## Lots of people give me money

van Teunenbroek, P.S.C.

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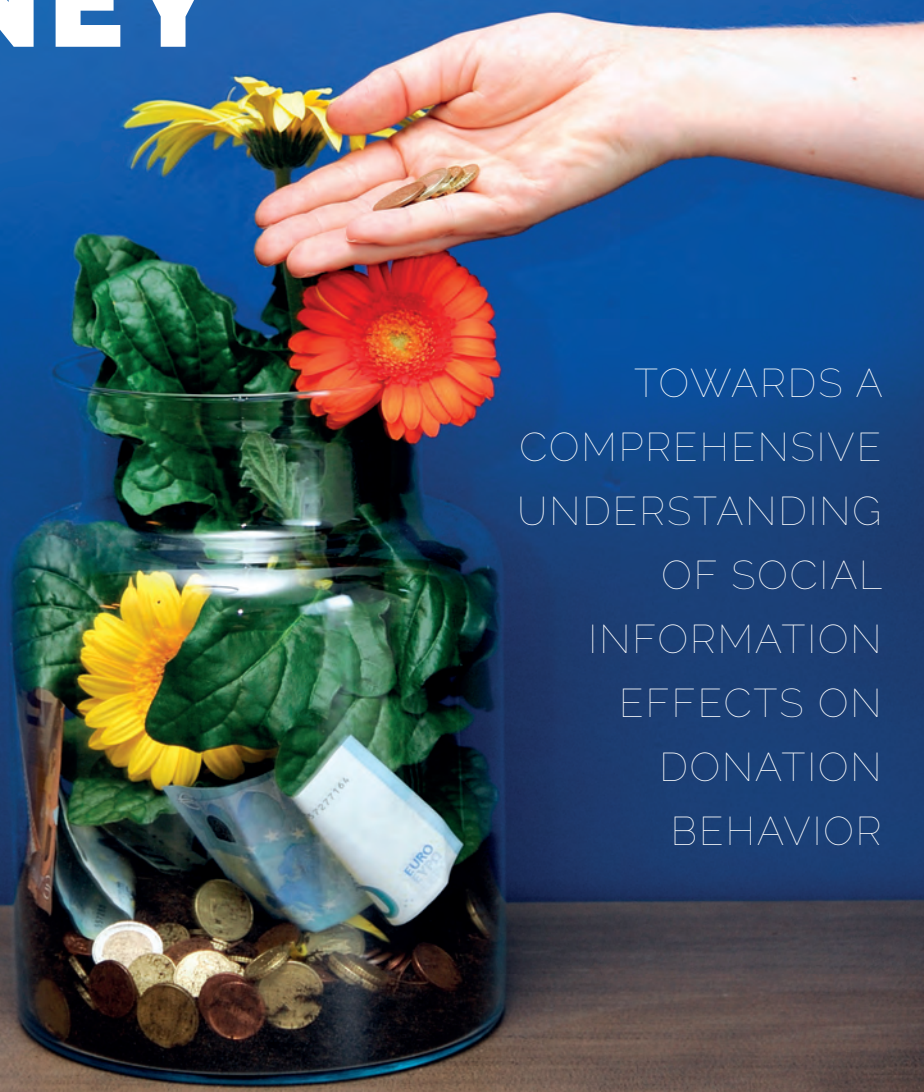

TOWARDS A COMPREHENSIVE UNDERSTANDING OF SOCIAL INFORMATION EFFECTS ON DONATION BEHAVIOR

Claire van Teunenbroek

# LOTS OF PEOPLE GIVE ME MONEY

TOWARDS A COMPREHENSIVE UNDERSTANDING

OF SOCIAL INFORMATION EFFECTS ON DONATION BEHAVIOR

*CLAIRE VAN TEUNENBROEK*
*Center for Philanthropic Studies*
*Department of Sociology*
*Vrije Universiteit Amsterdam*

Research reported in this dissertation was conducted at the Center for Philanthropic Studies of the Department of Sociology of the Vrije Universiteit, Amsterdam, the Netherlands and the Department of Organization Sciences of the Vrije Universiteit, Amsterdam, the Netherlands.

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VRIJE UNIVERSITEIT AMSTERDAM

# LOTS OF PEOPLE GIVE ME MONEY

TOWARDS A COMPREHENSIVE UNDERSTANDING
OF SOCIAL INFORMATION EFFECTS ON DONATION BEHAVIOR

## ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
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van de Faculteit der Sociale Wetenschappen
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door

**Peggy Sue Claire van Teunenbroek**
geboren op 17 februari 1992
te Haarlem, Nederland

| | |
|---|---|
| promotoren: | prof.dr. R.H.F.P. Bekkers |
| | prof.dr. B. Beersma |

leescommissie:

prof.dr. P.M.A. Smeets
*University Maastricht*

dr. M.C. Leliveld
*Rijksuniversiteit Groningen*

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prof.dr. H. van Herk
*Vrije Universiteit Amsterdam*

prof.dr. T. Hartmann
*Vrije Universiteit Amsterdam*

# Voorwoord

Het mooie aan mensen is, de mogelijkheid om anderen te helpen die ze nog nooit hebben ontmoet of zullen ontmoeten. Grensoverschrijdende vrijgevigheid. De context van mijn onderzoek, filantropie, komt niet uit de lucht vallen met een moeder die actief was als vrijwilliger. Geven is belangrijk voor onze familie. Op jonge leeftijd schreef ik pamfletjes om dierenleed onder de aandacht te brengen. Op zaterdag gaf ik zwemles als vrijwilliger, net als mijn moeder. Mijn geliefde hond Bella komt uit het buitenland en is geadopteerd via een goededoelenorganisatie. Bij elke publicatie adopteer ik een stukje regenwoud (om al die geprinte versies een beetje goed te maken). Mensen die weten waar mijn onderzoek over gaat, hebben misschien door wat ik hier probeer. Ik vertel dit niet om op te scheppen, maar om met mijn gedrag jouw gedrag te beïnvloeden. Heeft het bespreken van mijn vrijgevigheid invloed op jouw vrijgevigheid? Deze vraag staat centraal in mijn onderzoek. Ik zal het onderwerp en mijn ervaring ermee hieronder kort bespreken.

Mijn theoretische interesse in filantropie ontwikkelde zich gedurende mijn studie Psychologie aan de Vrije Universiteit Amsterdam (VU). Ik ging er altijd vanuit dat het geven aan anderen vanzelfsprekend was, maar dat is niet zo. Waarom niet en wanneer voelen mensen zich sneller geneigd om toch te geven? Deze vraag bracht mij in contact met een literatuuronderzoek geschreven door René Bekkers en Pamala Wiepking. Het artikel beschrijft hoe het geefgedrag verklaard kan worden door acht geefmotieven. Ik vond het stuk fascinerend, de motieven voor geven zijn zo uiteenlopend. Het was enige tijd later dat ik daadwerkelijk solliciteerde bij René Bekkers voor een onderzoekspositie aan de VU. Na twee gesprekken en een lange tijd wachten kwam het antwoord: ik was aangenomen. Zo begon ik aan een reis door het bos der wetenschap. Het promotieteam bestond in die tijd uit Marcel Veenswijk, René Bekkers en Irma Borst. De samenstelling veranderde echter naarmate het project zich verder ontwikkelde.

Het onderwerp van mijn dissertatie was nog niet volledig afgebakend en dit gaf mij de vrijheid om op zoek te gaan naar mijn ware interesse. Deze keuzevrijheid is kenmerkend voor mijn gehele promotietraject: ik heb altijd de ruimte gehad om mijzelf en mijn onderzoek te ontwikkelen. Mijn nieuwsgierigheid ging uit naar de neiging van mensen om het gedrag van anderen te volgen. Dit noemen we het effect van sociale informatie: het gebruik van het donatiegedrag van anderen om donaties te beïnvloeden. Vanuit de

praktijk kwamen berichten, dat sociale informatie donaties verhoogt, maar waarom dan? Waarom is het donatiebedrag van anderen genoeg om ervoor te zorgen dat mensen meer geven?

Ik herinner me nog de gesprekken in het begin: ik was sceptisch dat mensen zich zo makkelijk lieten beïnvloeden. Eén kleine toevoeging kon toch niet genoeg zijn? Daarom begon ik met een literatuuronderzoek, met het idee dat ik de uitleg van andere wetenschappers kon gebruiken om het effect te begrijpen. Met andere woorden, ik probeerde het pad aangelegd door andere wetenschappers te gebruiken om een kaart te maken van het bos. Ik kwam er echter al snel achter dat eerdere studies voornamelijk bomen (de resultaten) hadden geplant en weinig aandacht hadden besteed aan het verbinden van deze bomen (uitleg voor de resultaten). Mijn ambitie was om een enkele paden aan te leggen tussen deze losstaande bomen, om zo de kennis rondom het effect van sociale informatie enigszins te vergroten. Of dit gelukt is, dat laat ik aan de lezer om te beoordelen.

Gedurende mijn promotietijd veranderde de samenstelling van het promotieteam en ik verhuisde van de afdeling Organisatiewetenschappen naar de afdeling Sociale wetenschappen. Toen we een nieuwe promotor zochten bleek Bianca Beersma een inspirerende collega. Ik leerde Bianca kennen tijdens het opzetten van mijn eerste experiment. Bianca was één van de weinige collega's die ondanks haar drukke schema de mogelijkheid zag om een experiment uit te voeren tijdens een college. Het resultaat van dit experiment wordt weergeven in hoofdstuk 3.

Met een promotieteam bestaande uit René en Bianca werkte ik verder aan het literatuuronderzoek. Zij hebben mij ondersteund tot het einde van het traject. Hoofdstuk 2 is het product van een uitwisseling van ideeën binnen het team en gesprekken met andere wetenschappers die geïnteresseerd waren in sociale informatie. Ik heb hiervoor veel congressen bezocht en waar mogelijk mijn onderzoek gepresenteerd. Ik maakte geen onderscheid tussen filantropische, economische of psychologische congressen, aangezien zowel economen als psychologen onderzoek doen naar de effecten van sociale informatie. Mijn reis door deze afgescheiden werelden leidde vaak tot interessante gesprekken en uiteenlopende adviezen. Je zou kunnen zeggen dat ik een bos gecombineerd heb met meerdere boomsoorten, in plaats van alleen sparren of alleen maar eikenbomen. Het aantal boomsoorten in een bos bepaalt tenslotte in hoge mate de rijkdom van organismen die afhankelijk zijn van deze bomen. Gedurende de rest van

mijn promotieonderzoek focuste ik mij op het testen van het model, zoals gepresenteerd in hoofdstuk 2. Hoofdstuk 6 bevat een samenvatting van mijn proefschrift en een aangepast model na de nieuwe inzichten die ik heb opgedaan in hoofdstuk 3 t/m 5.

Hoofdstuk 4 was niet mogelijk geweest zonder de samenwerking met het crowdfunding-platform Voordekunst. Via een grootschalig veldonderzoek heb ik gekeken hoe mensen in een onlineomgeving reageren op sociale informatie. De samenwerking met Roy Cremers resulteerde in één van de eerste veldexperimenten die sociale informatie in een crowdfunding context onderzoekt.

Voor het vijfde hoofdstuk was er geen tijd meer voor een veldexperiment, ondanks dat de ambitie er wel was. Ik heb toen gekozen om gebruik te maken van het 'Prolific Platform', waar wetenschappers online experimenten kunnen uitvoeren. Het ontwikkelen van dit experiment viel mij zwaar, omdat het mijn laatste hoofdstuk zou zijn. Er was nog zoveel wat ik wilde onderzoeken, kon dat allemaal in één experiment? Natuurlijk niet, maar proberen kan altijd. De vragenlijst gekoppeld aan het experiment werd veel te lang en moest meerdere keren worden ingekort. Vooralsnog is het een mooi artikel geworden.

Richting het einde van mijn promotietraject begon ik aan mijn postdoc bij 'Geven in Nederland'. Het was misschien niet de meest praktische keuze, maar wel precies waarvoor ik een promotietraject was begonnen. 'Geven in Nederland' balanceert tussen wetenschap en praktijk: wetenschappelijk verantwoorde methodes ten dienste aan vragen uit de praktijk. Dit sluit haarfijn aan bij mijn perceptie dat mijn werk als wetenschapper (uiteindelijk) de praktijk moet ondersteunen.

Met dit in gedachten sluit ik mijn voorwoord af en daarmee leg ik de laatste hand aan mijn proefschrift.


EURO

# CONTENTS

## About the title

Lots of people give me money! The title of this dissertation is a homage to a clip of Monty Python: *'The Charity Sketch'*. What can we learn from Monty Python? This particular clip provides a very amusing introduction of the main subject discussed in this dissertation.

During the clip, a solicitor named Mr. Ford (Terry Jones) tries to solicit a bank merchant (played by the brilliant John Cleese) for a donation for the orphanage. Instead of donating, the banker notes that he does not understand what Mr. Ford means with 'a pound for the orphans'[1]:

*Banker: No? Well, I'm awfully sorry I don't understand. Can you just explain exactly what you want?*
*Mr. Ford: Well, I want you to give me a pound, and then I go away and give it to the orphans.*
*Banker: Yes?*
*Mr. Ford: Well, that's it.*
*Banker: No, no, no, I don't follow this at all, I mean, I don't want to seem stupid, but it looks to me as though I'm a pound down on the whole deal.*
*Mr. Ford: Well, yes you are.*
*Banker: I am! Well, what is my incentive to give you the pound?*
*Mr. Ford: Well the incentive is to make the orphans happy.*
*Banker: (genuinely puzzled) Happy? You quite sure you've got this right?*
*Mr. Ford:* ***Yes, lots of people give me money.***
*Banker: What, just like that?*
*Mr. Ford: Yes.*

Note that Mr. Ford tries to convince the banker to donate by stating that others are doing it too: 'lots of people give me money'. By doing so, Mr. Ford uses social information in an attempt to influence the decision making of a potential donor. In this dissertation I do just that: I show people the donation amount of earlier donors in order to affect their donation behavior.

[1]. For the script see: http://www.montypython.net/scripts/merchant.php
For the clip see: https://www.dailymotion.com/video/x2hwql1

*"The purpose of life is to discover your gift.*
*The work of life is to develop it.*
*The meaning of life is to give your gift away"*

**David Viscott (1993)**

# CHAPTER 1

## GENERAL INTRODUCTION

## 1.1 Background

Caravans floating through the canals of Amsterdam. People passing by, wondering is this the future? Sam is an artist who wants to make people more aware of our current environmental problem: where can we live if sea levels keep rising? Sam wants to create awareness by showing ways to deal with the increasing sea levels, such as an artificial island made from caravans (See Figure 1)2. He wants to build a floating village made of caravans (in Dutch: "de sleurhut op het water"), showing them to as many people as possible with one central message: "We need to be more aware of the consequences of our current lifestyles. Nature will not adapt to us; instead we should adapt to nature."

Figure 1. The floating caravans of the Floating Village project featured on Voordekunst

Unfortunately, since the previous financial crisis, artists like Sam have had a hard time realizing their dreams. In 2010, the government of the Netherlands announced substantial cuts in government funding to the cultural sector. This despite the sector being good for 3.7% of the gross domestic product (CBS, 2019). Because the sector depended heavily on government subsidies (Raad voor Cultuur, 2019), these subsidy cuts decreased the production rate of the sector, and the entrance fees for several subdivisions (such as for cinemas, museums, and theater) increased (Blankers et al., 2012). The number of paid workers decreased with 10%, from 162,000 employees in 2010 to 146,000 in 2017 (CBS, 2018). In sum, the whole cultural

[2] The project described in this introduction is based on an actual project hosted on Voordekunst: https://www.voordekunst.nl/projecten/8994-floating-village-1.

sector witnessed a growing need to increase their own revenues, therefore, increasing the pressure to obtain private resources (such as by selling products or services), but also to attract public donations (Raad voor Cultuur, 2019).

The current COVID-19 crisis and the drastic measures taken by the government of the Netherlands had major consequences for the culture sector. As of March 2020, museums and theaters had to close, and festivals were canceled for at least six months (Rijksoverheid, 2020). As a result, artists and freelancers in the culture sector lost their income and organizations lack public income. During those six months, the culture sector expects to lose about 969 million euros as a result of the COVID-19 measures (Burghoorn, 2020). Additional measures taken by the government to financially support the sector do not provide enough guarantees to the entire creative sector (De Jong & Baruch, 2020). Alternative financial sources are therefore essential to support the cultural sector.

Crowdfunding is an example of an alternative funding source. Crowdfunding is an online funding tool, which can be used by any individual with a unique idea, such as artists like Sam. To ensure that the caravans floated instead of sunk, Sam needed to assemble donations to fund his project. Therefore, Sam decided to start a crowdfunding project at Voordekunst (see Figure 1), called "Floating Village."[3] Voordekunst is a Dutch crowdfunding platform for the arts, which helps artists assemble money. By starting a crowdfunding project, Sam is now both an artist and a crowdfunder. In crowdfunding, the creator of a project provides potential donors with a detailed description of the project the creator wants to achieve and of the donation amount needed to realize this. Sam uploads this information on his personal project page of the crowdfunding platform. Any individual can visit the page and donate to support Sam's project. In return, donors can choose to receive a reward for their donation (i.e. reward-based crowdfunding) or no reward (i.e. donation-based crowdfunding).

Sam is not the only artist in the Netherlands who depends on the success of crowdfunding projects. In addition to artists, many other people active in the cultural sector depend on crowdfunding, such as musicians, dancers, museums, movie producers, photographers and visual artists. Only 4% (€13.1 million) of the total crowdfunding amount needed, was raised for arts projects in 2018 (Koren, 2019). The overall amount (€13.1 million) raised for

[3]. The project described in this introduction is based on an actual project hosted on Voordekunst: https://www.voordekunst.nl/projecten/8994-floating-village-1.

the cultural sector through crowdfunding decreased in 2018 (Koren, 2019), while the cultural sector had envisioned an increase through crowdfunding (Schrijen, 2019). Compared to the total financial support from the government (2.8 billion in 2017), this is a modest amount. In addition, many crowdfunding projects, not just art related projects, fail to assemble enough funding. Between 2014 and 2018, for instance, about two-third of the projects in one of the most popular and successful crowdfunding platforms worldwide, Kickstarter, failed to assemble the target amount (The Crowdfunding Center, 2018). In addition, the COVID-19 crisis had major consequences for crowdfunding. The monthly assembled amount of crowdfunding as a whole in the Netherlands decreased by almost 50% in the month following the measures taken by the government of the Netherlands (Koren, 2020).

