descriptive [20]. Injunctive social norms may increase charitable giving by informing individuals about what they ought to be doing [21]. Research suggests that injunctive norms can have a positive effect on donation behavior [21], since ignoring injunctive norms tends to elicit social disapproval [20]. On the other hand, individuals might be influenced by descriptive social norms, which describe what is typically done in a given situation (i.e. what most people do).

Social information as described in this paper refers to descriptive norms, since it provides individuals with information about the behavior of other individuals. Descriptive norms tend to be effective since individuals assume that this is likely effective and appropriate in a given situation [20]. The influence of social norms is stronger when the following conditions hold. First the individuals must perceive the situation as ambiguous [22]. As a result,

individuals mimic the observed behavior of other individuals [23]. Second, social information refers to the behavior of individuals with similar attributes, used when objective standards and information of similar others (e.g. family and friends, i.e. strong ties) are not available [24]. This reasoning seems to be consistent with the finding that social information has no effect on renewing donors [9]. Renewing donors can be expected to no longer perceive the donation environment as ambiguous and as a result social information has no effect.

Previous research: The work of two economists [9] comes closest to our work. In several studies they investigated the influence of previous donation amounts on the average an individual donates to a radio campaign, providing information on individual behavior in a charitable context. Our work differs from theirs in the type of charitable context, dependent variables and in the motivation for the investigation. In this paper we focus on an online context and our dependent variable is more finely defined.

Previous research has collected data from Justgiving projects [16], [25], [26], which is another type of online funding. Justgiving projects are closely related to crowdfunding projects (both assemble money for projects online) and comes closer in terms of context than a radio campaign [9]. Still, we argue for an important difference between the two fundraising types: the donors. Justgiving projects are primarily funded by strong ties [25]; individuals known to the project creator like family, friends, work colleagues. However, donors of crowdfunding projects are primarily weak or latent ties [27]. Thus, the strength in relation between ‘asker’ and donor differs between Justgiving and crowdfunding projects. As a result of mechanisms like reciprocity – family and friends do not want to damage the relation with the creator- the Justgiving context could result in a different/positive influence of social information, compared to crowdfunding projects where project creators assemble money for themselves.

*Hypothesis 1. Social information has a positive effect on donation behavior in a crowdfunding context.*

### *C. Feeling Uncertain*

Uncertainty can be described as a feeling of doubt about a situation and not feeling sure about what to do [28], thus referring to an individual’s sense of their own psychological state. A lower level of uncertainty relates to higher prosocial behavior [29], but in accordance with Bekkers (2012) we expect that a higher level of uncertainty in combination with social information results in more prosocial behavior. For example, social information signals quality [30], which provides individuals with information about the quality of the project [31]. We expect that social information persuades individuals who are uncertain whether they should donate to a specific project, therefore increasing the number of donors.

Next to providing a quality reference, social information is likely to work as ‘social proof’ [32]: when uncertain about how to behave appropriately individuals are more likely to behave according to social norms provided via social information [33]. We expect that social information provides a

reference for individuals who are uncertain about the ‘right’ donation amount, because we expect that social information has an influence on the amount an individual donates.

We also expect that social information will affect donor behavior in different ways depending on which type of social information individuals focus on, we therefore have a more precise prediction: one type of information affects the number of donors by providing a quality signal. The other type of information affects the average an individual donates by providing a social norm.

*Hypothesis 2a. The more uncertain an individual is, the greater the influence of social information on the average individual amount donated.*

*Hypothesis 2b. The more uncertain an individual is, the greater the influence of social information on the number of donors.*

*Hypothesis 2c. The more uncertain an individual is, the greater the influence of social information on the total amount raised per project.*

### *D. The Need to Belong*

The need to belong is defined as the drive to develop and maintain a minimum of durable and positive interpersonal relationships [34]. Accordingly, belongingness is an innate psychological need and a basic intrinsic motivation [35]. Research on the need to belong identifies belongingness as a fundamental human motivation and demonstrates that individuals are fundamentally motivated to belong to a valued group [34], [35]-[38]. For instance, researchers identified that individuals seek to confirm a sense of belongingness (i.e. being part of) to avoid feelings of loneliness and alienation: companionship predicts happiness, well-being and decreases loneliness [39], [40]. Thus, a sense of belonging is a precursor of social connectedness and a buffer against loneliness [41]. However, it is important to note that the construct of belongingness remains unique from related constructs, like attachment [42], loneliness [43] and perceived social support [44]. For example, loneliness might be the opposite of belonging to a group, but it is not the opposite of the need to belong; that one does not belong to a group and could therefore score high on loneliness is insufficient to inform us about the need one has to belong to a group.

To be more specific, we perceive the need to belong as one of the sub-dimensions of belongingness [45]. Belongingness is composed of two aspects: social connectedness and social assurance [45]. Social connectedness refers to an individual’s opinion of self in relation to other individuals [45]. This sub-dimension of belongingness focusses on the emotional distance or connectedness between the self and other individuals and the struggle to maintain a form of belongingness; we are interested in the need to belong.

We therefore focus on the second dimension of belongingness: social assurance. Social assurance refers to one’s reliance on other people and focuses on the need for reassurance from others in social situations to sustain a sense of belongingness [45], in other words the need to belong. As a result of this motive, individuals are attentive to any type of

social information [46]. As a result of an exposure to social information, the individual might adjust their donation according to this norm, in service of belongingness.