To illustrate the difficulties associated with crowdfunding even more, it seems that the necessity for artists and other people in the cultural sector to raise funds from private sources comes at a bad time. The philanthropic sector is facing two broad problems: (1) charities have a hard time reaching potential donors (Bekkers, Schuyt & Gouwenberg, 2017; Bekkers & van Teunenbroek, 2020), and (2) those who do give, donate lower amounts. First, charities have a hard time reaching potential donors (Bekkers et al., 2017; van Teunenbroek & Bekkers, 2020), and even if charities succeed in reaching potential donors, the effectiveness of their solicitation methods to convince people to give has decreased (Bekkers et al., 2017; van Teunenbroek & Bekkers, 2020). In 2018, for instance, only 35% of the people asked to give during a door-to-door collection actually donated (Van Teunenbroek & Bekkers, 2020), whereas this was 51% in 2015 and even 69% in 2007 (Bekkers et al., 2017). This amounts to a 49% decrease in eleven years, and 31% in 3 years. Second, in the past 20 years, the Dutch have become less generous, giving a smaller percentage of household income to charitable causes than they used to (Bekkers et al., 2017) and supporting fewer charities (Bekkers & van Teunenbroek, 2020).

For the cultural sector to advance by using crowdfunding, its solicitation methods need a stimulant that can help charitable solicitation methods to (1) attract (more) donors and, (2) increase donation amounts. To achieve this, a mechanism often applied in online contexts is to provide potential donors with social information. Social information informs people about the behavior of other people (Shang & Croson, 2009). Providing information about other people's donation amount is an example of social information. Imagine,

for instance, that while we were writing this introduction, three donors donated €20 or more to Sam's project. What happens when we open Sam's crowdfunding webpage and read that three donors donated at least €20? Do we perceive this amount as an example of the modal donation amount, or the appropriate donation amount? That is, what is our normative interpretation of this information? And how will reading this information affect our behavior?

In the scholarly literature on the effects of social information, the donation behavior of other donors is described as an incentive or "steering wheel" for our behavior. Based on this, we would expect that, after reading information about other donors' donation amounts, I will adjust my behavior (van Teunenbroek et al., 2019). This is referred to as the social information effect, which is the focus of this dissertation.

How, exactly, will I adjust my behavior, and on what factors does this depend? Previous research has identified several factors that influence the effectiveness of social information. Consider the following: what if I read that other people gave €20 to a charity I give to monthly, versus reading that other people gave €20 to a to me unknown charity. Will social information affect my behavior in the same way in the first case as in the second case? Another question is whether the effects of social information are the same across different recipients: is the effect on my behavior the same as it would be for you? Suppose that I decide to donate, which gives me a feeling of satisfaction and, therefore, improves my mood (Andreoni, 1989). Can the positive effect be undermined if I first read about other people's donation amount? In seeking to predict and understand social information effects more accurately, this dissertation aims to shed light on these questions.

## 1.2 Social information effects: the state of the art across disciplines and the contribution of this dissertation

The literature suggests that social information can increase donation amounts. Experiments by social psychologists have shown that simply adding information about other people's behavior affects people's behavior relating to real-world issues (Vinnell, Milfont & McClure, 2019). Behavioral economists show that factors in the decision environment influence people's decision-making, and that changes in framing options and information (i.e. nudges) can be used to strategically influence people's choices (Thaler &

Sunstein, 2009). Marketing researchers (Goswami & Urminsky, 2016) swhow that setting default options affect behavior (i.e. choice architecture). People's decision-making, therefore, can be influenced by relatively small external stimuli added by external forces.

Social information has specifically been shown to reduce maladaptive behaviors such as excessive alcohol consumption (e.g., Neighbors et al., 2010) and theft (Cialdini et al., 2006). In addition, it can increase desired behavior such as organ donations (e.g., Park & Smith, 2007; Reingen, 1982), pro-environmental decisions (e.g., Cialdini, 2003; Goldstein, Cialdini & Griskevicius, 2008; Demarque, Charalambides, Hilton & Waroquier, 2015; Goldstein et al., 2007; Hamann, Reese, Seewald & Loeschinger, 2015; Kormos, Gifford & Brown, 2015; Schultz, Nolan, Cialdini, Goldstein & Griskevicius, 2007) and health-promoting behaviors (e.g., Carey, Borsari, Carey M., Maisto, 2007; Park & Smith, 2007). While these contexts may differ, social information was used to influence behavior in all cases. In this dissertation, we will focus on social information applied in a charitable setting, and we will focus particularly on online fundraising.

Social information is applied in both online and offline fundraising campaigns. At Schiphol airport, for instance, you will find several transparent boxes filled with money, including a text asking passengers to donate to UNICEF. Another example includes the transparent box at checkout donation boxes in the Dutch McDonalds restaurants, asking guests to donate to the the Ronald McDonalds Children's Fund Netherlands (see Figure 2).


Figure 2. Ronald McDonalds Children's Fund donation box

The key similarity between these two examples is that people can see the donation amounts of previous donors. Besides showing donation amounts

in the form of coins, bills or online, social information can also be transferred verbally by mentioning the donation amount. During the Dutch 3FM Serious Request radio fundraising campaign for International Red Cross initiatives, for instance, the radio presenter often mentions donors' donation amounts.

The decision of practitioners to implement social information hoping to increase donation behavior seems sensible at first sight. In general, the literature suggests there will be a positive effect of social information: mentioning other people's donation amount increases donation amounts in lab (Bicchieri & Xiao, 2009; Blake, Rosenbaum, & Duryea, 1955; Cialdini & Schroeder, 1976; Goeschl, Kettner, Lohse & Schwieren, 2018; Hysenbelli et al., 2013; Jones & McKee, 2004; Klinowski, 2015; Reingen, 1982; Sell & Wilson, 1991; Vesterlund, 2003) and field experiments (Alpizar et al., 2008a, 2008b; Van Teunenbroek & Bekkers, 2020; Bøg, Harmgart, Huck, & Jeffers, 2012; Croson et al., 2009; Croson, Handy, & Shang, 2010; Jacob et al., 2017; R. Kawamura, Ida & Ogawa, 2018; Martin & Randal, 2008; Sasaki, 2019; Shang & Croson, 2006; Shang, Reed, & Croson, 2008; Silverman, Robertson, Middlebrook, & Drabman, 1984; Smith et al., 2015; van Teunenbroek, 2016).

However, we want to present a more cautionary tale in this introduction. Despite the positive effects of social information that have been found in the above-mentioned studies, there is also a sizable number of studies that found either no effects or even negative effects of social information. Croson & Shang (2008) and Meyer & Yang (2016), for example, found that providing people with social information reduced the average donation amount, and several studies (Catt & Benson, 1977; Kubo, Shoji, Tsuge, & Kuriyama, 2018; Murphy, Batmunkh, Nilsson, & Ray, 2015; Shang & Croson, 2009) reported that social information did not affect donor behavior in any way. Whether the effect of social information is successful depends on the combined net effect of the donation amounts and the number of donors. Some studies report a positive effect: more donors donated (Martin & Randal, 2008; van Teunenbroek, 2016). Yet other studies reported that social information neither increased nor decreased the number of donors (Van Teunenbroek & Bekkers, 2020b; Goeschl, 2018; Klinowski, 2015; Murphy et al., 2015; Reingen, 1982).

It is hard to infer from the current literature on social information effects to what extent social information affects donation amounts (van Teunenbroek, Bekkers & Beersma, 2020). Reporting positive, no and negative effects. Therefore, we argue that researchers failed to provide a coherent view of

social information effects. In addition, previous studies have provided insufficient explanations that may account for the (lacking) effect. The field of social information research, therefore, is characterized by a lack of consensus: it is unclear when social information does or does not affect behavior; it is also characterized by a lack of theoretical development: although a there is a series of empirical accounts, a clear theoretical background that provides an explanation of these effects or lack of them has so far been absent. As the literature provides only an incomplete view with inconsistent findings, therefore, practitioners cannot safely apply social information as a stimulant of donation behavior. This dissertation aims to provide the literature and practitioners with a deeper understanding of social information effects.

Besides lacking consensus and insufficient theory to support research design choices or advise practitioners, this dissertation also seeks to fill a gap in our current knowledge by examining social information effects in an online context. While social information is often applied in an online setting, only a handful of studies have researched the effects of social information on online giving (Bøg, Harmgart, Huck, & Jeffers, 2012; Raihani & Smith, 2015; Sasaki, 2019, Smith, Windmeijer & Wright, 2015), and only one study has examined a crowdfunding platform (Kawamura, Ida & Oga, 2018). A better understanding of the social information effect on online donations is crucial for crowdfunders who depend on instruments that stimulate online giving behavior. Therefore, we will map restrictions and possibilities of social information as a charitable stimulant in an online context.

In sum, the literature reporting on social information effects is restricted in two ways: 1) studies report different directions and strengths of the effects of social information, and 2) the literature is lacking an overall body that is needed to explain the (lacking) findings. Throughout this dissertation, we will remark on several errors and make suggestions for further research to help the field forward. We will also test several of these suggestions in the empirical chapters.

## 1.3 Main aims and research questions

This dissertation is concerned with the effect of applying social information in charitable campaigns, with the aim to increase donations. The main aims of this dissertation can be summarized as follows:

To develop a model that can predict people's behavioral responses to receiving social information in an online donation context. Such a theoreti-

cal framework can assist researchers in obtaining a deeper understanding of the mechanisms that drive the effects of social information on donation behavior. How is this information perceived, for instance, and does this perception matter?

- To examine the effects of social information and to identity boundary conditions, thus providing insights into how donation behavior can be stimulated and, as such, help to increase the effectiveness of crowdfunding campaigns.
- The model below summarizes the main concepts discussed in this dissertation and depicts the expected relationships as studied in this dissertation.

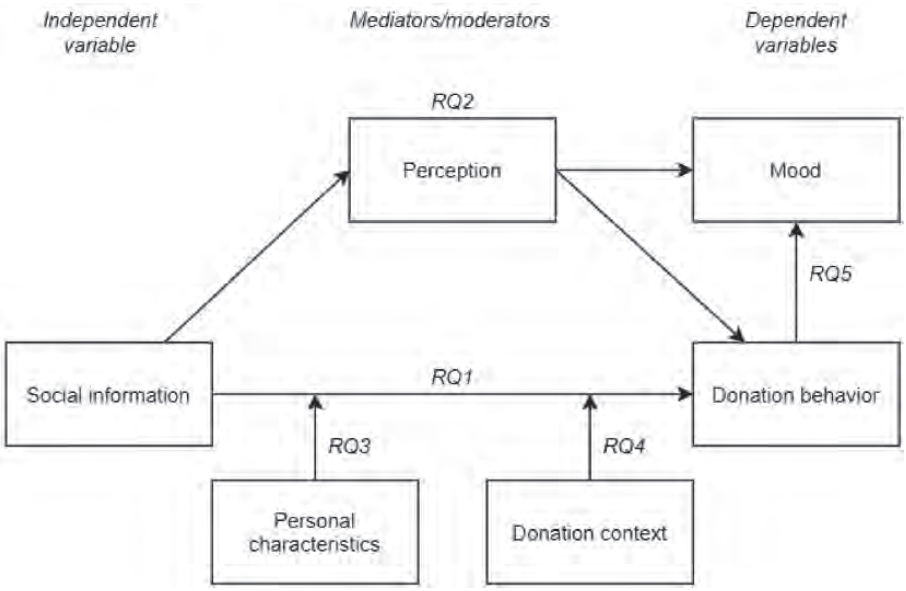


Figure 3. Model depicting the research questions (RQ) and the central concepts discussed in this paper to predict people's responses to social information and to explain their behavioral and affective reactions

In this dissertation, we test the effect of social information on charitable behavior and, in one of the empirical studies, on people's mood as well (see Figure 3). Furthermore, we examine whether the way in which social information is interpreted, mediates the effects of social information on

behavior and mood. As different people might interpret social information in different ways, and because different contexts might influence how social information affects behavior, we also examine the moderating effects of personal characteristics and donation context on the relationship between social information and donation behavior.

The central research questions of this dissertation are:

1. To what extent does social information affect donation behavior?
2. Why does social information affect donation behavior, and which mechanisms explain social information effects?
3. How do personal characteristics moderate the effect of social information on donation behavior?
4. How does the donation context moderate the effect of social information on donation behavior?
5. To what extent does social information affect people's mood in a charitable context?

## 1.4 Central concepts and research questions

This dissertation reports research based on theoretical foundations to obtain a deeper understanding of the mechanisms that drive the effects of social information on donation behavior, and the factors that moderate these effects. We integrate the literature focused on social information effects with multi-disciplinary insights, such as classic psychological theories, behavioral economics and, of course, philanthropic literature. Research on social information effects has been conducted within these disciplines. Across disciplines, experiments have shown how situations can be created that can stimulate giving, focusing on different variables. A focus on only one of these research fields, therefore, would result in an incomplete theoretical framework. By integrating previous insights and building on them, we believe that this dissertation increases our understanding of existing research on social information effects and helps chart future research directions. By increasing our understanding of social information effects, we aim to help this scientific field to become more mature and to support practitioners who wish to implement social information as an effective stimulant of individual donations. What follows, is a one-by-one discussion of the research questions presented in Figure 3.

### *1.4.1 Donation behavior*

This dissertation is about donation behavior, that is, the way people behave in a charitable context, employing two types of indicators for donation behavior. First, we consider whether social information affects the decision to donate (yes versus no). Second, we measure the amount a donor donates (i.e. donation amount). We review donations made with windfall gains (i.e. unexpected gain in income) as well as with earned money. In addition, we consider studies conducted both in an artificial setting (e.g., laboratory experiments) and in a natural field setting (see Harrison & List, 2004).

### *1.4.2 Perception*

Why would someone adjust his or her behavior based on one piece of information? In other words, why does social information affect donation behavior, and what mechanisms explain social information effects? The current literature has yet to answer this question in such a way that it can support not only the scientific field, but also practitioners implementing social information. The lacking consensus in the literature on social information effects indicates that there is a need to understand (1) why effects of social information do or do not occur, and (2) how these effects are expressed as positive, no or negative effects. A comprehensive understanding of social information effects requires consideration of the perspective of social information recipients themselves (van Teunenbroek, Bekkers & Beersma, 2019). In this dissertation, we discuss how the perception of social information affects behavior.

Consider the example at the beginning of this chapter: Sam raising money for his floating campers. Remember imagining that I saw that three donors had donated €20. How did I perceive this information? The prevailing explanation of social information effects is that social information affects people's perception of the social norm (Bicchieri & Xiao, 2009; Croson et al., 2009; Goeschl, Kettner, Lohse & Schwieren, 2018; van Teunenbroek & Bekkers, 2020b). Social norms provide cues about how to behave in a certain situation (Cialdini, Reno, & Kallgren, 1990), and they are related to donation behavior (Bekkers & Wiepking, 2011). In our context, this means that we perceive the amount of €20 as the appropriate amount to give. Making social information available is an attempt to influence the decisions of potential donors by hinting at an answer to the fundamental question: what *does* a potential donor like me do in this situation? In other words, it is about a de-

scriptive social norm telling me how other people behave in a certain situation (Cialdini, Reno & Kallgren, 1990). Besides this, social information can also be interpreted as an injunctive social norm: how other people should behave (Cialdini, Reno & Kallgren, 1990). For instance: what *should* a person like me do?

Donors who desire to behave like other people (i.e. to conform) are likely to target the modal donation amount as a reference for the acceptable donation amount (Bernheim, 1994). Therefore, we expect that the influence of social information on donation behavior is mediated by perceived social norms.

In the current dissertation, we aim to develop a deeper understanding of how social information affects behavior by reviewing how people perceive social information effects, especially by testing how people's perception of social norms is affected by social information and how this affects giving behavior. This helps to identify mechanisms that underlie the social information effect. We review this in Chapter two and examine this in Chapter five.

### *1.4.3 Personal characteristics*

Would social information affect me in a similar way as it would affect you? In other words, how do personal characteristics moderate the effect of social information on donation behavior? In contrast with earlier theories that viewed decision-making as a rational choice, later literature disputed this line of reasoning (Cabanac, 1992) and recognized that personal characteristics play an important role in decision-making. Human behavior is partially influenced by people's traits and characteristics (Cobb-Clark et al., 2012), that is, habitual patterns of behavior that are relatively stable over time (i.e. fixed) and hardly affected by external stimuli (Heineck and Anger, 2010; Mueller and Plug, 2006; Nyhus and Pons, 2005).

In different scientific fields, there is ample evidence of personal characteristics moderating certain decisions. Economists, for instance, have observed gender differences in domains such as consumer behavior (Croson & Gneezy, 2009). In general, economists describe women as more risk-averse than men, and they observe that women's social preferences are more situationally specific and less likely to be of a competitive nature (Croson & Gneezy, 2009). Social psychologists describe that people who score high on agreeableness are more likely to cooperate (LePine & Dyne, 2001). The nudging literature describes that people who tend to make intuitive choic-

es are especially sensitive to nudges: offering a list of charities resulted in higher revenues for charities, especially among donors who make intuitive choices (Schulz, Thiemann & Thöni, 2018).

Previous empirical research on the relation between solicitation methods and donation behavior has shown that personal traits play an important role (Bekkers & Wiepking, 2011a, 2011b; Wiepking & Bekkers, 2012). This means that differences in individual traits can explain behavioral differences in donation behavior. We argue that it is important, therefore, to consider how these traits influence the effect of social information on donation behavior.

When people receive information, it matters who provides it: people prefer to follow information from similar others (e.g., family and friends, i.e. strong ties) or people with similar attributes (Festinger, 1954). If there is a shared sense of social identification (i.e. shared identity), this is particularly influential in someone's own decision-making (Weber, Kopelman, & Messick, 2004). Hysenbelli et al. (2013) found that social information provided by a similar other increased the effectiveness of the high suggestion amount, but not of the low suggestion amount. Croson et al. (2010) found that if social information was connected to the same gender as that of the participant, the information had a stronger effect on donations than in the mismatched condition.

In this dissertation, we aim to review how social information effects are moderated by personal characteristics. To develop theory on how individual differences between people could affect the effectiveness of social information, we take previous theorizing on why social information should affect giving into account: social information affects donation behavior because it affects their perception of the social norm. The effect of social norms interacts with peoples' characteristics (Kaikati, Torelli & Winterich, 2014), therefore, we review moderators connected with social norms. In Chapter 3, we propose three personal characteristics that can be expected to amplify the effect of social information on donation behavior: 1) whether an individual experiences shared identity with previous donors; 2) an individual's need to belong ; and 3) an individual's concern for reputation.

### *1.4.4 Donation context*

When is social information more effective in affecting my donation behavior: when Sam just launched his crowdfunding campaign, or more towards the middle of the campaign? The nudging literature describes that the context

in which information is presented, influences the effect (Bruner & Minturn, 1955; Sunstein, 2017). In addition, the philanthropic literature describes that the donation context influences donation behavior. For instance, individuals are more generous in a public setting where they are observed (Van Vugt & Hardy, 2010). Charitable givers are held in high regard and refraining from giving could damage one's reputation (Bekkers & Wiepking, 2011).

In this dissertation, we introduce social information effects into a relatively new funding context: crowdfunding. Based on the theory of normative influence (Deutsch & Gerard, 1955), we expect the online nature of crowdfunding to decrease social pressure, as social pressure increases when group members are identifiable. Identifiability, as opposed to anonymity, enhances social pressure and facilitates social influence, whereas anonymity weakens social influence (Postmes, Spears, Sakhel & de Groot, 2001). It is interesting, therefore, to review how a group behavior mechanism operates in a context in which members are anonymous. Throughout this dissertation, we investigate the effect of social information in a context in which anonymity is the standard (i.e. donors can display their identity, but this is not mandatory): crowdfunding.

The second addition is my focus on project funding stages. Crowdfunding campaigns often run for a defined number of days (often between 30 and 60 days). This clearly defined and communicated funding period provided me with a unique opportunity to test how social information affects online behavior and how the effects vary throughout the duration of a campaign. Is there an optimal timing for social information? And if so, when is this optimum? We examine this in Chapter four.

### *1.4.5 Mood*

Suppose that I donate to Sam's project, which gives me a feeling of satisfaction and increases my mood (Andreoni, 1989). Can this positive effect be undermined if I first read about other people's donation amount? In other words, to what extent does social information affect people's mood in a charitable context?

Donors' mood is an important variable to consider when trying to understand charitable giving. Giving has social and psychological benefits for the donors' mood, which in turn affects giving (Bekkers & Wiepking, 2011; Konrath & Handy, 2018). A positive mood is an important prerequisite for donating (Bekkers, 2003; Chapman, 2019). In addition, a decrease in the

donors' mood as the result of social information could result in a negative view of donating (that is, aversion). If social information decreases people's mood, therefore, this could result in a long-term negative effect. Unfortunately, studies dedicated to social information effects have tended to focus exclusively on influencing the individual donation amount of subsequent donors. In doing so, the researchers have ignored a potential second outcome: mood effects.

Studies on helping behavior show that donors experience a positive change in their mood because of donating (Andreoni, 1989), also referred to as the joy of giving (Steinberg, 1987). Yet this positive effect depends on people's perception of autonomy: a positive mood is more likely to occur when people feel that they had the choice to give (Dunn, Aknin & Norton, 2014). When provided with social information about other people's donation behavior, people must decide if they want to follow or ignore this information. We argue that social information decreases feelings of autonomy, which in turn decreases people's moods.

In this dissertation, we identify how social information affects people's mood. To the best of our knowledge, there is currently no known research on the effects of social information on people's moods. Chapter five seeks to fill this gap.

## 1.5 Relevance

### *1.5.1 Societal relevance*

As the model in Figure 3 shows, the effect of social information is expected to be complex, with the effect being influenced by many factors, such as the perception of the information, personal characteristics, the donation context, etc. As the effect depends on multiple factors, therefore, it will be difficult and insufficient to provide one-sided and straightforward advice.

Most crowdfunding projects fail to reach the target amount (The Crowdfunding Center, 2018). Our findings could be used to increase the effectiveness of crowdfunding campaigns. In addition, and more broadly, crowdfunding is a private source of income that may replace government funding for the arts now that the government has suggested that private funds might be increasingly needed to support the cultural sector (Algemene Rekenkamer, 2015). Beyond this specific focus on crowdfunding, the research discussed in this paper is relevant because it has the potential to improve the management and policy decision-making of charities in general, and

with the Dutch consistently behaving less charitably, this would be a matter of importance to them.

### *1.5.2 Scientific value*

With practitioners depending on donation revenues, we need to have a clear understanding of how social information can increase the effectiveness of charitable stimulants. However, scientists have yet to provide practitioners with clarity about what social information can or cannot do. While previous research concluded that social information and donation behavior are related, social information effects are in fact not fully understood. Few studies have tried to explain social information effects. In this dissertation, we examine not only how social information effects are expressed in an online context, but we also review how they can be explained. Few studies have considered testing social information effects in an online context even though we know that context factors play an important role. A public context, for instance, is more effective than an anonymous context (Alpizar et al., 2008a; 2008b).

Second, few researchers have tried to connect social information effects with existing theories. Multiple studies have suggested that social norms underlie social information effects (van Teunenbroek, Bekkers & Beersma., 2020). However, while many scholars have suggested it, the empirical evidence is lacking (Bicchieri et al., 2009; Croson et al. 2009; Goeschl et al. 2018; Sasaki, 2019; Smith et al., 2015; van Teunenbroek & Bekkers, 2020b). We innovate upon earlier methods used by exploring perceived social norms. Earlier studies have shown a correlation between social information and donation behavior but were unable to draw causal inferences. Other studies could draw causal inferences (e.g., Bicchieri et al. 2009; Goeschl et al. 2018) but conducted their experiments in a context in which social norms were expected to be more profound, i.e. in dictator games, in which there is direct contact between the participants. We tested whether social norms affect behavior in a context in which they are expected to be less effective: without direct contact between the participants.

In addition, the perception of social norms does not fully explain how social information affects giving. For instance, why do people donate amounts higher than the one suggested if the norm indicates giving the suggestion amount (see Bekkers, 2012; van Teunenbroek, 2016)? To uncover why social information and donation behavior are related, we provide several additional

explanations to give a more complete account of the phenomenon in this dissertation.

Next to this, we tested whether social information has a generic effect. The literature on social information effects shows inconsistent results that are not fully understood, and social information could decrease rather than increase the effectiveness of fundraising campaigns. A possible explanation here is that the effectiveness of social information depends on who receives the information. Because it is crucial for crowdfunding practitioners to better understand online solicitation methods, we have reviewed social information effects by taking into consideration that the effect is not equal for everyone.

As we collected data to test to what extent social information affects people's mood by affecting the donation amount, this research, finally, may contribute to charting unknown territory. While earlier studies have shown that giving affects mood, it is unknown how social information fits into this picture.

## 1.6 Dissertation overview

The studies in this dissertation are divided into two parts. In the first part, we focus on existing literature to develop a theoretical framework (Chapter 2, see Table 2). As such, the first part lays the groundwork for the quantitative examinations of social information effects in the second part (Chapters 3-5). These empirical chapters test the effects of social information in a randomized control setting by comparing the decision-making of people who received social information (treatment condition) with that of people who received no social information (control condition). All chapters review at least the first research question (RQ1). A short specification of each chapter follows below.

*Chapter two* outlines a theoretical framework for social information effects on donation amounts. We propose a theoretical model with four mediating variables: three with a positive effect (perceived social norms, awareness of need, expected quality) and one (individual donation impact) with a negative effect (RQ2). In addition, we propose three moderators that are expected to influence the mediated effects (RQ3-4), namely: (1) who, (2) what, and (3) when. The analysis is based on 36 studies reporting social information effects in a charitable condition, integrated with insights from classic psychological theories and behavioral economics theories. Although this

chapter is largely descriptive because only part of the results is based on empirical papers, it improves our understanding of the psychological mechanisms that explain why people are influenced by social information (mediators), and when social information has a stronger effect (moderators). This understanding is in the interest of scholars who aim to help this scientific field to become more mature and for practitioners who wish to implement social information as an efficient stimulant of individual donations. The field of social information represents a vibrant area for theoretical development. Our main criticism of this chapter is that we focused on social information effects on donation amounts and to a lesser degree on the decision to donate.

*Chapter three* focusses on exploring when social information has a stronger effect on people's decision to donate and on the donation amount. In this chapter, we improve our understanding of how social information operates by testing whether it has a general effect as a charitable stimulant, with two main aims: First, we explored whether social information has an effect in an online context (RQ 4), and then we tested if the effectiveness of social information depends on the information recipient. This means that we linked the respondents' donation behavior to social information with several personal characteristics (RQ 3): need to belong, reputational concerns and shared identity. This chapter used data from two online classroom experiments conducted among students from the Vrije Universiteit Amsterdam. Students were shown a real-life crowdfunding project and asked if they wanted to donate. While earlier studies had reviewed archival data on online donations (e.g. Bøg, Harmgart, Huck & Jeffers, 2012; Smith, Windmeijer & Wright, 2015), our study was the first at the time to use a randomized control setting to study social information effects in a crowdfunding platform. As a result, we could not yet draw any causal inferences. In our study, we informed half the student group that other students had donated €15 to the same project they were reviewing. The other group saw no information about other students' donation behavior. Both groups were then asked if they wanted to donate and, if so, how much. In addition, we implemented a survey that linked the students' donation behavior with several individual characteristics. This chapter clarifies what individual characteristics make people more sensitive to social information, an area that has hardly been given any attention in previous research. Our main criticism of this chapter is that we used a small student sample in a semi-hypothetical donation context.

Table 1. Overview of the different chapters

| Chapter[1] | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| **Sample** | Empirical articles | Students | Online crowd-funding visitors | Online prolific participants |
| ***n*** | 36 | 180 | 24,070 | 1,029 |
| **Country** | Worldwide | The Nether-lands | The Nether-lands | Britain |
| **Study design** | Systematic lit-erature review | Online class-room experi-ment | Online field experiment | Online survey experiment |
| **Method of assigning participants** | Randomized and coinci-dental | Randomized | Randomized | Randomized |
| **Amount mentioned** | $0.50 - $1000 | €15 | €82 | £5 |
| **Amount based** | 50th - 99th percentile | 50th percentile | 50th percentile | 50th percentile |
| **Actual donation** | Yes and no | Semi | Yes | Semi |
| **Source of donation** | From hypo-thetical to earnings | Hypothetical | Earnings | Windfall |
| **Charitable cause** | A variety of dif-ferent causes | Pifworld crowdfunding project | Voordekunst crowdfunding projects | Charity of choosing |
| **Research questions** | 1, 2, 4 | 1, 3, 4 | 1, 2, 4 | 1, 2, 3, 5 |
| **Additional survey** | Yes | Yes | No | Yes |

| Chapter[1] | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| **Additional variables** | Several moderators and mediators | Personal characteristics | Project funding stage, social norm | Injunctive and/or descriptive norm, perceived social norm, personal characteristics and mood effects |
| **Main criticism** | Theoretical framework is only partially based on empirical accounts. Focus SI effects on donation amounts. | Generalization: semi-hypothetical context. Small student sample. | No individual donor information. No explicit test for the perceived social norm. | Unrealistic giving context. |
| **Pre-registered** | No | No | Yes | Yes |
| **Available online** | Yes | Yes | Yes | Yes |

[1] Note. These chapters have been presented in the order most logical for reading and understanding the dissertation. The chapters have not been presented in the chronological order of conducting the studies, which is as follows: Chapter 3, 2, 4, 5.

In *Chapter four*, we build on Chapter three by implementing the same design in a field experiment with real-life crowdfunding projects, including, therefore, actual donors and donations. This chapter provides unique data based on a large sample of actual viewers of the Dutch crowdfunding platform Voordekunst, which is the largest arts-oriented crowdfunding platform in the Netherlands. We tested whether social information influences actual crowdfunding campaigns, with two main aims. First, we explored when social information is most effective in a context that has hardly been tested before: crowdfunding (RQ 4). Second, we made a further attempt to clarify the effect of social information by introducing a new moderator variable: the project stage. Our study is the first to pinpoint the stage of the funding campaign at which the effect of social information is most pronounced. We used a randomized control setting for all viewers, including all crowdfunding proj-

ects in our study. We informed 50% of the viewers that other students had donated €82 to the same project they were reviewing. The other group saw no information about other students' donation behavior. For both groups, we measured if they wanted to donate and, if so, how much. In this chapter, we contribute insights into the working of social information by mapping the restrictions and possibilities of social information as a charitable stimulant with two main aims. Our main criticism of this chapter is that we had no information about individual donors' characteristics; as the data were completely anonymized, we did not receive any identifiable information on the website visitors or donors.

*Chapter five* takes our research on social information effects one step further by considering a common criticism of the use of social information and related tools aiming to influence decision-making (such as nudges, see Thaler & Sunstein, 2009): the criticism that discrete suggestions reduce donors' freedom (Hagman, Reese, Seewalk & Loeschinger, 2015; Brehm & Brehm, 1981). In this chapter, we test our assumption that social pressure lowers mood (RQ 5). To the best of our knowledge, there is currently no known research on the effects of social information on people's moods. This chapter seeks to fill this gap. In addition, we aim to test the role of perceived social norms as a mediator between social norms on donation behavior and mood. In doing so, we tested how social information affects the perception of social norms and, hence, charitable giving (RQ 2). Next to this, we examined how adjusting the donation amount to social information varies as a function of the type of social norm tied to the information. We tested whether there is a group of participants that is unaffected by social information (RQ3). To test these questions, we conducted an online survey experiment amongst a large sample of Prolific participants. We gave either no extra information or information based on the descriptive and/or injunctive social norm. Like in Chapter 3, we added a survey to measure the donors' perception of the descriptive and injunctive social norm and their mood after donating.

Finally, *Chapter six* provides a conclusion and general discussion of the results. Combining the chapters, we provide several additional insights. We discuss theoretical, operational and methodological issues surrounding social information effects on charitable giving relating to these results and provide directions for future research on applying social information effects. To finish, we describe several practical implications, advising practitioners on the responsible and ethical use of social information as a stimulant of their solicitation methods.

## 1.7 Data sources and methods

This dissertation presents four studies based on four different self-collected data sets (see Table 1). One study comprised a systematic literature search, yielding 36 studies reporting on social information effects and mentioning donation amounts of previous donors. This resulted in a body of literature deriving from three research fields: philanthropy, psychological theories on donation behavior and economic theories on public goods. Our methodological approach consisted of two broad steps: we (1) systematically reviewed the literature and (2) developed a theoretical framework. We reviewed each study and coded the explanation of the effects found or the explanation that was provided for not finding effects. To categorize the diverse range of explanations offered by the researchers, we used theories derived from social psychology and behavioral economics.

Three studies in this dissertation are based on self-collected data assembled from three separate experiments with different samples but using similar manipulation of social information: the average donation amount of earlier donors. By using the average, we take advantage of the fact that giving is right-skewed; the average is often much higher than the median.

First, we conducted a pilot and classroom experiment among 181 students at the Vrije Universiteit Amsterdam (see Table 1). Students were informed beforehand that they would be taking part in an experiment, and that there was a 10% chance that their decision would be carried out. We used a straightforward test with two conditions, manipulating only one condition. The control group was provided with the project page of a real-life crowdfunding project without any additions or changes: the condition without adding social information. In the treatment condition, we added social information using the following sentence: "Did you know that the average amount donated to this project is €15?" ["*Wist je dat het gemiddelde donatie bedrag voor dit project €15 is?*"]. In addition, we used shortened versions of surveys aiming to measure several personal characteristics. To shorten the surveys, we used data from a pilot study and employed a factor analysis.

Second, we conducted a large-scale field experiment among 24,070 visitors of the Dutch culture-oriented crowdfunding platform Voordekunst.[4] We used a straightforward test with two conditions in a field experiment, manipulating only one condition. The control group saw the platform as it was: the condition without adding social information. In the treatment condition, we added social information to the platform using the following sentence: "Did you know that the average donation amount to Voordekunst is €82?" ["*Wist je dat de gemiddelde gift op Voordekunst €82 is*?"]. We preregistered the experiment at Aspredicted.org (see https://aspredicted.org/u5w9u.pdf).

Third, we conducted an online survey experiment among 1,029 British participants using the Prolific platform. Prolific enables researchers to find participants to collect reliable and high-quality data. we selected participants based on their British nationality. At the beginning of the study, we informed participants that this study was part of a series of studies, and that the current study was a follow-up. They read that we might show them information about the behavior of participants in earlier studies, and that their own behavior and choices might be shown to other participants in subsequent studies. In addition, we informed them that we would raffle several £10 gift cards. After the participants had conducted a vocabulary test, we informed all of them (whatever their score) that their score was good enough to be included in the lottery. To assess how people adjusted their donation behavior to social information as a function of the type of social norm tied to the information, we employed a 2 x 2 design in the donation task (social information based on a descriptive norm: yes vs. no; social information based on an injunctive norm: yes vs. no). We preregistered the experiment at Aspredicted.org (see https://aspredicted.org/vz83y.pdf ).

[4] I want to thank Voordekunst for their generosity and openness to our ideas. We appreciate the opportunity Roy Cremers gave us to use the platform for scientific research.

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# CHAPTER 2

## LOOK TO OTHERS BEFORE YOU LEAP: A SYSTEMATIC LITERATURE REVIEW OF SOCIAL INFORMATION EFFECTS ON DONATION AMOUNTS

**Claire van Teunenbroek, René Bekkers & Bianca Beersma**

CvT designed the review process, collected the articles and reviewed the articles. CvT wrote the article and RB and BB provided critical feedback on earlier drafts of the manuscripts.