*Hypothesis 3. The higher one scores on the need to belong, the greater the moderating influence on the relation of social information on donation behavior.*

#### E. Concern for Reputation

In psychological terms, reputation is defined as a social representation -consisting out of complex sets of information like social expectations- constructed by members of a social group [47]. Previous research has connected a concern for reputation to donation behavior [17], [48], [50]. Being able to donate publicly is beneficial, since it appears to increase the average amount donated by individuals in an offline context [31]. The authors explain their findings by stating that it gives the individual the chance to signal their generosity through prosocial behavior. In terms, prosocial behavior can have important social consequences, people donating to charitable causes are held in high regard by their peers [50], and receive recognition and approval from others [50]. To be specific, individuals driven by reputation are concerned with donating the appropriate amount, having a reputation as a cooperative and helpful group member can be valuable in multiple ways: these individuals are seen as more trustworthy [51], and more desirable as friends [52].

The literature suggests that individuals might donate less for 'doing good' and more for social reasons. By donating, an individual can signal to others that he or she is prosocial, rather than a pro-self, individual. That is, instead of buying a product for him- or herself, the donor instead voluntarily chooses to benefit for the public good. We are interested in an individual's concern for reputation, i.e. people's concern about their position and reputation within the group.

*Hypothesis 4. The more an individual cares about his reputation, the greater the influence of social information on donation behavior.*

#### F. Identification with a Social Group

The importance of social group membership is reflected in social identity theory [53]-[57]. According to social identity theory, a social group is a collection of individuals who see themselves as members of the same social group (or category). Accordingly, social identity refers to how an individual views himself in relation to a social group or category [55], e.g. I identify with this group.

We observe a shift in terminology in the 90s from social identity to collective identity [59]. While the status of collective identity was a topic of some debate within the social movement literature, we observe that recent papers refer to the old term 'social identity'. In line with more recent literature we prefer the original term social identity [59], [60].

We distinguish between social identity and social identification, describing that these are not operationalized in the same way. Here social identity refers to the group as a (perceived) entity [61]. This entity is connected to a range of

characteristics associated with its membership, like norms and its relation to outgroup [61]. On the other hand, we focus on social identification, which refers to the positive emotional value of an individual member's relationship to that entity [61]. We stress that in line with the basic assumption of the group identification model [59], social identification reflects the relationship of an individual to a group.

Identification with a group presumes a self-categorization that includes the individual in a group [55], [56], however the identification with a group means more than simple inclusion in the group [56]. Individuals' membership in groups has serious implications for their experience and behavior [59]. Individuals strive to maintain a positive social identity and behave in such a way to achieve this. One can expect that once a group an individual identifies with behaves in a certain way (e.g. group donates XX euros), the individual observing this behavior adjusts his behavior to mirror the behavior of the group (e.g. individual who identifies with that group donates an amount close to the XX euros), i.e. conforming behavior.

*Hypothesis 5. The more congruent the identity between the donor and the source of social information, the greater the influence of social information on donation behavior.*

### III. METHODS SECTION

This paper consists out of two classroom experiments with students. We are currently developing a field experiment with real donors from the Dutch cultural crowdfunding platform Voordekunst. An overview of the (forthcoming) experiments can be viewed in Table I.

TABLE I  
OVERVIEW EXPERIMENTS

Experiment	Subject design	Setting	Sample	Context
1	Within	Classroom Low density	Students	Hypothetical Seed money
2	Between	Classroom High density	Students	< hypothetical Seed money
3	Between	Field experiment	Real donors	Non-hypothetical Real money

The first classroom experiment was a pilot to test the design, manipulation and shorten the surveys. The second experiment was used to test the manipulation before we tested it in the field. The classroom experiments portrayed an environment that closely resembled the one used during the field experiment. We used real crowdfunding projects, similar in design as the projects on Voordekunst.

The classroom experiments were designed without incentives. Thus, this version is not a direct representation of the field experiment, but we are not sure how the incentives influence the relation between social information and donation behavior. It is therefore important to first research the effect of social information without the incentives.

The control condition is a direct representation (i.e. copy) of a real crowdfunding project, providing donors with: the target amount, project description, percentage assembled from the target amount etc. The treatment condition provides donors



with social information. In the treatment condition, social information was displayed in a yellow box at the high right side of the picture with the following text: “did you know that the average amount donated for this project is €15”. The study was presented as an investigation about students’ interest into crowdfunding art projects.

#### IV. EXPERIMENT 1

##### A. Procedure

We presented the same project twice, first the control and then the treatment condition. We then asked the participants if they wanted to make a donation and how much. The rest of the survey consisted out of several questions which can be viewed in Appendix A.

The experiment was conducted during a 20 minutes break of a lecture. There were three experimenters present during the experiment, two during the whole experiment and the third experimenter stepped in during the break. Before the lecture started, one of the experimenters gave a brief introduction: (1) who the experimenter is, (2) why this experiment: research crowdfunding and we would like to know which project are attractive, (3) explaining crowdfunding, (4) describing current project, (5) explaining that they would be shown a real crowdfunding project and mentioning that it was their decision to make a donation or not, (6) explaining that it is a real project of the crowdfunding platform Voordekunst, (7) emphasizing that if they wanted to participate, making a donation was not mandatory. It was their decision if they wanted to make a donation, (8) describing the incentive, (9) describing how they can access the questionnaire, (10) asking the participants to imagine that they are real donors, (11) we especially emphasized that participating was voluntarily.