Supplementary materials are available through the Open Science Framework at https://osf.io/kajgf/

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## Abstract

People are often influenced by information about other people's behavior, that is, social information. Social information is frequently used by practitioners hoping to increase charitable giving, while the precise mechanisms through which social information works are unknown. We conducted a systematic literature review of 36 studies reporting on the effects of social information on charitable giving. We show that several studies report no or even negative effects and that a theoretical understanding of social information effects is lacking. We integrate the empirical findings in the wider fields of social psychology and behavioral economics and propose an integrative theoretical model. The model includes four mediators and three moderators that can explain positive and negative effects of social information. This theoretical framework can assist researchers to obtain a deeper understanding of social information.

**Keywords**: donation amounts, social norms, social influence, social information, systematic literature review

## 2.1 Introduction

While the societal and scientific focus on philanthropy has increased (Schuyt, 2012), the field misses a solid theoretical framework as the literature on philanthropy is mainly empirical (Bekkers & Wiepking, 2011). This problem has implications for the usage of a specific tool often used by practitioners to increase donation amounts: social information. Social information informs individuals about the behavior of others which can be used to increase individual donation amounts (Shang & Croson, 2009). Our review of the effects of mentioning previous donation amounts shows that social information does not always result in a positive effect and sometimes even decreases donation amounts. The purpose of this article is to develop a theoretical framework that can guide future research and advise practitioners in the use of social information as a stimulant for their solicitation methods.

A number of previous studies suggest that social information is a useful tool to increase the effectiveness of philanthropic solicitation methods (e.g., Alpizar, Carlsson, & Johansson-Stenman, 2008a, 2008b; Croson & Shang, 2008; Hysenbelli, Rubaltelli, & Rumiati, 2013; R. Martin & Randal, 2008; Shang & Croson, 2009; van Teunenbroek, 2016; Van Teunenbroek & Bekkers, 2018; Vesterlund, 2003). In contrast to these findings, other studies reported no effects (Catt & Benson, 1977; Kubo, Shoji, Tsuge, & Kuriyama, 2018; Murphy, Batmunkh, Nilsson, & Ray, 2015; Shang & Croson, 2009) or even negative effects, meaning that social information decreased rather than increased charitable giving (Croson & Shang, 2008; Meyer & Yang, 2016). The use of social information, therefore, instead of increasing donations, could prove to be costly for practitioners.

From the current literature on social information effects, we cannot conclude to what extent social information affects donation amounts. Therefore, our central research question is: "Why and when does social information increase charitable giving?" The inconsistencies in the literature indicate a need for a theoretical framework that can assist researchers to obtain a deeper understanding of the mechanisms that drive effects social information on charitable giving. We conducted a systematic literature review of 36 studies reporting on social information effects on charitable giving published before January 2019. We observed a large variation in design, methods, and context between the studies and in the operationalization of social information differs between studies. Also, we observed that studies contributed limited to no effort to developing a theoretical explanation behind the

(lacking) effect. As a result, we are left with a series of empirical accounts without a clear theoretical background or an explanation behind the effects (or lack of effects).

We developed a theoretical framework which is a mix of the empirical findings reported in the 36 studies, integrated with insights from classical psychological theories and behavioral economic theories. It is important to combine these two fields because experiments in both fields have shown how situations can be created to stimulate giving. For instance, psychologists have shown how humans follow social norms and often adjust their behavior accordingly (Bernheim, 1994; Festinger, 1954). Behavioral economists have shown how small pieces of information can influence decision making (Thaler & Sunstein, 2008). In addition, the 36 papers mentioned several explanations behind the (lacking) effect of social information, mostly applying insights from the field of behavioral economics and social psychology. However, the suggested mechanisms were hardly explained or tested.

We propose a theoretical model with four mediating variables (presented in no order), three with a positive effect and one mediating variable with a negative effect. Our model is consistent with the finding that donors have different reasons for giving (Konrath & Handy, 2018). Social information is only one of many influences that affect giving. Also, it is likely that individuals have different reasons for (not) following social information.

First, some donors donate because they want to behave in a socially acceptable way (Bekkers & Wiepking, 2011). Social information creates social norms (e.g., Croson, Handy, & Shang, 2009; Sasaki, 2019; Smith, Windmeijer, & Wright, 2015). Potential donors might reason: 'because other people are donating, it is apparently common to do so'. Second, a related motive to give is to behave altruistically; to help others (Bekkers & Wiepking, 2011). Maybe social information increases an awareness of need, potential donors might reason: 'because other people are donating, there is apparently a real need for help'. Third, some donors care about the trustworthiness and efficacy of a charity and search for information about the quality signals to determine if their donation will be used properly (Bekkers & Wiepking, 2011). Social information increases the perceived quality of a charity (Vesterlund, 2003), potential donors might reason: 'if other people are donating, they must perceive this charity of a good quality'.

The fourth mechanism refers to a negative mediator. Some donors care about the perceived impact of their donation on the total amount raised by the charity (Duncan, 2004). Social information can lower the perceived

impact of one's donation. Someone might reason: 'if other people are donating, my donation will not make a big difference in terms of assembling the target amount'.

In addition, we propose three moderators that are expected to influence the mediated effects: (a) who provides the information (e.g., is it a source with whom we identify or not), (b) what is the content of the information (e.g., is the donation amount high or low), and (c) where is the donation made (e.g., in public or anonymously). The mediators specify why there is an effect, and the moderators specify when certain variables have a stronger effect.



## 2.2 Method

The core of our review is 36 empirical papers reporting social information effects, a body of literature deriving from two research fields, namely research based on psychological theories on charitable giving and research based on economic theories on public goods. Our methodological approach consists out of two broad steps: we (a) systematically reviewed the literature and (b) developed a theoretical framework.

To review the literature systematically, we used several inclusion criteria to refine our search (see Figure 1). We included only papers that contained analyses of charitable giving. We excluded papers that examined social information effects on consumer behavior, as the key goal of philanthropy is to make a contribution for the benefit of the public good (Payton, 1988), whereas consumers buy products for private consumption.

Multiple types of social information exist, have been examined, and could provide insight into the effect of using information on another people's behavior on giving. For pragmatic reasons in terms of the independent variable, we focused solely on social information in the form of "the previous donation amount of an individual or group," to keep the project feasible.

The included studies were published by academics in journals, books, or working papers made publicly available before January 2019. We searched (a) academic databases (PsychInfo, PubMed); (b) Google Scholar; and (c) references cited in the articles found. We used the following keywords: social information, peer effects, suggestion amount, conformity, charitable contribution, giving, social influence, and previous donation amount. We searched for studies with these keywords in their title, keywords, or abstract, or that used a pair of possible formulations of the independent and dependent variables in their title, keywords, or abstract.

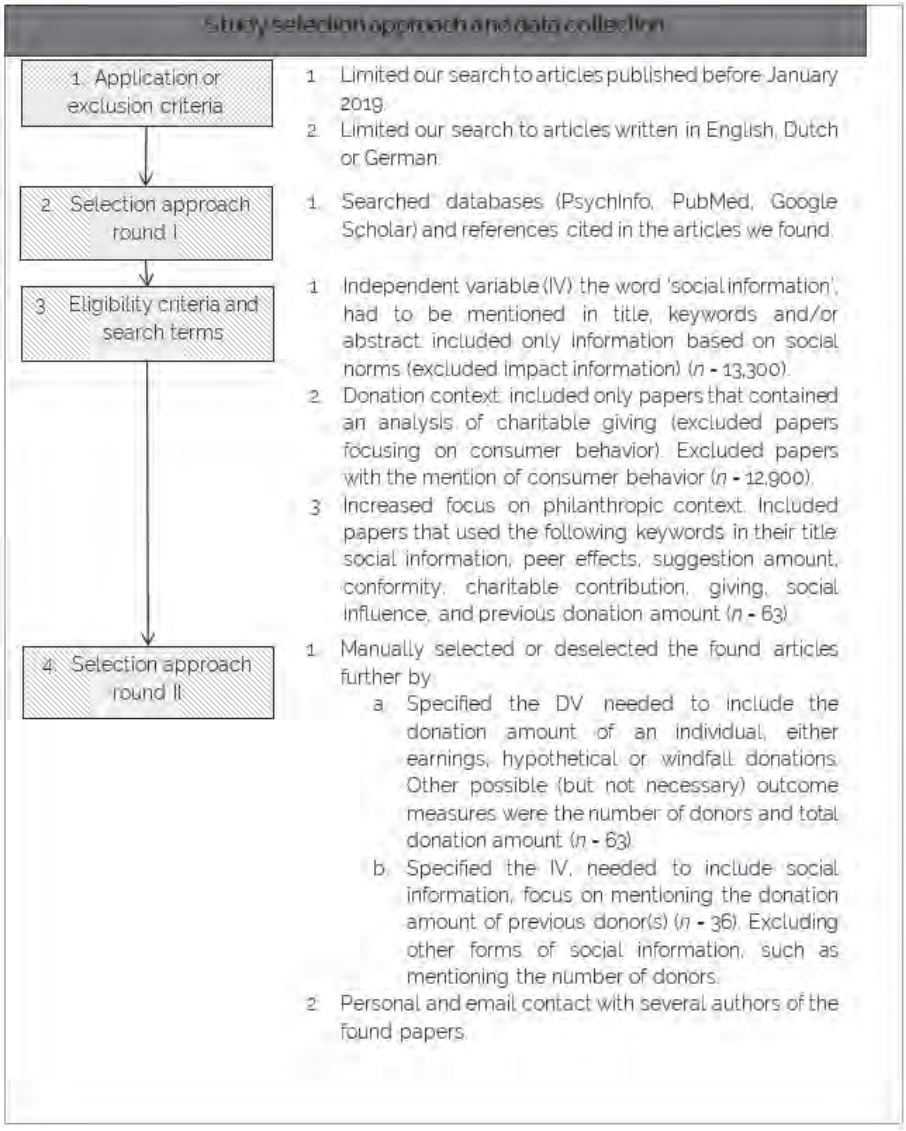


Figure 1. Flowchart of the study selection approach and data collection

This process resulted in 36 empirical papers. For each paper, we coded the research context, that is, whether it was a lab experiment, a field experiment, or a survey study, see Figure 2.

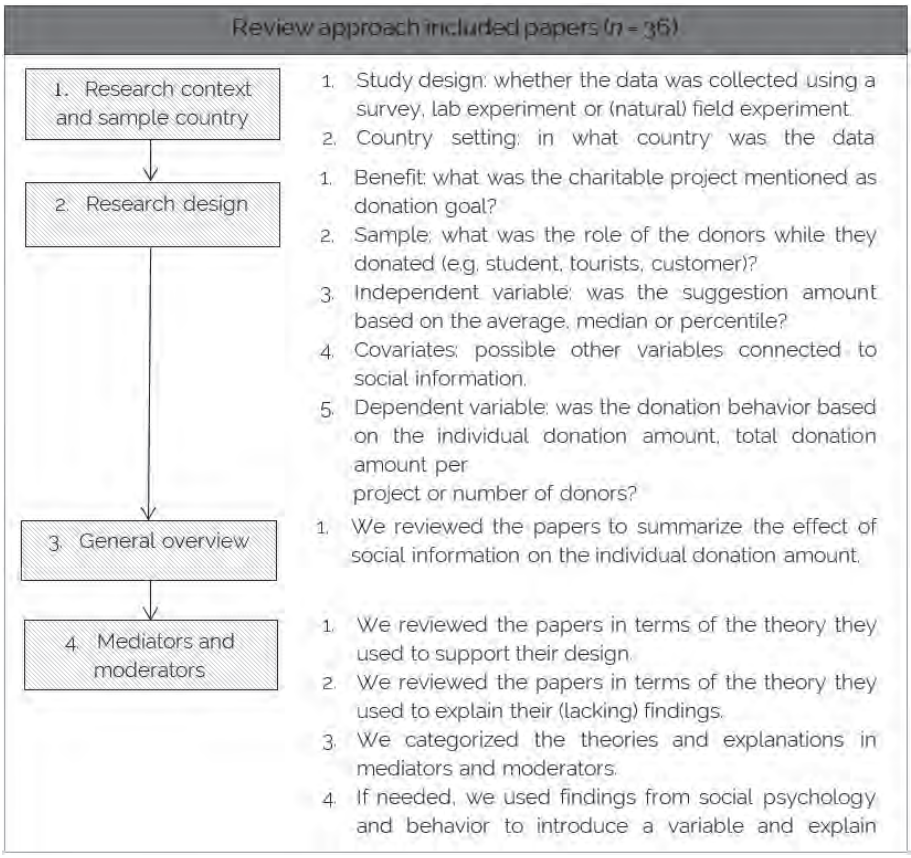


Figure 2. Flowchart of the review approach

Next, we developed a theoretical framework. We reviewed each study and coded the used explanation (if mentioned) behind the effects (or, if applicable, the explanation that was provided for not finding effects). To categorize the diverse range of explanations offered by the researchers, we used theories of social psychology and behavioral economics. For the selection of these theories, we focused on well-known theories of behavioral economics (for instance, Thaler & Sunstein, 2008) and social psychology (for instance, Cialdini, Schroeder & Kallgren, 1990) often used in research on philanthropy.

The selection method could have resulted in a bias, as papers presenting significant results are more likely to be published than papers reporting non-significant results (i.e., publication bias, Scherer, Langenberg, & von Elm, 2007). Although we did not specifically focus on published papers, we expect that more researchers have found a non-significant effect than we

found and have reported in this literature review. As a result, our selection method may have resulted in an overestimation of the size and significance levels of effects (Scherer et al., 2007). While we cannot observe results from all studies that have remained unpublished, we did include seven unpublished research papers and found that these papers report similar effects in terms of the direction and significance compared to the published papers. Therefore, we conjecture that the risk of selection bias is limited.

## 2.3 General overview

Several laboratory experiments (Bicchieri & Xiao, 2009; Blake, Rosenbaum, & Duryea, 1955; Cialdini & Schroeder, 1976; Goeschl, Kettner, Lohse, & Schwieren, 2018; Hysenbelli et al., 2013; Jones & McKee, 2004; Klinowski, 2015; Reingen, 1982; Sell & Wilson, 1991; Vesterlund, 2003) and field experiments (Agerström, Carlsson, Nicklasson & Guntell, 2016; Alpizar et al., 2008a, 2008b; Bøg, Harmgart, Huck, & Jeffers, 2012; Croson et al., 2009; Croson, Handy, & Shang, 2010; R. Kawamura, Ida, & Ogawa, 2018; R. Martin & Randal, 2008; Sasaki, 2019; Shang & Croson, 2006; Shang, Reed, & Croson, 2008; Silverman, Robertson, Middlebrook, & Drabman, 1984; Smith et al., 2015; van Teunenbroek, 2016; Van Teunenbroek & Bekkers, 2020) reported positive effects of social information on the amount donated. The strength of the effect on the individual donation amount varied: for example, 12% (Bekkers, 2012; Croson & Shang, 2013; Shang & Croson, 2009), 14% (Shang & Croson, 2006), 16% (Van Teunenbroek & Bekkers, 2020), and 18% (Alpizar et al., 2008a, 2008b); other studies reported no effects (Catt & Benson, 1977; Kubo et al., 2018; Potters, Veston & Vesterlund, 2001; Murphy et al., 2015; Shang & Croson, 2009) or even negative effects on the donation amount (Croson & Shang, 2008; Meyer & Yang, 2016). While Shang and Croson (2009) found that donors to a US radio campaign donated more after they had heard previous donors' donation amounts, Murphy and colleagues (2015) could not replicate their findings using a similar experiment with donors to a radio campaign in Alaska.

While most studies focused on examining social information effects on charitable giving report the effect on the individual donation amount, some studies also report the effect on the participation rate. Social information does not always enhance people's decision to donate (Van Teunenbroek & Bekkers, 2020; Goeschl et al., 2018; Klinowski, 2015; Murphy et al., 2015; Reingen, 1982). However, other studies have found a positive effect on both the

individual donation amount and the participation rate (R. Martin & Randal, 2008; van Teunenbroek, 2016).

In conclusion, some studies report positive effects of social information on individual donation amounts, but others report no effects or even negative effects. In addition, even if social information increases individual donation amounts, it does not always enhance people's decision to donate. These different outcomes of using social information call for further explanations for why and when social information has an effect.



## 2.4 Mediators

We present four mediators; in no order (see Figure 3). The mediators do not exclude each other: they may operate at the same time.

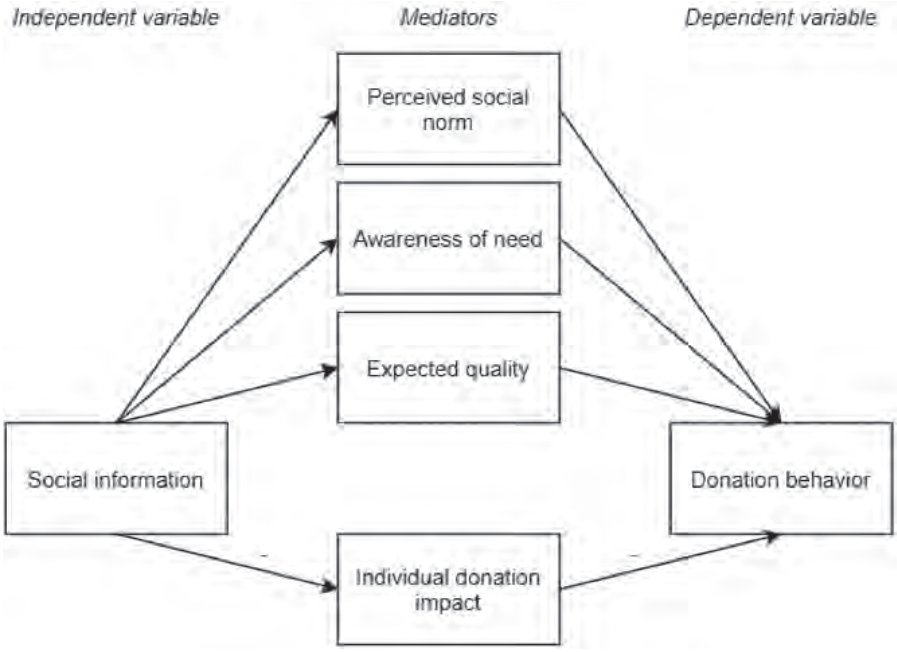


Figure 3. A visual representation of the proposed framework including the independent variable, dependent variable and mediators. All displayed relationships are positive unless noted otherwise

### *2.4.1 Perceived social norms*

Human decision-making is influenced by social norms as they provide cues about how to behave in a given situation (i.e., descriptive social norm), including charitable donations (Cialdini, Reno, & Kallgren, 1990). "Conforming," a term often connected with social norms, refers to social comparison stimulated by a desire to blend in, resulting in behavior adjustment: it is a social phenomenon whereby people perceive other people's behavior as cues for acceptable behavior and adjust accordingly (Meyer & Yang, 2016). Human behavior is strongly influenced by a desire to conform to social norms (Bernheim, 1994; Festinger, 1954).