We used an online survey using the provider Qualtrics. The survey was accessible through a QR code or a short link, which was printed out on a pamphlet. After the summary the three experimenters handed out the pamphlets to the students. Each pamphlet had a number which the participants could fill in at the end of the questionnaire if they wanted to make a chance of winning a gift voucher. To fill in the questionnaire the students could use their phone, Ipad, laptop or tablet. Similar to the first experiment we observed that most of the students used their phone.

The participants could start after receiving the link and we observed that, similarly to the first experiment, the participants were concentrated on filling in the questionnaire in silence. After the students finished, the experimenters handed out a chocolate treat to everyone in the room. The same experimenter who gave the introduction and summary concluded the experiment by debriefing the students, for example explaining the research question. The participants were again thanked for participating.

##### B. Measures

The survey consisted out of published and unpublished surveys. Below we give a brief summary of the main surveys. Next to these items, we also added several extra questions for

our exploratory analysis. For example: (1) would you make a donation with your own money?, (2) do you think that projects such as these assemble a lot of money through the use of crowdfunding?, (3) how often have you made a donation in the last 12 months.

The need to belong: To measure the need to belong, participants were invited to answer the *social assurance sub-scale* which is one of the two the sub dimensions of the *belongingness scale* [45]. The survey contains 8 Dutch items, through which individuals can express their agreement on a six-point scale, ranging from 1 (strongly disagree) to 6 (strongly agree). An example is “I join groups more for the friendship than the activity itself”, higher scores correspond to a higher need to belong. We chose this scale, since it measures exactly what we intent to measure with an acceptable internal (Cronbach’s  $\alpha = .77$ ). We also added two additional questions (see Appendix A).

Concern for reputation: To measure concern for reputation, participants were invited to answer the *Concern for Reputation Scale* (CFR) [46]. The questionnaire contains seven items (written in Dutch), through which individuals can express their agreement on a five-point scale, ranging from 1 (absolutely disagree) to 5 (absolutely agree). An example is “I am rarely concerned about my reputation”, higher scores correspond to a higher concern for reputation. We chose the CFR, since it measures exactly what we intent to measure with an acceptable internal reliability (Cronbach’s  $\alpha = .83$ ).

Social identification: In order to assess individuals’ social identification we used the *Single-Item Measure of Social Identification* (SISI) [61]. The SISI is based on one item (written in Dutch): “I identify with my group”, followed by a 7-point scale indicating agreement (1= *fully disagree*, 7= *fully agree*). This item is based on the questionnaire of Leach and colleagues (2008), which consists out of fourteen items. In general multi-item measurement instruments are preferred over short ones. However, there are several situations in which short scales are preferred for pragmatic reasons [61]. For example, during a field experiment one wants to create a natural environment, thus a long questionnaire would not fit into the design.

Fortunately, short questionnaires are superior to long questionnaires when there is a reasonable degree of homogeneity [62]. The shortest version of a scale is a single-item measure. Social identification has successfully been operationalized in a single-measure [61], [63].

Uncertainty: To measure uncertainty we included the following yes or no question: “Did you have a prior donation amount in your mind?”. Followed by an open question to fill in the prior donation amount.

Finances: We used two items from the *Dutch European Social Survey* (ESS). The first item, “Do you have enough money per month?”, was measured on a four-point scale ranging from 1 (no at the end of the month I am more in debt than before) to 4 (yes at the end of the month I have money left) to. The second item, “How important is money for you?”, was measured on a five-point scale ranging from 1 (really unimportant) to 5 (really important).

**Identifying the sample:** To measure if the sample is a representation of the intended sample in the field experiments, we added the statements “I am interested in [theme project]”, followed by a 5-point scale indicating agreement (1= *fully disagree*, 5= *fully agree*). Another question asked if the participant has made a donation to [theme project] in the last 12 months, followed by the question if an individual would find it likely to donate to [theme project] project in the future, followed by a 5-point scale indicating probability (1= *very unlikely disagree*, 5= *very likely*).

**Check for attention.** It is important to have an indication if the participants were paying attention while filling in the questionnaire. We have therefore added several control questions, which ask the participant about the information provided in the project. For example: “What was the target amount”, “What was your monthly budget”.

### C. Participants

The sample consisted out of 20 Dutch social science students (60% male). In the control condition the participants indicated that on average they were neutral towards the projects in terms of finding it fun ( $n = 20$ ,  $M = 3.10$ ,  $SD = .97$ ) and interesting ( $n = 20$ ,  $M = 2.90$ ,  $SD = .85$ ), which is similar to the attitude towards the treatment condition; scoring the project neutral on fun ( $n = 20$ ,  $M = 3.15$ ,  $SD=1.00$ ) and interesting ( $n=20$ ,  $M=3.00$ ,  $SD=.79$ ). The participants scored between neutral and slightly cared about whether the project in the control and treatment condition would be successful ( $n=20$ ,  $M=3.55$ ,  $SD=0.83$ ). Overall, we concluded that the participants were not particularly interested in the project, nor negative towards it.