Social norms have been related to donation behavior (Bekkers & Wiepking, 2011). By making social information available, researchers try to influence the decisions of potential donors by hinting at an answer to the fundamental question: what does a person like me do in this situation? Donors who desire to conform are likely to target the modal donation amount as a reference for the acceptable donation amount (Bernheim, 1994). Most of the studies that mention an explanation behind the social information effect suggest social norms are at work (see Appendix A).

Smith et al. (2015) analyzed online fundraising data (focused on giving by peers) and found a positive effect of previous donations: a £10 increase of past donations increases donation amounts by £2.50. The researchers explain their findings by stating that social information provides donors with "the appropriate amount to give." However, the researchers also state that the observed large and small donations imply that donors are not simply following the group by matching the amount donated most often. We would expect that if social information functions as a social norm, individuals mirror the amount, because social norms increase the individual tendency to conform (Bernheim, 1994; Festinger, 1954). Van Teunenbroek & Bekkers (2018) found a similar effect studying donors to crowdfunding projects in a large field experiment: donors increased their donation amounts in response to social information, but they did not mirror the suggestion amount of €82. The researchers argue that the suggestion amount was too atypical to mirror a suggestion amount, because €82 does not resemble a commonly chosen donation amount.

Sasaki (2019) used a similar design as Smith et al. (2015): an online fundraising page mainly supported by peers. The study found that the more the last five donations resembled each other, the more likely they were to in-

fluence a new donor. It is important to note that the studies of Smith et al. (2015) and Sasaki (2019) did not contain an explicit test to measure if social information functions as a social norm.

Croson et al. (2009) conducted a laboratory experiment with students. The participants read a scenario mentioning that they donated $25 to a radio campaign; during a conversation with a solicitor, they were told that another member donated $10 or $50. Next the participants indicated how much they thought the average radio listener would donate (i.e., hypothetical donation context). The researchers found a direct effect of social information on hypothetical charitable giving, which decreased—but did not disappear—after controlling for social norms as a mediating variable. While the strength of the relation between social information and hypothetical giving is reduced by including social norms as a mediator, the mediating variable only explains a part of the relation. Social norms may thus partially explain the relationship between social information and charitable giving.

Goeschl et al. (2018) conducted a modified dictator game to research causal mechanisms that link social information with donation behavior through influencing social norms. The researchers followed a similar research design as Croson et al. (2009), but this time including actual donation amounts instead of hypothetical giving. The researchers included three conditions, control, low (€1), and high (€7). Only the high condition resulted in higher donation amounts, but not more donors. In addition, the researchers asked the participants what they thought other donors would donate (that is the stated belief). The researchers found similar results: social information affects donation behavior through changing the perception of the social norm. The outcome shows that social information does not only increase the donation amount (in the case of a high suggestion amount) but also increases the belief about the donation amounts of other donors. However, the stated beliefs are not fully aligned with the suggestion amount through social information: in the case of the high and base condition, the stated beliefs are higher than the actual donation amount.

Bicchieri & Xiao (2009) specified the social information effects even further by distinguishing between descriptive (i.e., what most people do) and normative (i.e., what should be done) norms. The social information described in the previous studies conveys a descriptive social norm, because it describes the most common behavior (donors donate X euros) instead of how individuals should behave (donors say you should donate X euros). The

researchers found that participants in the role of a dictator (the one in control of distributing the earnings) is more likely to offer an equal split, if they read that this is often done by others (i.e., a descriptive social norm), or that an equal split is most appropriate according to dictators of previous sessions (i.e., an injunctive social norm). Interestingly, social information in the form of a descriptive social norm trumps an injunctive social norm when both are presented at the same time. Social information as described in this article refers to descriptive norms: it provides individuals with information on typical behavior in a given situation (Cialdini et al., 1990), instead of an injunctive norm which refers to what is typically approved in society (i.e., what people ought to do). Social information can change the perceived descriptive social norm, which may then change the donation behavior. While such a mediation is suggested by researchers focusing on social information effects, the effect remains unclear as previous studies have not assessed it properly.

### *2.4.2 Awareness of need*

Numerous studies examining donation patterns have shown that people must be aware of there being a need for help before they feel motived to give (more) (Bekkers & Wiepking, 2011), also referred to as awareness of need. Several field studies demonstrated that the degree of need for help increases the likelihood of helping (Levitt & Kornhaber, 1977; Schwartz, 1974; Staub & Baer, 1974).

Awareness of need can be increased if beneficiaries communicate this need to potential donors (Bekkers & Wiepking, 2011). We would expect that the implementation of social information could increase awareness of need by communicating this need to donors: "If people are willing to donate large amounts of money, there must really be a need for help and I should donate a higher amount." However, this mechanism has not received any attention from scholars examining effects of social information.

### *2.4.3 Expected quality*

It is a classic assumption in economics that people are rational and aim to increase their utility from social interaction. We expect that people prefer to donate to projects and practitioners of higher quality, as low-quality projects are less likely to provide utility to people. People find it hard to judge the quality of philanthropic projects and practitioners (Handy, 1995; Rose-Ackerman, 1980, 1981). Possibly because there are so many charities, and

proper quality signals are costly (Vesterlund, 2003). If other donors contribute, donors may perceive the donation as a signal that the charity is of a good quality, which enhances the perceived trustworthiness and efficacy of that charity (Bekkers & Wiepking, 2011). Also, social information could signal that a nonprofit is associated with a positive organizational legitimacy. A quality signal is important for establishing enough trust to donate (Bekkers, 2003).



Vesterlund (2003) specifically suggested that social information works as a quality signal. The researcher suggests that donors' social information changes the way donors think about the value of the project. However, Vesterlund did not include an explicit test of expected quality. The explanation of Vesterlund builds on the assumption that individuals have imperfect information about the quality of the charity.

Smith et al. (2015) provided an indirect empirical test to determine if social information functions as a quality signal. The researchers used by-proxy reasoning to determine if social information influenced the perceived quality of a project. The researchers based their approach on the assumption that the content of social information would be more important for "unknown" charities that were characterized by being start-ups, small-sized, involving young people, and based on overseas (Heutel, 2014). These types of charities were more likely to require a quality signal, as charities about which donors know little are probably more in need of additional information (Heutel, 2014). Social information, therefore, should have a stronger effect (Smith et al., 2015). However, Smith et al. (2015) found that the effects of social information were stronger for larger and older charities and that there were no effects of geography.

The reasoning of Smith et al. (2015) was based on the untested assumption that small, young, and overseas charities are perceived as a "risky investment." With recent scandals relating to some of the bigger and better-known charities, however, donors might be more skeptical about the quality of these bigger and well-known charities.

Van Teunenbroek & Bekkers (2018) found no evidence to support the idea that social information functions as a quality signal in their field experiment with donors to crowdfunding campaigns. They expected that social information would be most effective in the middle of the campaign, as donors in the middle were expected to base their donation decision on the perceived quality of the project. Contrary to their expectations social information was especially effective in the beginning and end of a campaign.

The findings of Potters et. al. (2001) that social information effects were absent alongside information about the public goods quality suggest that social information functions as a quality signal. The researchers gave donors either social information or social information and information about the public good's quality, in the latter social information effects were absent.

Social information could function as a quality signal, by providing donors with the idea that others think that this is a good project/non-profit. While findings by Smith et al. (2015) and Van Teunenbroek & Bekkers (2018) suggest social information does not work in this way, they did not explicitly measure perceived quality. The finding of Potters et al. (2015) suggest that social information does work as a quality signal, however, participants perception of social information was not measured. Therefore, it is still uncertain if social information functions as a quality signal.

### *2.4.4 Individual donation impact*

None of the reviewed studies mentioned that social information could relate to a lower donation impact. However, social information does not always increase donation behavior and has even been found to decrease donation behavior in some studies (e.g., Croson & Shang, 2008, 2013; Meyer & Yang, 2016). Economists describe that donors are influenced by the estimated impact of their donation (Duncan, 2004). The impact philanthropy model claims that donors are stimulated and enjoy personally increasing the output of a public good (Duncan, 2004), possibly to appear important. Such that potential donors might think "If other people are already donating large amounts of money, my money is less needed to reach the donation goal, and I could donate a lower amount (or not at all) to save money without appearing less important." Our interpretation of our impact mechanism is that impact refers to a donor's feeling of how much their donation contributed to successfully assembling enough money to produce the public good. As a result, the attractiveness of giving decreases with each donation as it decreases the donation impact (Duncan, 2004). Providing social information, therefore, could be harmful. The feeling of making a difference also matters in prosocial behavior (Aknin, Dunn, Whillans, Grant, & Norton, 2013; Bekkers & Wiepking, 2011).

While impact has not been examined directly, there is one study that showed that group size has a negative influence on the donation amount (Scharf & Smith, 2016). This means that if the donation amount of previous

donors gives individuals the feeling that the project is supported by a large group, it could have a negative effect on the individual donation amount. This also suggest that the mediator 'individual donation impact' is moderated by the amount mentioned. We describe the impact of possible moderators in the next section.



## 2.5 Moderators

In addition to the mediators, we argue that the three W's moderate the mediating variables: who, what, and where (see Figure 4).

### *2.5.1 Who*

When people receive information, it matters who provides it: they prefer to follow information from similar others (e.g., family and friends, that is, strong ties) or people with similar attributes (Festinger, 1954). If there is a shared sense of social identification (i.e., shared identity), this is particularly influential for someone's own decision making (Weber, Kopelman, & Messick, 2004).

Researchers identified several ways in which a shared identity can be manipulated to increase the effectiveness of social information on donation behavior. Hysenbelli et al. (2013) conducted a laboratory experiment with Italian students in a hypothetical context: students indicated how much they would donate after reading a scenario mentioning the donation amount of previous Italian

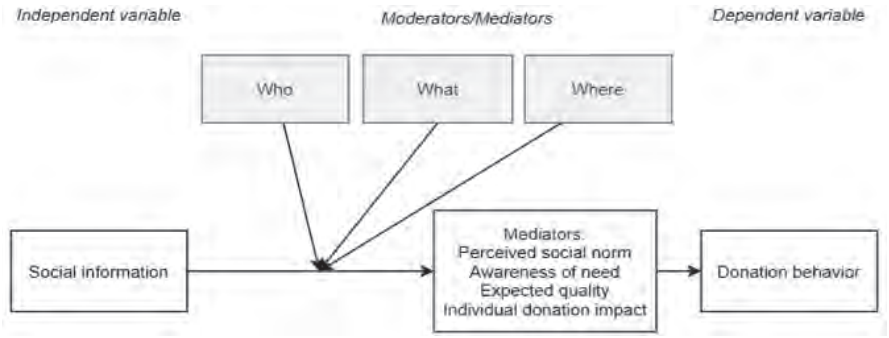


Figure 4. A simplified visual representation of the proposed framework including the independent variable, dependent variable, mediators and moderators (depicted in light grey). The mediators and moderators are presented in no particular order: there is no particular order

(i.e., similar identity) or German donors (i.e. mismatched identity). The researchers found that a high suggestion amount (€90) resulted in higher donation amounts, whereas a low suggestion (€10) had no effect. A suggestion made by a similar other increased the effectiveness of the high suggestion amount, but not of the low suggestion amount.

One study suggested that although donors who make multiple donations ("prior members") are unaffected by social information, the effect can be re-established when the solicitor connects the term "prior members" to social information in their solicitation (Shang & Croson, 2009). We suggest that, by adding the word "prior," the researchers have increased the focus on similarity in having made a prior donation and have thus increased the sense of shared identity between the source and the target of the social information.

Croson et al. (2010) found that if social information was connected to the same gender as that of the participant (i.e. similar identity), the information had a stronger effect on donations than in the mismatched condition (e.g., showing a female the donation amount of a male). Unfortunately, the study did not use a randomized control design. Therefore, we cannot be sure whether the increasing participation rate of females solicited by a female was due to gender matching. It is also important to discuss the role of attractiveness and gender in relation to donation amounts, because the gender of the donor and solicitor is a partial determinant of the donation amount (Raihani & Smith, 2015). A study analyzing online donations showed that male donors donate more when solicited by attractive females. The study also shows that males do not conform to donation amounts made by previous male donors. It is important to note that in this study the researchers focused on relatively large donations (i.e., at least twice the average and more than £50).

### *2.5.2 What*

Classic economic theories argue that people always respond to relative prices (Sargeant & Jay, 2004). This effect can also be found in philanthropy: when the costs of giving are lowered, donations increase (Eckel & Grossman, 2003; Eckel, Tech, & Grossman, 2004). If a suggested donation amount is too high, people may perceive the amount as unfair or excessive, which decreases charitable giving (Hysenbelli et al., 2013). A suggested donation amount that is perceived as too high is probably less effective in influencing giving.

Several studies support this line of reasoning: social information based on the 99th percentile is no longer effective in increasing the individual donation amount (Croson & Shang, 2013; Shang & Croson, 2006). While a high donation amount might not increase the individual donation amount, Smith et al. (2015) found that a large donation (at least 10 or more times the average donation) does increase the number of donors. Apart from using amounts that are too high, mentioning an amount that is too low can decrease the individual donation amount (Croson & Shang, 2008; Meyer & Yang, 2016). In a laboratory experiment with students, other studies found that suggesting a high donation amount (€90) is actually more effective than suggesting a low donation amount (€10) to increase hypothetical giving (Hysenbelli et al., 2013). Unfortunately, it is unclear why exactly donors do not respond to information about very high donation amounts. Also, it is unclear when exactly the information is perceived as too high.

The amount mentioned might influence the nature of the impact mediator, changing the effect from negative to positive. We would expect that a lower suggestion amount increases the perceived impact of a donation, as there is a higher percentage of the target amount left. This means that a donor can have a higher impact. Duncan (2004) states that donors enjoy personally increasing the output of the good. We expect that a low suggestion amount makes donors feel like their gift really would be important and could have a big impact.

### *2.5.3 Where*

The philanthropic literature describes that the donation context influences donation amounts. For instance, individuals are more generous in a public setting where they are observed (Van Vugt & Hardy, 2010). Charitable givers are held in high regard and refraining from giving could damage one's reputation (Bekkers & Wiepking, 2011). If we apply this to the "perceived social norm" mediator, we expect that a public donation context increases the effect as people will only benefit from behaving in line with social norms if their behavior is observable. While some people might refrain from giving after seeing social information because it decreases the impact of their donation, therefore, they might still donate if the context is public. Social information is expected to be less effective in a private context, as the behavior is less observable (Alpizar et al. 2008b). An exception on this is online giving where a donor can choose to publish their donation amount.

Alpizar et al. (2008a, 2008b) collected field data at a national park and found that tourists who were informed about other people's typical donation ahead of the solicitation donated 25% higher amounts, but the effect was not significantly different from an anonymous donation context. Unfortunately, social information and anonymity were not manipulated in separate conditions, and the influence of anonymity on the social information effect, therefore, remains unclear.

A second contextual factor that could increase the effectiveness of social information is an ambiguous context. Social psychologists perceive a situation as ambiguous if there is no obvious way to behave and objective standards are unavailable. From an economic perspective, a context is ambiguous if the realized event is unknown or unique (Izhakian & Benninga, 2011). In an ambiguous context, information is an important input for decision making (Frank, 2015).

If social information affects the perception of a social norm, it is likely to be more effective in an ambiguous context (Crutchfield, 1955; Festinger, 1954), as people are more likely to compare themselves with other people in ambiguous situations (Buunk & Mussweiler, 2001; J. R. Martin & Wheeler, 2002). In an ambiguous context, therefore, social information could function as a social guideline.

For example, new donors to a radio campaign were affected by social information, but renewing donors were not (Murphy et al., 2015; Shang & Croson, 2009). As renewing donors are familiar with the context, it is not an ambiguous context to them, and, as a result, social information has a limited or no influence on this situation (Bekkers, 2012). New donors, on the other hand, are unaware of such a reference amount, and so they are looking for a social signal about the "correct" donation amount.

## 2.6 Discussion and conclusion

The literature on social information has yielded several insights, such as empirical evidence for a positive effect and several methods for increasing the effectiveness of social information. However, the diversity in findings apparent in our review shows that more work needs to be done to learn to understand why effects do or do not occur. Building on the broader literature of social psychology and behavioral economics, we have sought to contribute to such understanding. We proposed a model with mediators and moderators that impact the relation between social information and

donation behavior.

Our model can explain both positive and negative effects of social information. In addition, our review reveals that, as moderating variables, it matters who provides the information, what the content of the information is, and where the donor is while receiving the information. We believe this framework increases our understanding of existing research on social information effects and helps chart future research directions. By increasing our understanding of social information effects, we contribute to the further development of effective solicitation tools to increase charitable giving.



We make three suggestions for future research. Our first suggestion refers to an important empirical question that remains unanswered: the relative influence of each of the mediators—whether social information primarily affects donation behavior because it influences the perceived social norms, awareness of need, expected project/ non-profit quality, or the individual donation impact—is still unclear at this point. Multiple mediators are likely to operate simultaneously, and their combinations are likely to differ across time, contexts, and donors. There are also likely to be interaction effects: awareness of need will be higher if donors find perceived social norms important. It is likely, moreover, that there are several three-way interactions between mediators and moderators. The same social information could also result in two effects that cancel each other out. For instance, social information could increase awareness of need and, therefore, have a positive effect, but at the same time decrease perceived donation impact, resulting in a negative effect. We believe that, next to testing the proposed theoretical model, identifying systematic patterns in the effects of moderators, mediators, and their interactions is an important task for future research.