We tested if the participants could be perceived as donors. Overall, most of the participants have donated in the past 12 months ( $n=17$ , 85%). Most of the individuals have donated between one and three times in the last 12 months ( $n=12$ , 60%), 10% between 4-5 times, 5% between 5-7 times and 10% more than 7 times. Three participants (15%) had not donated once in the past 12 months. Only three participants (15%) donated to a cultural related charity. Most of the participants expect to make a donation in the upcoming 12 months ( $n=16$ , 80%). Most of the participants expect to donate between one and three times ( $n=10$ , 50%) and four participants (20%) expect to make no donation in the upcoming 12 months. Three participants (15%) expect to make a donation to a cultural related charity in the upcoming 12 months. Overall, we conclude that the participants are representative as donors in general. However, the group as a whole is not representative as a group of donors to cultural projects.

The next step was to research if the participants saw a difference between the two conditions. Most of the participants saw no difference ( $n=12$ , 60%) between the conditions. From the 8 (40%) individuals that indicated to see a difference only 3 correctly wrote down what the difference was. We conclude that a within-subject design is unlikely to correctly measure the effect of social information.

### D. Results

To test if the donations are higher in the treatment condition versus the control condition we used a Linear Mixed Model. We expected that donations would be higher in the treatment condition than the control condition, however there was no significant difference ( $F(1,19)=-6.00$ ,  $p=.242$ ) in the donation amount between the control ( $n=20$ ,  $M=5.2$ ,  $SD=5.75$ ) and treatment ( $n=20$ ,  $M=11.2$ ,  $SD=22.3$ ) conditions.

As can be seen in Table II, the number of individuals who decided to make a donation were similar in the two conditions, but there was a significant difference between the total amount donated. The total amount was 50% higher in the treatment condition.

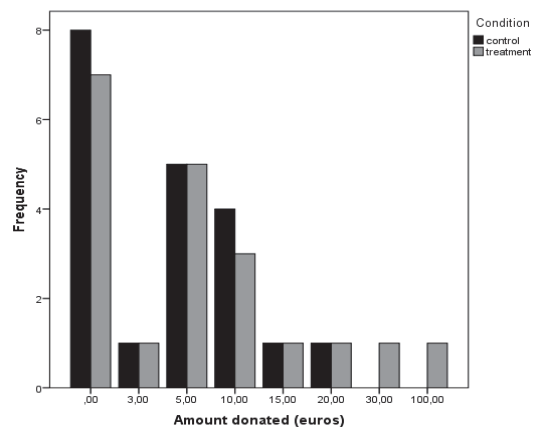


Fig. 2 Bar graph of the donation amounts per condition

A second hypothesis in this experiment was that the suggested amount (€79) would be more popular in the treatment condition than in the control condition. However, as can be seen in Fig. 2, the reference amount was not donated, which is unexpected. As can be seen in Table II, the modal contribution in the control and treatment condition was €0.00.

TABLE II  
PROPORTION DONATING AND AMOUNTS DONATED

	Control	Treatment	Test statistics	Significance
Mean amount donated	€5.20	€11.20	$F=-6.00$	$p=.242$
Minimum donation	€0.00	€0.00		
Maximum donation	€20.00	€100.00		
Mode donation	€0.00	€0.00		
Number of donors	60%	65%	$\chi^2=.05$	$p=1.00$
Total contribution	€103	€223	$\chi^2=1.00$	$p<.001$

**Reliability check scales:** We aimed to shorten the existing questionnaires for the following experiments, and therefore performed a factor analysis.

The 7 items of the Concern for Reputation scale were subjected to principal components analysis (PCA) using SPSS version 23. According to De Cremer and Tyler (2005) the Concern for Reputation scale has a good internal consistency, with a Cronbach's alpha of all the items reported of .83. In the current study, the Cronbach's alpha of all the items was considerable lower (Cronbach's alpha = .66) and not

acceptable. This could be explained by the presence of two constructs, which undermines the precision of the Cronbach's alpha [64]. We have therefore analyzed the Cronbach's alpha separately for each factor as done above, since alpha is more precisely computed when there is a single factor [64], [65].

Table III reports the descriptive statistics for the scale belongingness.

TABLE III  
DESCRIPTIVE STATISTICS CONCERN FOR REPUTATION

Item	M	SD	1	2	3	4	5	6	7
1	2.56	1.24	-	.65	-.70	-.29	-.45	-.72	-.51
2	2.78	.83		-	-.15	.34	-.05	-.21	.15
3	3.67	.71			-	.70	.61	.86	.84
4	2.89	.78				-	.49	.63	.79
5	3.67	1.12					-	.59	.59
6	3.11	1.27						-	.80
7	3.67	1.32							-

As can be seen in Table IV, principal components analysis revealed the presence of two latent variables with eigenvalues exceeding 1, explaining 57.6% (after rotation 55.1%) and 22.3% (after rotation 24.8%) of the variance respectively. The scree-plot revealed a break after the second component. The two-component solution explained a total of 79.9% of the variance. To sum up, the analysis revealed two latent dimensions that may or may not by genuine sub-components of a care for reputation.

Next we tested for the reliability of each of these factors indicated by the Cronbach's alpha. Factor 1 (Cronbach's alpha=.88) and 2 (Cronbach's alpha=.73) had a good reliability. The average inter-item correlation for factor 1 was .63 and .62 for factor 2, which are good values to measure a narrow construct such as a desire for reputation [66]. However, item 4 in factor 1 provides low correlations, after deleting this item the Cronbach's alpha increases to .88 and the item-inter correlation increases to .83. We have therefore decided to omit item 4. Combining the information provided by the Cronbach's.