Second, in addition to characteristics such as gender, personal characteristics of potential donors, such as personality traits, and socioeconomic characteristics are likely to influence social information effects. Individual characteristics, however, can only be measured but not manipulated, unlike contextual factors. Practitioners could adjust contextual factors, but not the individual characteristics of their donors. It would be fruitful, nonetheless, to study the influence of individual characteristics. A challenge for future research is to investigate how the model works with different groups of donors, by segmenting donors, for instance, based on common characteristics such as shared needs, personality traits, and socioeconomic status to identify "high yield segments": What group of donors would profit most from

using social information?

Third, we suggest that it would be fruitful to redirect efforts from trying to increase donation behavior as much as possible and develop "the most effective stimulant." Instead we advise a focus on "clean" manipulations with proper explanations for their hypothesized effects. In other words, few studies have tried to examine potential mediators to understand "why" the effect occurs. Instead, researchers have mostly focused their attention to the moderators, to increase the effectiveness of social information. For instance, Croson and Shang (2013), Shang and Croson (2006), Croson and Shang (2008), and Meyer and Yang (2016) all focused on the question whether a large of small amount was more effective. We advise authors to also think about explanations behind these effects.

In our model we focused on mediators related to the finding people have different incentives for giving (Bekkers & Wiepking, 2011). We did consider two additional mediators not discussed in the model: the providing of a reference point and diffusion of responsibility. People tend to value prior information and use this information as a reference point for behavioral adjustments, which is also known as anchoring (Hammond, Keeney, & Raiffa, 1998). Goeschl et al. (2018) examined whether social information functions as a mere reference. If it would function as a reference point, then any number would influence donation behavior by simply working as an unconscious suggestion (i.e., a nudge; Thaler & Sunstein, 2008). Goeschl et al. (2018) found that providing donors with a random number, instead of a number based on a donation amount of a previous donor, did not influence the donation behavior. Van Teunenbroek & Bekkers (2018) argue against the possibility that social information functions as a reference point, because donors in their field experiment did not exactly donate the suggestion amount of 82.

A diffusion of responsibility could be an additional negative mediator. Social psychologists describe that the larger the group, the lower the responsibility people feel to help (Latané & Darley, 1970), as a larger group makes it easier to feel anonymous (Prentice-Dunn & Rogers, 1982), which has also been described as an increased diffusion of responsibility. If the suggested donation amount gives people the feeling that a group of people relates to the project, their donation may be perceived as less needed. In other words, social information could result in a bystander effect by decreasing people's feeling of responsibility. Such diffusion of responsibility has not yet received any attention from scholars researching social information.

We consider one additional moderator not discussed in the model: liking. Liking refers to the finding that individuals prefer things that are connected to the self (Byrne, 1971). Based on the similarity breeds liking principle, it could be argued that if the provided information is associated with something that is connected to the self (for instance, the letter in one's name; Bryne, 1971), it is likely to be more effective. Edwards and List (2013) found that a suggestion amount (not social information) connected to the donors' graduation year (a suggestion of €20.03 for those who graduated in 2003) resulted in stronger tendencies to conform to the suggested amount but not to higher donations than the non-personalized suggestion of €20.00.

As we only partially based our results on empirical papers and updated this with theories from other fields, future investigation is necessary to test our proposed model and further map the effects of social information. This is in the interest of scholars who aim to help this scientific field to become more mature and of practitioners who wish to implement social information as an effective and efficient stimulant for individual donations. Social information could have a positive effect on charitable giving, but researchers have mainly focused on demonstrating and reporting positive social information effects rather than the development of a proper theory to support the effects. In this article, therefore, we have taken the first step toward a theoretical framework by developing a model that highlights the restrictions and possibilities of social information in affecting donation behavior. The field of social information represents a vibrant area for theoretical development.

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# Appendix A

The supporting articles per mediator and/or moderator.

Mediators:

- Perceived social norms: Van Teunenbroek & Bekkers (2020); Bicchieri & Xiao, 2009; Blake et al., 1955; Bøg et al., 2012; Croson et al., 2009; Croson & Shang, 2008; Croson & Shang, 2013; Goeschl et al., 2018; Meyer & Yang, 2016; Murphy et al., 2015; Sasaki 2019; Smith et al., 2015.
- Expected quality: Van Teunenbroek & Bekkers, 2020; Potters et al., 2001; Smith et al., 2015; Vesterlund, 2003.

Moderators:

- What: Adena et al., 2014; Alpizar et al., 2008a, Croson & Shang, 2013; Hysenbelli et al., 2013, Martin & Wheeler, 2002; Meyer & Yang, 2016; Raihani & Smith, 2015; Reingen, 1982; Shang & Croson, 2009; Smith et al., 2015.
- Who: Croson et al. 2010; Hysenbelli et al., 2013; Raihani & Smith, 2015; Scharf & Smith, 2016; Shang & Croson, 2009; van Teunenbroek, 2016.
- Where: Alpizar et al., 2008a, 2008b; Meyer & Yang, 2016; Shang & Croson, 2006.

# CHAPTER 3

## SHARE THE AMOUNT TO MAKE IT COUNT: THE IMPACT OF SOCIAL INFORMATION ON ONLINE DONATIONS AND CROWDFUNDING

**Claire van Teunenbroek**

An earlier version of this chapter was published as a conference proceeding: Van Teunenbroek, P. S. C. (2016). Social Aspects and Successfully Funding a Crowd-Funding Project: The Impact of Social Information. Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering, 10(6), 1765–1776.

## Abstract

How effective is sharing information about the donation amount of earlier donors to potential future donors? Because most online campaigns fail to assemble enough donations, crowdfunding for charitable causes needs a stimulant. In crowdfunding campaigns, practitioners often report the donation amount of previous donors (i.e. social information), hoping to stimulate donations in this way. However, social information does not always increase giving, possibly because social information effects are limited to specific people. Our study, based on two experiments conducted in a classroom setting, tested to what extent social information affected online donation behavior and how this was affected by individual differences in need to belong, reputational concerns or the extent to which a shared identity with earlier donors is experienced. We found that stating the donation amount of previous donors increased the donation amounts (35%), and – to a lesser extent – the number of donors (16%). We conclude that social information is an effective stimulant for online campaigns.

**Keywords**: donation, behavior, crowdfunding, fundraising, social information

## 3.1 Introduction

Philanthropic crowdfunding (i.e. donation-based and reward-based crowdfunding) is a new fundraising instrument that focusses on assembling small and online donations. The importance of crowdfunding as a funding source is especially visible in the Dutch cultural sector. After substantial subsidy cutbacks by the Dutch government in 2010, the cultural sector struggled financially, and additional funding sources were needed to support the sector (Blankers et al., 2012). The government suggested an increasing focus on private funds, i.e. donations from the public (Algemene Rekenkamer, 2015). However, the necessity for artists and others in the cultural sector to raise funds from private sources comes at a bad time as the Dutch have become less generous; since 2009 there is a clear downward trend in the percentage of household incomes given to charitable causes (Bekkers, Schuyt & Gouwenberg, 2015). A similar pattern can be found in crowdfunding, which struggles to attract donors and convince them to give; about 67% of projects on Kickstarter, one of the most popular crowdfunding platforms worldwide, fail to assemble enough donations. Crowdfunding, nevertheless, is a popular fundraising method: in 2016, more than 900 Dutch artists started a crowdfunding project (Voordekunst, 2016). Crowdfunding, therefore, needs a stimulant to increase donations.

To stimulate donations, fundraisers using crowdfunding often share information about the donation amount of earlier donors. The effect of sharing the donation amount on peoples' donation behavior is referred to as the social information effect. Social information provides people with information about other people's behavior (Shang & Croson, 2009). Practitioners implement such social information hoping to increase donation amounts, but a criticism of the effect of social information is that it does not always increase giving. Whereas a number of studies has reported positive effects of social information on giving (Bøg, Harmgart, Huck, & Jeffers, 2012; Croson et al., 2009; Croson, Handy, & Shang, 2010), other studies reported no effects (Catt & Benson, 1977; Murphy, Batmunkh, Nilsson, & Ray, 2015; Shang et al., 2009), or even negative effects on average donation amounts (Croson & Shang, 2008; Meyer & Yang, 2016). Social information thus apparently sometimes decreases, rather than increases, the effectiveness of fundraising campaigns.

Thus, the literature on social information provides an inconsistent view regarding its' effects. An explanation for this might be that the effectiveness

of social information depends on the specific characteristics of those who receive the information. For instance, the effect is less pronounced with more experienced donors (Shang et al., 2009), while it is stronger if the identity between the donor and the source of social information (i.e. earlier donors) is more congruent (Agerström, Carlsson, Nicklasson & Guntell, 2016; Croson et al., 2010; Hysenbelli, Rubaltelli & Rumiati, 2013). The impact of such individual differences, however, has thus far received limited research attention. This is unfortunate because a better understanding of how individual differences affect the effectiveness of social information is crucial for crowdfunding practitioners, who need this information to fine-tune their campaigns considering the specific audience they hope to reach. In the current study, we therefore ask the following research question: "For who does social information increase donation behavior?"

We take previous theorizing on why social information should affect giving into account. Specifically, according to Bicchieri & Xiao (2009) and Croson et al. (2009), social information affects donation behavior because it affects their perception of the social norm. Social norms provide cues about how to behave in a certain situation (Cialdini, Reno, & Kallgren, 1990), and they are related to donation behavior (Bekkers & Wiepking, 2011). In a charitable context, people might perceive the amount previous donors donated as the appropriate amount to give and, as a result, adjust their amount to match the earlier donation amount (i.e. conforming, Cialdini et al., 1990).

The effect of social norms interacts with peoples' characteristics (Kaikati, Torelli & Winterich, 2014), therefore, we review moderators connected with social norms. We propose three personal characteristics that can be expected to amplify the effect of social information on donation behavior: 1) whether an individual experiences shared identity with previous donors (e.g., someone's social connectedness with a particular social group (see Tajfel, 1981)); 2) an individual's need to belong (e.g., the human need to be included by a valued group (see Baumeister & Leary, 1995)); and 3) an individual's concern for reputation (e.g., someone's concern about their position or standing in a group (see de Cremer & Tyler, 2005)). First, normative information is especially powerful when associated with a shared identity (Hysenbelli et al., 2013; Croson et al., 2010; Shang, Reed & Croson, 2009). A shared identity (e.g., the extent to which someone identifies with a particular social group, see Tajfel, 1981), with a previous donor is expected to amplify the effect of social information. A potential donor might reason: 'ear-

lier donors are art lovers like me; I had best follow their donation behavior, because I am an art lover'. Second, by conforming to a group, people increase the chances of being accepted (Hornsey & Jetten, 2004). Therefore, we expect that people who care about being feeling valued by group (that is a need to belong, see Baumeister & Leary, 1955), are more subjectable to social information effects. A potential donor might reason: 'I want to feel included; others are donating this amount, I best follow their behavior to belong'. Third, those who are concerned about their reputation are more likely to conform (De Cremer & Bakker, 2003). Therefore, we expect that someone who is more concerned about their position or standing in a group (that is concern for reputation, see De Cremer & Tyler, 2005), is more sensitive to social information effects. A potential donor might reason: 'I care about my reputation; I best follow others'.



To facilitate online fundraisers in their use of social information, we tested the effect in an online context. As a result, we add to the literature on social information effects by testing social information effects in a new donation context: crowdfunding. Earlier studies either studied social information in an offline context (e.g., radio campaigns, telethon or door-to-door solicitation), or only observed online behavior while social information was present (Bøg et al., 2012; Sasaki, 2015; Smith, Windmeijer & Wright, 2015). These three studies reported a positive effect of previous donations in an analysis of online fundraising data. However, it is important to note that these studies, while based on unique datasets, do not enable making causal inferences because they are based on cross-sectional designs. We improve upon this by conducting a randomized controlled experiment in an online setting.

To test the effect of social information, we conducted two classroom experiments, among a sample of Dutch students. We employed two types of donation behavior indicators: the donating decision and the donation amount. The first experiment was a pilot study, aiming to test the design and shorten the surveys. The second experiment (n =180) tested the effect of social information on online donations. In the treatment condition, we mentioned: "Did you know that the average amount donated for this project is €15". In the control condition, there was no information about the donation behavior of other donors (see Appendix A for stimulus material). After participants had indicated their donation behavior, we asked them several questions to measure their personal traits and other personal characteristics (see Appendix B for survey material).

## 3.2 Theory and hypotheses

Previous work suggests that social information provides potential donors with a cue about what a person does in a specific situation (Bicchieri et al., 2009; Croson et al., 2009), consequently, attempting to influence behavior by anticipating on the fundamental desire to blend in (Cialdini et al., 1990). Therefore, social information is expected to stimulate conforming behavior, which refers to social comparison resulting in behavior adjustment (Cialdini et al., 1990). People who desire to conform are expected to perceive the average donation amount as a reference for acceptable donation behavior (Bernheim, 1994). Social information has been found to increase the donation amount, both in laboratory experiments (Bicchieri & Xiao, 2009; Cialdini & Schroeder, 1976; Hysenbelli et al., 2013; Klinowski, 2015; Reingen, 1982) and field experiments (Bøg et al., 2012; Croson et al., 2009; Croson, Handy, & Shang, 2010; Sasaki, 2015; Smith et al., 2015). Social information is suggested to increase donation amounts by providing a social reference (Bicchieri et al., 2009; Shang et al., 2009): the appropriate amount. Accordingly, we proposed that:

*Hypothesis 1a: Social information increases the donation amounts.*

Bicchieri et al. (2009) and Croson et al. (2009) focused on social information effects on donation amounts, disregarding that an individual first has to decide to donate. Studies focused on reviewing social information effects on the number of donor's report no or a negative effect: social information left the number of donors unaffected (Murphy et al., 2015; Reingen, 1982) or decreased it (Klinowski, 2015). An explanation for the absence of a positive effect on the number of donors could be that those who do not desire to conform feel reactance (Brehm, 1966) and perceive social information as an infringement on their freedom of choice. As a result, they decide not to donate. Another option is that mentioning the average amount stimulates a diffusion of responsibility (Latané & Darley, 1970): 'if others are donating such a high amount, my donation is not needed'. Accordingly, we proposed that:

*Hypothesis 1b: Social information decreases the number of donors.*

Only a selection of the researchers reports the effect of social information on the number of donors. We argue that it is important to focus on both types of donation behavior. If social information would increase the average donation amount but at the same time strongly reduce the number of people who choose to donate, the overall effect on the collected amount could still be detrimental. As project success (i.e. the overall collected amount) depends not only on donation amounts, but also on the decision to donate or not, we measured both these variables as dependent variables in our study.



### *3.2.1 Personal traits and characteristics*

Previous empirical research on the relation between solicitation methods and donation behavior have shown that personal traits play an important role (Bekkers, 2006), meaning that individual differences can explain behavioral differences in donation behavior. We argue that it is important to consider how these traits influence the effect of social information on donation behavior. We examine three personal characteristics that are expected to amplify the effect of social information (see Figure 1): shared identity, need to belong and reputational concern. The three moderators are derived from previous literature that suggests that social information functions as a social norm (Bicchieri & Xiao, 2009; Croson et al., 2009) and that these norms are related with a shared identity (Terry, Hogg & White, 1999), need to belong (Pickett, Gardner & Knowles, 2004), and reputational concerns (Cavazza, Guidetti & Pagliaro, 2015).

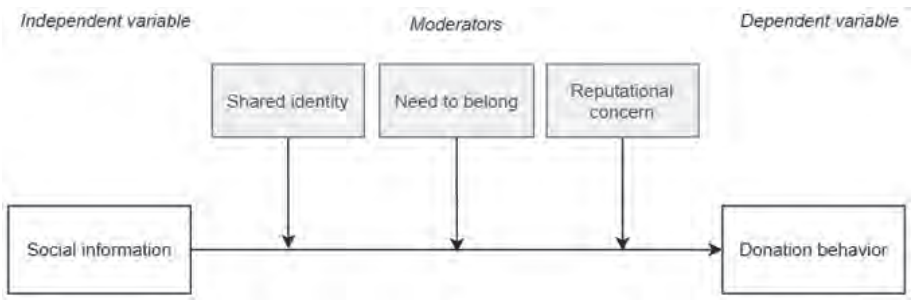



Figure 1. This article is concerned with the effect of applying social information in crowdfunding campaigns with the desire to stimulate donation behavior. We examine three moderators that are expected to amplify the effect of social information

### *3.2.2 Shared identity*

The perceived norm of how to behave in connection with a relevant reference group is related with behavioral intentions, especially when people identify more strongly with the reference group (Terry et al., 1999). The importance of social group membership is reflected in social identity theory (Tajfel, 1981; Tajfel & Turner, 1979). 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 individuals see themselves in connection with their membership of a social group or category (Tafjel, 1981), e.g., '*I identify with this group*'.

Individuals' membership of groups has serious implications for their experience and behavior (Leach et al., 2008). Individuals strive to maintain a positive social identity and behave in a way that helps to achieve this. The philanthropic literature demonstrates that requests made by similar people are more effective because we like them better (Byrne, 1971). Even if the person asking for a donation is an unknown person, perceived similarities with this stranger increase the likelihood of donating (Dolinski, Grzybm, Olejinik, Prusakowski & Urban 2005; Dolinski, Nawrat, & Rudak, 2001) and impact the donation amounts (Howard, Gengler & Jain, 1995). More specifically, potential donors prefer to follow information from similar others with whom they have strong ties (e.g., family and friends) or people with similar attributes (Festinger, 1954). In our study, we tested whether it matters if people perceive other donors as similar others when provided with social information about their behavior.

Earlier studies showed that social information is more effective when it is connected to a certain identity shared by the potential donor. For instance, Hysenbelli et al. (2013) showed that information about the donation amount of Italian donors is more effective than that of German donors in increasing the donation amounts of Italians. Croson et al. (2010) found that social information had a stronger correlation with donation amounts if it was provided by someone with the same gender. Another study found that social information effects were stronger if the identity between the donor and the source of social information seemed more congruent (Agerström et al., 2016). Unfortunately, these studies did not include a specific measure to test whether the participants experienced a shared identity. In the current study, we specifically measured whether people's perception of their degree of shared identity with earlier donors affected the effect of social information on donation behavior. Accordingly, we proposed that:

*Hypothesis 2: The effect of social information on donation behavior increases with a higher shared identity between the donor and the source of social information.*

### *3.2.3 Need to belong*

To successfully establish and maintain social relationships, people need to consider the behavior of others (Pickett et al., 2004). People who are motivated by need to belong are concerned with the issue of establishing and maintaining relationships, which motivates them to behave in such a way that they increase the likelihood of being accepted (de Cremer & Tyler, 2005; Lee & Robbins, 1995). Research has identified people's need to belong as a fundamental human motivation and has demonstrated that people are motivated to belong to a valued group, but that the degree to which they care about it differs between individuals (Baumeister et al., 1995; Ryan & Deci, 2000). A high need to belong stimulates a need for reassurance and acceptance, especially in a social situation (Lee et al., 1995).