TABLE IV  
FACTOR LOADINGS CONCERN FOR REPUTATION

Item	Factor loading CFR Component <sup>ab</sup>	
	1	2
1	<b>-.57</b>	<b>.72</b>
2 <sup>c</sup>	.12	<b>.99</b>
3	<b>.91</b>	-.26
4	<b>.82</b>	.24
5	<b>.63</b>	-.13
6	<b>.86</b>	-.32
7	<b>.94</b>	.04

Note: CFR, concern for reputation. Bolded numbers indicate a subscale loading on a component. <sup>a</sup>Based on a principal component analysis with eigenvalues greater than 1. <sup>b</sup>Rotation method: Varimax with Kaiser normalization. <sup>c</sup>Item was reversed for scoring.

Next we tested for the reliability of each of these factors indicated by the Cronbach's alpha. Factor 1 (Cronbach's alpha = .88) and 2 (Cronbach's alpha = .73) had a good reliability. The average inter-item correlation for factor 1 was .63 and .62

for factor 2, which are good values to measure a narrow construct such as a desire for reputation [66]. However, item 4 in factor 1 provides low correlations, after deleting this item the Cronbach's alpha increases to .88 and the item-inter correlation increases to .83. We have therefore decided to omit item 4. Combining the information provided by the Cronbach's alpha and the average inter-item correlation, we conclude that both factors have a good reliability. In the Table V we depict the items per factor. Based on the statistics and the content of the items we will include factor 1 in our concern for reputation scale.

TABLE V  
RESULTS PRINCIPAL-COMPONENTS ANALYSIS CONCERN FOR REPUTATION

Factor	$\alpha$	Eigen value	ICC	Item	M	SD
1	.88	57.65	.83	3	2.67	.71
				5	3.67	1.12
				6	3.11	1.27
2	.73	22.28	.62	7	3.67	1.32
				1	2.56	1.24
				2	2.78	.83

TABLE VI  
DESCRIPTIVE STATISTICS BELONGINGNESS

Item	M	SD	1	2	3	4	5	6	7	8	9	10
1	3.15	1.04	-	.62	.14	.25	.18	.38	.38	-.00	.40	.30
2	3.70	.99		-	.56	.18	.54	.61	.69	.42	.59	.39
3	3.60	.82			-	.09	.32	.31	.25	.23	.31	-.02
4	4.35	1.23				-	-.06	.29	.12	-.02	.29	.38
5	2.50	1.00					-	.57	.41	.48	.45	.08
6	2.15	.88						-	.31	.23	.40	.07
7	3.15	1.09							-	.46	.67	.47
8	2.35	1.04								-	.52	.26
9	3.50	.83									-	.70
10	3.95	1.05										-

The 8 items of the belongingness scale and the two added items were subjected to principal components analysis (PCA). According to the writers [45] the overall belongingness scale has an acceptable internal consistency (Cronbach's alpha = .77). In the current study, the Cronbach's alpha of all the items was acceptable (Cronbach's alpha = .83).

Table VI reports the descriptive statistics for the scale belongingness. As can be seen in Table VII, the principal components analysis revealed the presence of three latent constructs with eigenvalues exceeding 1. Item 2 loaded high on all three latent variables and was excluded from further analyses. Item 8 had negative loadings and were omitted for further analyses. Item 2 scored high on all latent variables and were omitted.

We rerun the analyses without item 2, finding three latent variables. Item 1 and 10 scored high on both latent variables and were excluded. Revealing a model with two latent variables, item 4 was excluded since this one correlated high on both latent variables. After the removal of item 4, the osculation consisted out of one latent variable including item 3, 5, 6, 7, and 9. Next we test for the reliability of each of these factors indicated by the Cronbach's alpha and the

average inter-item correlation. Factor 1 has a good reliability with a Cronbach's alpha of .77 and an average item-inter correlation of .40, which are good values to measure a narrow construct such as belongingness [66]. As can be seen in Table VIII, we conclude on five items instead of 10: item 3, 5, 6, 7, and 9.

TABLE VII  
FACTOR LOADINGS BELONGINGNESS SCALE

Item	Factor loading	Belongingness	Component <sup>ab</sup>
	1	2	3
9	<b>.82</b>	.28	.29
10	<b>.77</b>	-.20	<b>.47</b>
7	<b>.74</b>	<b>.34</b>	.16
8	<b>.72</b>	<b>.30</b>	<b>-.35</b>
6	.08	<b>.77</b>	<b>.30</b>
2	<b>.47</b>	<b>.73</b>	<b>.32</b>
5	<b>.36</b>	<b>.72</b>	-.22
3	.07	<b>.68</b>	.01
4	.10	-.01	<b>.76</b>
1	.16	<b>.38</b>	<b>.66</b>

Note: CFR, need to belong. Bolded numbers indicate a subscale loading on a component <sup>a</sup>Based on a principal axis factoring <sup>b</sup>Rotation method: Varimax with Kaiser normalization

We rerun the analyses without this item, finding three latent variables. Item 1 and 10 scored high on both latent variables and were excluded. Revealing a model with two latent variables, item 4 was excluded since this one correlated high on both latent variables. After the removal of item 4, the scale consisted out of one latent variable including item 3,5,6,7 and 9. Next we test for the reliability of each of these factors indicated by the Cronbach's alpha and the average inter-item correlation. Factor 1 has a good reliability with a Cronbach's alpha of .77 and an average item-inter correlation of .40, which are good values to measure a narrow construct such as belongingness [66]. As can be seen in Table VIII, we conclude on five items instead of 10: item 3, 5, 6, 7, and 9.

TABLE VIII  
RESULTS PRINCIPAL-COMPONENT ANALYSIS BELONGINGNESS

Factor	$\alpha$	ICC	Item	M	SD
1	.77	.40	3	3.60	.82
			5	2.50	1.00
			6	2.15	.88
			7	3.15	1.09
			9	.50	.83

### E. Conclusion

We tested if social information had an effect on the donation amount in a between-subject design. There was no significant influence of social information on the donation amount. Therefore hypothesis 1 was not supported by our data. It is possible that the design was not optimal, few participants saw a difference between the control and treatment condition. It could be that the effect of social information is absent, since the stimulus was overlooked. Additionally, we expected that the suggested amount (€79) would be the modal contribution in the treatment condition. However, not one participant donated this amount. It could be

that the suggested amount was too far from the amount our participants wanted to donate.

It could also be that the effect is absent as a result of the subject pool. The students were not particularly interested in art, however they did indicate that they would like it if the project was successful. Most of the participants had made a donation and intended to make a donation, however not to art related projects. Even though the sample is not directly comparable to the crowd of Voordekunst, there is no reason to assume that social information should only work in cultural related projects.

It is possible that a within-subject design is not optimal to test our hypotheses. We choose a between-subject design to assemble as much data as possible with a small sample pool. However, the current design builds on participants finding the difference between the control and treatment design (i.e. noticing the added social information). It is likely that the addition of social information in the current form is not conspicuous enough and therefore overlooked. In experiment 2, we tested hypotheses 1 using a between-subject design.

## V. EXPERIMENT 2

### A. Procedure

The second experiment was used to test all the hypotheses and as with the first experiment without incentives. However, contrary to the first in the second experiment we used a between-subject design, still focusing on a student sample pool. We used a different crowdfunding project, since the participants of experiment 1 indicated that they had a limited interest in art and would not donate to an art related project in the upcoming year. They would however donate to a project that provides international relief and development. We chose to pick a theme that is more in sync with the interests of the students: international relief and development. We based this decision on our pilot study, in which the students indicated that this was the theme they are interested in to donate. The selected project was from the Dutch crowdfunding platform Pifworld.

We also adjusted the suggestion amount (i.e. social information), the previous amount was €79, this is more than three standard deviations from the mean in donations from the control condition of the pilot. Previous research demonstrates that the effect of social information is not unlimited [67], we have therefore decided to base the amount on the amount donated in the control condition ( $M = 5.2$ ,  $SD = 5.75$ ). As suggested by previous research [9], the suggestive amount (€15) is based on the 90<sup>th</sup> percentile of the average amount donated in the control condition of the first experiment.

**Experimental setting:** As with the first experiment the second experiment was conducted in a classroom setting. The difference was that this was a large room with around 600 seats and the room was filled for roughly 25%. There was considerable space between the participants, the participants themselves choice to spread themselves over the room. In other words, the density was low. We observed that there were



some groups of max three participants but most of the participants were seated alone.

The procedure was similar to experiment 1. This time however, it was also explained that 10% of the donations would really be donated, thus if a hundred individuals participated in the experiment we would randomly pick out 10 amounts to donate. This experimental situation is therefore not hypothetical, unlike the first experiment. This was done to make the situation more realistic.

Besides a similar incentive as in experiment 1 (chocolate treat), we also divided three Bol.com gift vouchers over the participants, whether you made a donation or not, they just had to participate. Thus, the participants were not rewarded for making a donation but for participating in the research.

### B. Participants

The data consisted out of two student samples of 'public administration and organizational sciences' of the Vrije Universiteit Amsterdam. The first sample consisted out of 103 first year students and the second out of 79 third year students.

On average the participants were 21 years old ( $SD = 2.08$ ). Using a within subject design, 95 participants were enrolled in the control (46%) and 85 in the treatment condition (54%).

We conclude that the control and treatment condition are a good representation of our population in terms of interest in the project, possible donors, interest in the overall project theme (international relief and development) and knowledge around crowdfunding and possible crowdfunders. As can be seen in Table VIII, with the exception of one descriptive, there are no significant differences between the participants in the control or the treatment condition. The only exception is that more individuals in the treatment group indicated that they would support this project with their own money than the control group.

### C. Results

We first tested if there was a difference between the two samples in the dependent variable. A Kruskal-Wallis test indicates there was no significant difference in the individual donation amount in the first sample ( $n = 98$ ,  $M = 17.85$ ,  $SD = 13.95$ ) as compared to the second sample ( $n = 82$ ,  $M = 20.73$ ,  $SD = 31.74$ ),  $X^2(1 = 180) = .46$ ,  $p = .496$ . A chi-square goodness-of-fit test indicated there was no significant difference in the number of donors in the first sample (89%) as compared to the second sample (87%),  $X^2(1 = 180) = .03$ ,  $p = .656$ . A chi-square goodness-of-fit test indicates there was no significant difference in the total amount in the first sample (€1777) as compared to the second sample (€1750),  $X^2(1 = 180) = .04$ ,  $p = .585$ . Overall we concluded that there was no significant difference between the two samples in terms of the dependent variables.