We know from an earlier study that people who score high on the need to belong are attentive to any type of social information (Baumeister et al., 1995). In addition, previous research has connected people's need to belong to their donation behavior. The value of giving a certain amount increases if a person has a higher need for approval (Satow, 1975). As approval from group members is important in being accepted, we expected that people with a higher need to belong were more likely to follow social norms than those with a lower need to belong, even more so when the norm is that people are expected to donate (Bekkers & Wiepking, 2011). Therefore, we expected that an exposure to other people's donation amount would be particularly effective in increasing donation behavior among people who have a higher need to belong. Accordingly, we proposed that:

*Hypothesis 3: The effect of social information on donation behavior increases with a higher need to belong.*

### *3.2.4 Reputational concerns*

People who care about their reputation carefully monitor one's social environment to figure out the expectations and adjust their behavior to

reach positive social feedback (Cavazza et al., 2015; Cremer & Tyler, 2005). Caring for one's reputation has been shown to motivate cooperative behavior (Bateson, Nettle & Roberts, 2006; Fehr & Fischbacher, 2003). More specifically, previous research has connected reputational concerns to donation behavior (Alpizar, Carlsson & Johansson-Stenman, 2008; Bekkers & Wiepking, 2011; Soetevent, 2005). For instance, donating may have important social consequences, and people donating to charitable causes are held in high regard by their peers (Bekkers & Wiepking, 2011) and receive recognition and approval from others (Soetevent, 2005). We argue that those who are constantly concerned with their reputation want to donate the appropriate amount, regardless of whether their behavior can be perceived: if my reputation is not good, I feel bad. Accordingly, we proposed that:

*Hypothesis 4: The effect of social information on donation behavior increases with higher reputational concerns.*

## 3.3 Methods section

### *3.3.1 Study design*

We conducted two classroom experiments with surveys among Dutch students from the Vrije Universiteit in Amsterdam, a major university in the capital of the Netherlands. Both experiments were conducted during a lecture, during the 20-minute break. We made sure that there was enough time for participants to take part in the experiment, fill out the survey and have a break before the lecture resumed. Using the online provider Qualtrics, we presented participants with a real and current crowdfunding project. The experiments were conducted in a setting where the participants were surrounded with other students. Before the lecture started, one of the experimenters gave a brief introduction, informing the participants that the experiment focused on researching crowdfunding. After all students had completed the survey, the experimenters gave a debriefing by for instance explaining the research question.

Table 1 presents an overview of the differences and similarities between the two experiments. In both experiments, we informed participants that they had a monthly budget of €750. The amount was based on the average spending per month among Dutch students in 2015 (van der Werf, Schonewille & Stoof, 2017).

Table 1. Overview of the differences between the two experiments

| | Experiment I | Experiment II |
|---|---|---|
| **Conducted during lecture** | Yes | Yes |
| **Student sample** | Yes | Yes |
| **Study aim** | Test design, shorten surveys | Test hypotheses |
| **Design** | Within-subjects | Between-subjects |
| **Crowdfunding project** | Culture and arts | International relief |
| **Crowdfunding platform** | Voordekunst | Pifworld |
| **Monthly budget** | €750 | €750 |
| **Hypothetical** | Yes | Semi (lottery) |
| **Mentioned amount** | €79 | €15 |
| **Incentive** | Chocolate treat | Chocolate treat and raffling 3 gift cards of €20 |



The first experiment, using a within-subjects design, was used as a pilot to test the design: we showed participants a control and then a treatment condition. We tested whether this within-subjects design was suitable for our research question, questioning whether participants would see the difference between the control and treatment condition. In addition, we measured their donation behaviour to review whether the participants showed an interest in art related projects. We presented participants a project of Voordekunst, which is a Dutch culture crowdfunding platform (i.e. Voordekunst). We informed participants about the monthly budget. Both donation tasks were hypothetical, participants were asked what they would have donated if it was an actual donation task. We based the suggestion amount (€79) of the treatment condition on the average donation amount of the crowdfunding platform Voordekunst, in the previous six months. Afterwards, students received a chocolate treat. Next to testing the design, the pilot was used to shorten the surveys used to measure the moderators.

In the second experiment, we tested the social information effect on donation behavior in an online context and we measured and connected personal traits with social information effects. 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 25%. There was considerable space between each participant. We again mentioned the monthly budget. Contrary to the pilot study, this time we used a between-subjects design in a randomized control setting, since the participants of the pilot study indicated that they did not see a difference between the control and treatment condition. Instead of a hypothetical context, this time the donation task was semi-hypothetical: beforehand (during the oral introduction), we explained that there was an actual chance that their decisions would be carried out. A total of €144 was donated to the shown project after the study was concluded. The amount was based on a random selection of the decisions of 18 participants (10% of the participants). We opted to pay only some of the participants, since recent findings show that designs that pay only a few participants, rather than all participants, result in similar findings as study designs in which all participants are paid (Charness, Gneezy, Halladay, 2016).

Participants of the pilot study indicated a limited interest in art related projects, they preferred to donate to international relief projects instead. Therefore, we showed the participants a different crowdfunding project than in the pilot and selected a project from the Dutch crowdfunding platform Pifworld, which focuses on international relief. To minimize the changes in the design, we implemented the text and picture from the Pifworld project into the design of the Voordekunst platform design (like in experiment 1, same colors, placement of information etc.). Our manipulation remained the same, however, we adjusted the suggestion amount, since the pilot amount (€79) was too far away from the average amount donated in the control group, namely €15. Previous research demonstrates that the effect of social information is limited to amounts that fall within a certain range of the average donation amount (Croson & Shang, 2013). Keeping in mind the student sample, we opted for €15 (average on the control group of the pilot study). During the debriefing, we informed the students about our decision to mention €15 instead. Besides a similar incentive as in experiment 1 (chocolate treat), we also raffled three Bol.com gift vouchers of €20 among the participants.

### *3.3.2 Experiment I*

**Participants**

The data were collected in February 2016 with a sample of 20 participants. We invited only third-year students of organization sciences (40% female) of the Vrije Universiteit Amsterdam. Overall, most participants had donated in the past 12 months (85%), which is a good representation of giving in the Netherlands (Bekkers et al., 2015).



**Procedure**

We gave an oral introduction, introducing the experimenters and explaining that we aimed to study crowdfunding. We used a within-subjects design and presented the same project twice, first the control and then the treatment condition, see Figure 2. In the introduction, students read that we aimed to study crowdfunding (see Appendix B for Survey materials):

*"We are examining crowdfunding. Crowdfunding focusses on assembling money online for financing purposes. Donors or investors can review the projects online and decide if they want to donate. In this research, we focus on the online collection of funds for culture and arts projects. During the experiment we focus on the online collection of money for culture and arts projects. Throughout the experiment, we will present you with several crowdfunding pages. The project is based on an actual crowdfunding platform, namely Voordekunst. [...] We want to kindly ask you to imagine being an actual donor"*

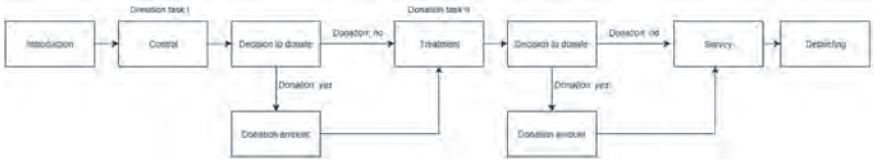



Figure 2. Summary of the study procedure

Next, we presented the first donation task to the students: the control condition, wherwe we showed participants an actual crowdfunding project without changing or adding anything (see Appendix A for stimulus material). After this, we measured two dependent variables: 1) the number of donors and 2) the individual donation amount.

Second, we presented the treatment condition (donation task II) to the students). In this second donation task, we added social information in addition to the information shown in the control condition. The only difference between the control and treatment conditions, therefore, was our manipulation of the treatment condition, specifically, the following sentence: "*Did you know that the average amount donated for this project is €79*".

After indicating if they wanted to donate, and if so, how much, the participants filled out the surveys. Next to measuring the moderators, we also added several additional items used to describe the sample and to conduct a robustness analysis. Such as participants' attitude towards the project (i.e. '*would you donate to this project with your own money?*'), annual giving behavior (i.e. *'how often do you donate on an annual basis'*), financial situation, and demographics. In addition, we asked participants what they thought other students should have donated (i.e. injunctive norm). See Appendix B for an overview of the questions[5].

After the students had finished, the students received a chocolate treat and the experimenter debriefed them by explaining the research question.

## *Measures*

Below we discuss the measures for the moderators, an overview of the used items per moderator can be find in Appendix B.

*Shared identity.* To assess the extent to which participants experienced a shared identity with the source of social information, we used the Single-Item Measure of Social Identification (SISI) of Postmes, Haslam & Jans (2012). 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 of fourteen items. Social identification has been successfully operationalized in a single-measure (Postmes et al., 2012; Reysen, Katzarska-miller, Nesbit & Pierce, 2013). We adjusted the item to reflect the donation context. As 'my group' we mentioned 'other donors who donated to [charitable category] projects'. The charitable category for the second experiment was "international relief," resulting in the following item: "I identify with other donors who donate to international relief projects."

[5] To review the entire survey, see https://mfr.de-1.osf.io/render?url-https://osf.io/3fhwa/?direct%26mode-render%26action-download%26mode-render.

*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 (Lee & Robbins, 1995). The questionnaire exists out eight items (Cronbach's = .77), 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 added two additional items. Answer options ranged from 1 (strongly disagree) to 6 (strongly agree), where higher scores corresponded to a higher need to belong. The two items were based on one of the items of Leary, Kelly, Cottrel & Schreindorfer (2001): 'I have a strong "need to belong". We added the word 'group' to specify that we wanted to assess the extent to which a participant felt need to belong to a group: 'I find it important to belong to a group'. The second additional item was 'I want to be included in the group', which was very similar but instead of a focus on the literature words 'belong to' we changed it into 'included in'.

*Reputational concerns.* To measure reputational concerns, participants were invited to answer the Concern for Reputation scale (Cronbach's = .83; De Cremer & Tyler, 2005). The questionnaire consisted of seven items (written in Dutch), allowing individuals to express their agreement on a five-point scale, ranging from 1 (absolutely disagree) to 5 (absolutely agree). An example is "I find it important that others consider my reputation as a serious matter," higher scores correspond to a higher reputational concern.

*Attention check*. At the beginning of the experiment, participants were informed about their monthly budget (€750). As an attention check, after the donation task we asked participants: "What was your monthly budget". Most of the participants (79%) accurately described the monthly budget.

We reviewed whether the participants saw a difference between the two conditions. Most participants saw no difference (60%) between the conditions. Out of the eight (40%) individuals who indicated they saw a difference, only three correctly wrote down what this difference was. We concluded that the current design was unlikely to measure the effect of social information correctly. While experiment 1 was conducted to test the design, and not the hypotheses, we did test for social information effects, finding no difference between the control and treatment group in terms of the donation amount (see Appendix C). This might be caused by people preferring to be consistent, thus donating the same amounts in both conditions.

## *Factor analyses*

*Need to belong*

The ten items of the need to belong scale were subjected to principal components analysis (PCA). The descriptive statistics can be found in Appendix D. The Cronbach's alpha (.83) of all the items was acceptable, however we aimed to shorten the survey and thus conducted a principal components analysis.

Table 2. Factor loadings for the need to belong

| | | Factor loading () CFR Component ab | | |
|---|---|---|---|---|
| | **Item** | **1** | **2** | **3** |
| 1 | I feel more comfortable when someone is constantly with me | 0,156 | 0,383 | 0,664 |
| 2 | I am more at ease doing things together with other people | 0,466 | 0,727 | 0,319 |
| 3 | Working side by side with others is more comfortable than working alone | 0,070 | 0,681 | 0,010 |
| 4 | My life is incomplete without a buddy beside me | 0,104 | -0,007 | 0,758 |
| 5 | It is hard for me to use my skills and talents without someone beside me | 0,362 | 0,723 | -0,216 |
| 6 | Is tick to my friends like glue | 0,078 | 0,773 | 0,304 |
| 7 | I join groups more for the friendship than the activity itself | 0,735 | 0,342 | 0,160 |
| 8 | I wish to find someone who can be with me all the time | 0,719 | 0,300 | -0,353 |
| 9 | I find it important to belong to a group | 0,818 | 0,282 | 0,286 |
| 10 | I want to be included in the group | 0,770 | -0,203 | 0,470 |

[a] Based on a principal component analysis with eigenvalues greater than 1

[b] Rotation method: Varimax with Kaiser normalization

As can be seen in Table 2, principal components analysis revealed the presence of three latent variables with eigenvalues exceeding 1, explaining 42.6% (after rotation 27.1%), 15.1% (after rotation 25.9%), and 12.3% (after rotation 17.1%) of the variance respectively. The scree-plot revealed a break after

the second component. The three-component solution explained 70.1% of the variance. To sum up, the analysis revealed three latent dimensions that may or may not by genuine sub-components of need to belong.

Item 2 loaded high on all three latent variables and was omitted. Item 8 loaded on all three latent variables and had a negative loading, therefore item 8 and was omitted. We rerun the analysis without item 2 and 8.

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. As can be seen in Table 3, principal components analysis again revealed the presence of three latent variables with eigenvalues exceeding 1, explaining a total of 71.1% of the variance.

We omitted item 1 since it had high loadings on multiple latent variables. We omitted item 10 because it had a negative loading. We rerun the analysis (see Table 4), showing two latent variables, explaining a total of 62.6% of the variance. Factor 1 included 5 items, while Factor 2 included only one item. The Cronbach's alpha (.77) of Factor 1 was acceptable.

Table 3. Factor loadings for need to belong after omitting item 2 and 8

| | | Factor loading () CFR Component [ab] | | |
|---|---|---|---|---|
| | **Item** | **1** | **2** | **3** |
| 1 | I feel more comfortable when someone is constantly with me | 0,385 | 0,284 | 0,447 |
| 3 | Working side by side with others is more comfortable than working alone | 0,045 | 0,662 | 0,059 |
| 4 | My life is incomplete without a buddy beside me | 0,126 | 0,001 | 0,913 |
| 5 | It is hard for me to use my skills and talents without someone beside me | 0,304 | 0,783 | -0,208 |
| 6 | I stick to my friends like glue | 0,098 | 0,786 | 0,376 |
| 7 | I join groups more for the friendship than the activity itself | 0,797 | 0,324 | -0,037 |
| 9 | I find it important to belong to a group | 0,845 | 0,320 | 0,185 |
| 10 | I want to be included in the group | 0,843 | -0,211 | 0,312 |

[a] Based on a principal component analysis with eigenvalues greater than 1.

[b] Rotation method: Varimax with Kaiser normalization.

Table 4. Factor loadings for need to belong after omitting item 1 and 10

| | | Factor loading () CFR Component [ab] | |
|---|---|---|---|
| | **Item** | **1** | **2** |
| 3 | Working side by side with others is more comfortable than working alone | 0,566 | 0,006 |
| 4 | My life is incomplete without a buddy beside me | 0,075 | 0,963 |
| 5 | It is hard for me to use my skills and talents without someone beside me | 0,823 | -0,241 |
| 6 | Is tick to my friends like glue | 0,690 | 0,250 |
| 7 | I join groups more for the friendship than the activity itself | 0,728 | 0,135 |
| 9 | I find it important to belong to a group | 0,756 | 0,332 |

[a] Based on a principal component analysis with eigenvalues greater than 1.

[b] Rotation method: Varimax with Kaiser normalization.

Based on the statistics (see Table 5) and the content of the items we included Factor 1 as our need to belong scale. Factor 2 consisted out of an item focused on someone's need to have a best friend ('*My life is incomplete without my best buddy besides me*'). Since we wanted to measure someone general need to belong, we opted for Factor 1.

Table 5. Results principal-components analysis need to belong

| Factor | | Eigen value | 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 |



*Reputational concerns*

The seven items of the reputational concerns scale were subjected to principal components analysis (PCA). The descriptive statistics can be found in Appendix D. The Cronbach's alpha (.85) of all the items was acceptable, however we aimed to shorten the survey and thus conducted a principal components analysis.

Table 6. Factor loadings for the reputational concerns scale

| | | Factor loading () CFR Component ab | |
|---|---|---|---|
| | Item | 1 | 2 |
| 1[c] | I am rarely concerned about my reputation. | .57 | .72 |
| 2[c] | I do not consider what others say about me. | -.12 | .99 |
| 3 | I wish to have a good reputation. | .90 | -.26 |
| 4 | If my reputation is not good, I feel bad. | .63 | -.24 |
| 5 | I find it important that others consider my reputation as a serious matter. | .82 | -.13 |
| 6 | I try hard to work on my reputation (in my relationship with others) | .86 | .32 |
| 7 | I find it difficult if others paint an incorrect image of me | .94 | -.04 |

[a] Based on a principal component analysis with eigenvalues greater than 1.

[b] Rotation method: Varimax with Kaiser normalization.

[c] Item was reversed for scoring.

As can be seen in Table 6, 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 79.9% of the variance. To sum up, the analysis revealed two latent dimensions that may or may not by genuine sub-components of reputational concerns.

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. Deleting item 4 from Factor 1 hardly affected the Cronbach's alpha (a decrease of .003). Since we aimed to shorten the survey, we omitted item 4.

Table 7. Results principal-components analysis reputational concerns scale

| Factor | | Eigen value | Item | M | SD |
|---|---|---|---|---|---|
| 1 | .88 | 57.65 | 3 | 2.67 | .71 |
| | | | 5 | 3.67 | 1.12 |
| | | | 6 | 3.11 | 1.27 |
| | | | 7 | 3.67 | 1.32 |
| 2 | .73 | 22.28 | 1a | 2.56 | 1.24 |
| | | | 2a | 2.78 | .83 |

[a] Item was reversed for scoring.