Fig. 3 shows the distribution of contributions in the two conditions. As can be seen in the bar graphs, the participants' donations were not normally distributed. We thus chose to analyze the variables using a non-parametric test.

We expected that donations would be higher in the treatment condition than the control condition, as can be seen in Fig. 3 this was indeed the case. Therefore, supporting hypothesis 1. A Kruskal-Wallis test showed that the donation amount was significantly affected by our experimental manipulation,  $X^2(1, n = 181) = 7.47$ ,  $p = .006$ . We refer to the median, since it is a non-normal distribution. As can be seen in Fig. 3, individuals receiving social information donate higher amounts ( $n = 94$ ,  $Mdn = 20.00$ ,  $SD = 28.28$ ) compared to the control condition ( $n = 86$ ,  $Mdn = 10.00$ ,  $SD = 18.91$ ).

TABLE VIII  
THE DESCRIPTIONS PER CONDITION

	Measurement	Control	Treatment	Test statistics	Significance
Gender	Female/Male	55% female M=21.14, SD=2.02	53% female M=21.06, SD=2.14	$X^2=.04$ F=.06	$p=.766$ $p=.802$
Age	Years				
Interest in this crowdfunding project	Five-point scale, ranging from strongly disagree to strongly agree	M=3.44, SD=.92	M=3.45, SD=1.08	F=.01	$p=.909$
Hopes this project is successful	Five-point scale, ranging from strongly disagree to strongly agree	M=3.82, SD=1.12	M=3.95, SD=1.35	F=.45	$p=.505$
Would make a donation with their own money	Five-point scale, ranging from strongly disagree to strongly agree	M=2.67, SD=.86	M=3.01, SD=1.04	F=5.64	$p=.019$
Correct amount to donate to this crowdfunding project	Open question	M=20.69, SD=18.60	M=41.44, SD=203.51	F=.88	$p=.350$
Known with crowdfunding	Five-point scale, ranging from strongly disagree to strongly agree	M=3.69, SD=.77	M=3.88, SD=1.07	F=1.30	$p=.256$
How often donated last year to crowdfunding project	0 times, 1-3 times, 4-5 times, 5-7 times, more than 7 times	M=1.47, SD=1.00	M=1.40, SD=.68	F=.43	$p=.512$
How often donate upcoming year to crowdfunding project	0 times, 1-3 times, 4-5 times, 5-7 times, more than 7 times	M=2.42, SD=1.16	M=2.58, SD=1.13	F=.83	$p=.363$
Made donation to international relief and development in last year	Yes/no	34%	29%	$X^2=.26$	$p=.525$
Expects to made donation to international relief and development in the upcoming year	Yes/no	44%	39%	$X^2=.22$	$p=.548$

As can be seen in Table IX, the number of individuals who decided to make a donation was significantly higher in the treatment (94%) than the control condition (81%). The

differences between the total contribution was significant, the total contribution was 25% higher in the treatment than in the control condition.

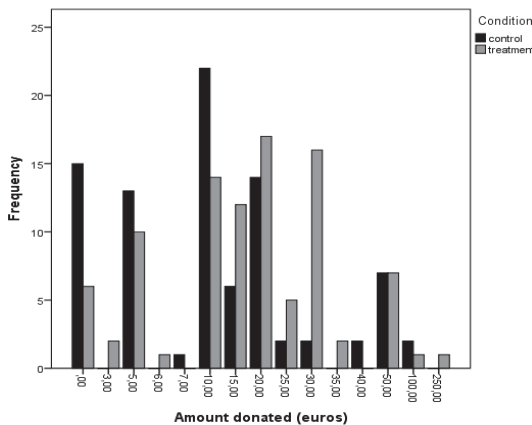


Fig. 3 Bar graph of the donation amounts per condition

A second hypothesis in this experiment was that the suggested amount (€15) would be more popular in the treatment condition than in the control condition. As can be seen in Fig. 3, the reference amount was donated twice as often in the treatment condition and therefore confirms the hypothesis. However, the reference amount was not the modal contribution in the treatment condition. The modal contribution was €20 (donated by 18.1%). As expected, the suggested amount (€15) was less popular in the control condition (7.0%) than the treatment condition (12.8). Also, €30 was less popular in control condition (2.3%) compared to the treatment condition (17.0%).

TABLE IX  
PROPORTION DONATING AND AMOUNTS DONATED

	Control	Treatment	Test statistics	Significance
Median amount donated	€10	€20	$X^2=7.47$	$p=.006$
Minimum donation	€0.00	€0.00		
Maximum donation	€500.00	€250.00		
Mode donation	€10.00	€20.00		
Number of donors	81%	94%	$X^2=.19$	$p=.012$
Total contribution	€1402	€2097	$X^2=1.00$	$p<.001$

We then tested whether the relation between social information and the individual donation amount was moderated by several variables. To test this interaction, we conducted a Generalized linear model and transforming the outliers using a Winsorizing techniques. We set the extreme values, €100 or more, to €50. As can be seen in Table X, reputation has a significant moderating effect on the relation of social information and donation behavior. Therefore, confirming hypothesis 4, the more an individual care about his reputation the greater the influence of social information on donation behavior. The need to belong is marginally significant and shows a trend towards significance.

Next, we tested whether the relation between social information and the number of donors was moderated by several variables using a logistic regression. As can be seen in Table XI, none of the moderations or direct effects were significant.

TABLE X  
ANALYSIS OF MODERATIONS ON THE AVERAGE DONATION AMOUNT

	Control	Treatment	Test statistics	Significance
Reputation	3.37	3.49	$B=20.98$	$p=.102$
Reputation*condition			$B=18.28$	$p=.050^*$
Belong	3.36	3.17	$B=16.63$	$p=.552$
Belong*condition			$B=20.48$	$p=.055^{**}$
Identification	2.77	2.63	$B=8.82$	$p=.066^{**}$
Identification*condition			$B=1.39$	$p=.708$
Uncertainty	65%	67%	$B=.35$	$p=.554$
Uncertainty*condition			$B=.16$	$p=.687$

\*Significant at  $p<.05$ , \*\*Significant at  $p<.10$ TABLE XI  
ANALYSIS OF MODERATIONS ON THE NUMBER OF DONORS

	Control	Treatment	Test statistics	Significance
Reputation	3.37	3.49	$B=-.224$	$p=.840$
Reputation*condition			$B=.127$	$p=.814$
Belong	3.36	3.17	$B=-1.08$	$p=.272$
Belong*condition			$B=.77$	$p=.250$
Identification	2.77	2.63	$B=.70$	$p=.384$
Identification*condition			$B=.05$	$p=.933$
Uncertainty	65%	67%	$B=-1.48$	$p=.302$
Uncertainty*condition			$B=.73$	$p=.493$

#### D. Conclusion

An interesting finding is that even though the participants in the treatment condition did not like the project more than the participants in the control condition, the average they donated was higher, more individuals made a donation and the total contribution was higher.

Based on this data we can conclude that the implementation of social information results in individuals donating higher amounts, higher number of donors and assembling a larger total amount. Therefore, confirming hypothesis 1.

We found that participants in the treatment group donated higher amounts than the suggested amount, the most frequently donated amount was €20, which is €5 higher than the suggested amount. It could be that individuals preferred this amount over the suggested amount (€15), since it corresponds to an available Euro bill in the Netherlands. The donation of €30 was also more popular in the treatment than the control condition. This amount is twice the suggest amount, which is in accordance with earlier findings [33].

We can also confirm hypothesis 4, the more an individual care about his reputation the greater the influence of social information on donation behavior. Even though we cannot confirm hypothesis 3, there is a trend towards significance.

#### APPENDIX

Bolded items are included in the experiment. The left column includes the items in Dutch as used in the experiment; the right column represents the English version of the items.

TABLE XII  
ITEMS MEASURING CONCERN FOR REPUTATION [46]

Ik maak mij zelden zorgen over mijn reputatie	I am rarely concerned about my reputation.
Ik denk niet aan wat anderen over mij zeggen	I do not consider what others say about me.
<b>Ik wens om een goede reputatie te hebben</b>	<b>I wish to have a good reputation.</b>
Als mijn reputatie niet goed is, voel ik me slecht	If my reputation is not good, I feel bad.
<b>Ik vind het belangrijk dat anderen mijn reputatie serieus nemen</b>	<b>I find it important that others consider my reputation as a serious matter.</b>
<b>Ik werk hard aan mijn reputatie (in mijn relatie met andere)</b>	<b>I try hard to work on my reputation (in my relation with others)</b>
<b>Ik vind het moeilijk als anderen een incorrect beeld van mij schetsen</b>	<b>I find it difficult if others paint an incorrect image of me</b>

TABLE XIII  
ITEMS MEASURING SOCIAL IDENTIFICATION [61]

<b>Ik identificeer mij met [groep]</b>	<b>I identify with my [group]</b>
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TABLE XIV  
ITEMS MEASURING THE NEED TO BELONG [45] WITH TWO ADDITIONAL ITEMS (ITEM 9 AND 10)

Ik voel mij meer comfortabel wanneer er constant iemand bij mij is.	I feel more comfortable when someone is constantly with me.
Ik voel mij rustiger wanneer ik dingen samen met andere mensen kan doen.	I'm more at ease doing things together with other people.
<b>Samen met iemand anders werken is comfortabeler dan alleen werken.</b>	<b>Working side by side with others is more comfortable than working alone.</b>
Zonder mijn beste vriend is mijn leven incompleet.	My life is incomplete without a buddy beside me.
<b>Het is moeilijk voor mij om mijn vaardigheden en talenten te gebruiken zonder iemand bij mij in de buurt.</b>	<b>It is hard for me to use my skills and talents without someone beside me.</b>
<b>Ik plak aan mijn vrienden.</b>	<b>Is tick to my friends like glue.</b>
<b>Ik word eerder lid van groepen voor de vriendschap dan voor de activiteit.</b>	<b>I join groups more for the friendship than the activity itself.</b>
Ik wou dat ik iemand kon vinden die altijd bij mij is.	I wish to find someone who can be with me all the time.
<b>Ik vind het belangrijk om bij een groep te horen.</b>	<b>I find it important to belong to a group.</b>
Ik wil graag betrokken zijn bij een groep.	I want to be included by a group.

#### ACKNOWLEDGMENT

This issue would not have been possible without the great support of Prof. Dr. René Bekkers and Dr. Irma Borst, who from the beginning were inspirational and supportive. I should also thank the reviewers who wish to remain anonymous; their feedback and critique was essential for the thinking process. This conference paper is but the first version of the expected paper.

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