Based on the reliability analysis and the factor analysis, we conclude that both factors have a good reliability, see Table 7. Based on the statistics and the content of the items we included Factor 1 as our reputational concerns scale. Factor 1 included positively phrased items measuring people's opinion about why it is important to consider their reputation, while Factor 2 included two negatively phrased items. Even though Factor 2 included less items than Factor 1, we opted for Factor 1 since positively phrased items are more intuitive and easier to interpret and understand (Schmitt & Stults, 1985).

### *3.3.3 Experiment 2*

**Participants**

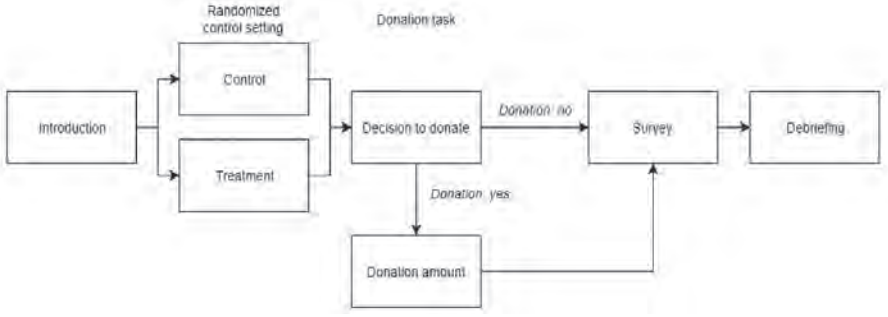
The data was collected in March 2016, resulting in a sample of 180 participants. We invited only first- and third-year students[6] (54% female) of 'public administration and organizational sciences' of the Vrije Universiteit Amsterdam. The sample characteristics are outlined in Appendix E, which reveals that the average age was 21 years. Using a within-subjects design with random assignments of participants to conditions, 85 participants were enrolled in the control (46%) and 95 in the treatment condition (54%). Comparing the observed proportion of the number of participants in the control condition (54%), versus the expected proportion of 50%, a chi-square test confirmed that participants had been randomly assigned to one of the conditions ($X^2$ = .36, $n$ = 180, $p$ = .549).

We conclude that the control and treatment condition are a good representation of our population in terms of interest in the project, likelihood of donating, interest in the overall project theme (international relief and development) and knowledge around crowdfunding. Except for an increase in people's willingness to support the project with their own money, there are no significant differences between the participants in the control or the treatment condition (see Appendix E).

**Procedure**

For the second experiment we used a between-subjects design (see Figure 3), still focusing on a student sample.

Figure 3. Summary of the study procedure




[6] A regression analysis showed that there was no significant difference between the two samples (first or third year) in terms of the donation amount, b = 14.96, n = 180, p = .418. A logistic regression showed that there was no significant relationship between the two samples in terms of the number of donors, b = -.20, n = 180, p = .816.

However, we made several changes to the oral introduction before participants started the experiment. We explained participants that there was an actual chance that their decision would be carried out and if they choose to donate it would be donated to the Pifworld project. We explained this lottery concept before students started the experiment. In addition, we changed the introduction text at the beginning of the experiment. We added the word 'potential' while asking the participants to imagine being an actual donor:

*"We are researching crowdfunding. Crowdfunding focusses on assembling money online for financing purposes. Donors or investors can review the projects online and decide if they want to donate. During the experiment we will show you a project of Pifworld. There is a chance that your decision will be carried out. Therefore, we want to ask you to imagine being an 'actual' potential donor, and take your time reading the text. Thank you in advance"*

We added this word, to decrease the chance that participants felt obligated to donate. After reading the introduction, students were assigned to one of the two conditions (control or treatment), the participants could indicate if they wanted to donate, and if yes, how much. The only difference between the control and treatment condition, was our manipulation in the treatment condition. As our manipulation we added the following sentence "*Did you know that the average amount donated for this project is €15*". Next, they filled in several questions measuring their personal traits, other characteristics, also including the attention and manipulation checks.

After completing the donation task, students were asked to fill out several surveys. The surveys intended to measure the moderators, annual giving behaviour, crowdfunding knowledge, financial situation, demographics, also including the attention and manipulation checks[7].

During the debriefing, we handed out the chocolate treat, raffled the three gift cards and informed them about the research question and our decision to mention €15 instead of €79.

## 3.4 Descriptive statistics and treatment of the data

Table 8 shows the correlations between variables. As can be seen, the decision to donate and the donation amount were correlated with our

[7] To review the survey, see https://mfr.de-1.osf.io/render?url-https://osf.io/87drs/?direct%26mode-render% 26action-download%26mode-render.

manipulation.

As a manipulation check we asked the participants assigned to the treatment condition to type the amount that we stated as our manipulation (€15). We coded answers as '1' if they entered the correct amount, and a '0' if thwey gave an incorrect or no answer. Most of the participants (89%) accurately mentioned that on average donors to the project had dwonated €15.

Table 8. Correlation table of the main variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| **1. Social information** | - | - | - | - | - | - | - | - |
| **2. Donation amount** | .15* | - | - | - | - | - | - | - |
| **3. Decision to donate** | .18* | .29** | - | - | - | - | - | - |
| **4. Need to belong** | -.05 | -.01 | -.01 | - | - | - | - | - |
| **5. Reputational concerns** | .09 | -.03 | .02 | .32** | .- | - | - | - |
| **6. Shared identity** | -.07 | .10 | .21** | .15* | .17* | - | - | - |
| **7. Attention check** | .13 | .02 | .08 | .01 | -.07 | .35 | - | - |
| **8. Manipulation check** | .45** | .48 | -04. | .07 | .19 | .18 | -.02 | - |

**significant at $p$<.01,
*significant at $p$<.05

As an attention check, we asked participants if they could remember and describe the monthly budget which we mentioned in the introduction. We coded answers as '1' if they entered the correct amount (€750), and a '0' if they gave an incorrect or no answer. Most of the participants (76%) accurately described their monthly allowance. A chi-square test indicated that there was no significant difference in terms of the conditions, $X^2$ *(1,* N = 180) <.21, $p$ = .648.

Table 9 further shows that our manipulation (i.e. social information) cor-

related with our manipulation check. Our moderation hypotheses assume that our manipulation would not affect the personal traits, since these are somewhat constant (Heineck & Anger, 2010; Mueller and Plug, 2006; Nyhus and Pons, 2005). A linear regression supports this assumption, see Table 8. As can be seen in table 8, neither a shared identity, need to belong, nor reputational concerns were affected by our manipulation.

Table 9. Linear regression on the effects of social information on the personal traits, including all donations

| | | | 95% Confidence interval | |
|---|---|---|---|---|
| | **Test statistics** | **Significance** | **Lower bound** | **Upper bound** |
| **Shared identity** | b = -.13 | p = .347 | -.412 | .146 |
| **Belong** | b = -.12 | p = .495 | -.465 | .226 |
| **Reputation** | b = .12 | p = .251 | -.085 | .321 |

The analyses are conducted among all participants; we included the decisions not to donate as a donation of zero euros (Croson, Handy & Shang, 2009; Shang & Croson, 2009). Figure 4 shows the distribution of contributions in the two conditions. As can be seen in the bar graphs, there were three large donations. We used a single-construct technique of standard deviation analysis (Aguinis, Gottfredson, & Joo, 2013), and considered a data point as an outlier if it was more than three standard deviations from the mean. Therefore, unless noted otherwise we excluded donations above €91: two donations of €100 (one in control and one in treatment condition) and one of €250 (treatment condition).

We examined the reliability of the shortened questionnaires for need to belong and reputational concerns. For need to belong, five items remained. However, the Cronbach's alpha (.54) of all the items was not acceptable. Therefore, we opted not to use the scale and instead focus on the single item derived from Leary, Kelly, Cottrel & Schreindorfer (2001): *'I find it important to belong to a group'.* We preferred to measure need to belong with a scale instead of one item, however, the scale we developed using the data of the pilot was not reliable enough.

For reputation concerns, four items remained; the data of experiment 2 showed that the items had an acceptable consistency (Cronbach's Alpha = .79). We deemed this good enough and continued with the shortened survey.

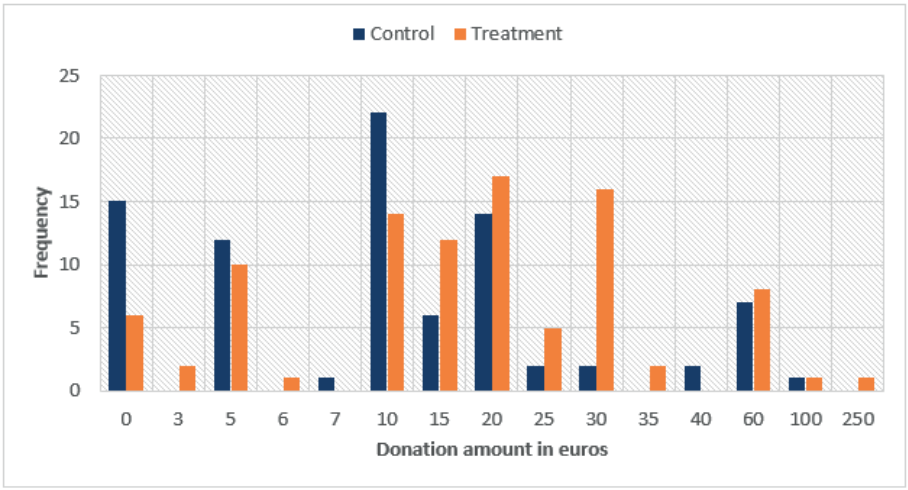



Figure 4. Bar graph of the frequency of donation rates (n - 180), by condition

## 3.5 Results

### *3.5.1 Social information effects*

In Hypothesis 1b, we hypothesized that social information decreased the number of donors. As can be seen in Table 10, a chi-square test indicated that the number of donors was actually significantly higher in the treatment (94%) than the control condition (81%), $X^2(1, n = 177) = .19$, $p = .012$. Our data does not support hypothesis 1b: social information increased, rather than decreased, the number of donors with 16%.

Table 10. Description of the dependent variables, by condition

| | Control | Treatment | Test statistics | Significance |
|---|---|---|---|---|
| **Participants** | 84 | 93 | $X^2 = .26$ | $p = .612$w |
| **Number of donors** | 8w1% | 94% | $X^2 = .19$ | $p = .012$ |
| **Mean amount donated** | €14.31 | €19.32 | $b = 5.01$ | $p = .016$ |
| **Median amount** | €20.00 | €10.00 | $U = 2860.00$ | $p = .002$ |

In Hypothesis 1a, we hypothesized that social information increased individual donation amounts. As can be seen in Table 10, this hypothesis was supported by a regression analysis on the dependent variable, namely donation amounts, $b = 5.01$, $n = 177$, $p = .016$. As expected, donations in the

treatment condition (*M* = 19.32, *SD* = 13.37, *n* = 93) were higher (35%) than in the control condition (*M* = 14.31, *SD* = 13.92, n = 84). A Mann-Whitney U Test showed similar results, that social information significantly increased median donation amounts, U = 2860.00, z = -3.11, *p* = .002, *r* =.22. Donors in the treatment group donated higher amounts (*Mdn* = 20.00), than donors in the control group (*Mdn* = 10.00). Our data supports hypothesis 1a: social information increased the average donation amount with 35%.

The distribution of the donation amounts (see Figure 4) shows several peaks. To increase our understanding of how social information increases giving, for instance by mostly increasing donation amounts around the average, we examined whether these peaks significantly differed between the conditions. To examine whether there was a difference between the two conditions regarding the occurrence of these peaks, we assigned each "peak value" the value of 1 and all other donations the value of 0. The first peak occurs around €5, these donations were thus assigned the value of 1 and all other donations were assigned the value of 0. We then conducted a chi-square test and applied the same technique to the other peaks). The results are depicted in table 11.

Table 11. Description of the distribution of the donation amounts, excluding the outliers

| | Control | Treatment | Test statistics | Significance |
|---|---|---|---|---|
| **Donated €0** | 19% | 6% | $X^2$ = .19 | *p* = .012 |
| **Donated €5** | 16% | 11% | $X^2$ = .87 | *p* = .351 |
| **Donated €10** | 26% | 15% | $X^2$ = 2.38 | *p* = .066 |
| **Donated €15** | 7% | 13% | $X^2$ = 1.60 | *p* = .205 |
| **Donated €20** | 17% | 18% | $X^2$ = .78 | *p* = .778 |
| **Donated €30** | 2% | 17% | $X^2$ = 10.62 | *p* = .001 |

There was no significant difference between the two conditions in the likelihood of donating €5 (see Table 11). The second peak occurs around the modal donation of the control condition, namely €10. The difference was marginally significant. The third peak occurred around the suggestion amount (€15). As can be seen in figure 4, the suggestion amount was donated twice as often in the treatment condition, but this difference was not significant. The fourth peak occurred around the modal amount of the treat-

ment condition (€20), but the difference was not significant. The final peak occurred around €30, which was twice the suggestion amount. The amount was significantly more popular in treatment condition (17%), than in the condition (2%).

### *3.5.2 Moderators*

To test whether the individual differences we measured moderated the relationship between social information and donations, we conducted three separated regressions analyses. In accordance with Dawson (2014), we centred the moderators. As can be seen in Table 12, none of the personal characteristics moderated the effect of social information on donation amounts.

Next, we tested whether the relation between social information and the number of donors was moderated by the centred moderators with three separate logistic regressions (see Table 13). As can be seen in Table 13, none of the main effects nor the interactions were significant. Therefore, hypotheses 2, 3 and 4 cannot be supported, neither in terms of the donation amount or the number of donors.



Table 12. Hierarchical regression of several person characteristics (centered) on the relationship of social information on the donation amounts (n = 177)

| | | | 95% Confidence interval | |
|---|---|---|---|---|
| | **Test statistics** | **Significance** | **Lower bound** | **Upper bound** |
| **Identity** | *b* = -1.97 | *p* = .572 | -8.837 | 4.898 |
| **Social information** | *b* = 5.27 | *p* = .011* | 1.246 | 9.299 |
| **Identity*social information** | *b* =2.60 | *p* = .228 | -1.644 | 6.844 |
| **Belong** | *b* = .70 | *p* = .821 | -5.428 | 6.834 |
| **Social information** | *b* = 4.97 | *p* = .017* | .897 | 9.047 |
| **Belong*social information** | *b* = -.71 | *p* = .696 | -4.309 | 2.882 |
| **Reputation** | *b* = -7.61 | *p* = .162 | -18.304 | 3.090 |
| **Social information** | *b* =5.19 | *p* = .013* | 1.122 | 9.256 |
| **Reputation*social information** | *b* = 3.98 | *p* = .207 | -2.220 | 10.171 |

*Significant at $p < .05$

Table 12. Logistic regression of donation behavior on personal characteristics (centered) and social information (n = 177)

| | | | 95% Confidence interval | |
|---|---|---|---|---|
| | **Test statistics** | **Significance** | **Lower bound** | **Upper bound** |
| **Identity** | *b* =.70 | *p* = .382 | .420 | 9.610 |
| **Social information** | *b* = 1.42 | *p* = .020* | 1.249 | 13.808 |
| **Identity*social information** | *b* = .04 | *p* = .945 | .332 | 3.262 |
| **Belong** | *b* = -1.06 | *p* = .279 | .051 | 2.352 |
| **Social information** | *b* = 1.28 | *p* = .018* | 1.242 | 10.483 |
| **Belong*social information** | *b* =.76 | *p* = .255 | .580 | 7.808 |
| **Reputation** | *b* = -.26 | *p* = .813 | .090 | 6.592 |
| **Social information** | *b* = 1.23 | *p* = .015* | 1.263 | 9.180 |
| **Reputation*social information** | *b* =.20 | *p* = .778 | .302 | 4.954 |

*Significant at *p* <.05

### *3.5.3 Robustness analyses*

As a robustness check, we conducted a logistic regression to explore the effects on the number of donors (see Table 14, model a). As earlier, we excluded the outliers. In addition, we conducted a multiple regression to explore how the effect of social information affects the individual donation amount (see Table 14, model b).

Besides the manipulation of social information, we included several other variables. Besides the personal characteristics tested before, we measured peoples (2) age, (3) gender, (4) how often they gave in the past calendar year, and (5) how important they perceived money. In addition, we asked participants several additional questions in the forms of statements measured with a five-point scale ranging from 1 ('totally disagree') to 5 ('totally agree'): I would like it if the project successfully assembles enough money (6), I am interested in international relief projects (7). In addition, we asked several questions related to how participants perceived the project with two statements on a five-point scale: Many people perceive it as important to give to

Table 14. Logistic regression analyses of the number of donors (a) and a multiple regression (using ordinary least squares) of the donation amount (b), excluding the outliers (n - 177)

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| | a | b | a | b | a | b | a | b |
| | *OR* | *b* | *OR* | *b* | *OR* | *b* | *OR* | *b* |
| **1. Condition** | 3.41** | 9.30** | 3.77** | 5.10* | 3.56* | 4.90* | 3.49* | 3.94* |
| **2. Age** | | | .97 | .60 | .96 | .58 | .89 | .30 |
| **3. Gender** | | | 4.00* | 5.06* | 3.47* | 4.71* | 2.16 | 1.95 |
| **4. Frequency given** | | | 1.30 | .28 | 1.19 | -.05 | 1.25 | -.21 |
| **5. Importance money** | | | 1.10 | .51 | 1.14 | .41 | 1.28 | .64 |
| **6. Successful** | | | | | 1.13 | 1.49 | .99 | 1.19 |
| **7. International** | | | | | 1.14 | .12 | 1.27 | .97 |
| **8. Important** | | | | | | | 1.95 | .08 |
| **9. Struggle** | | | | | | | .79 | -.45 |
| **10. Injunctive norm** | | | | | | | 1.14** | .50*** |
| **Constant** | 1.25 | 9.30 | .12 | -14.25 | .05 | -18.00 | .02 | -17.87 |
| **R-square** | .07 | .03 | .17 | .07 | .19 | .09 | .38 | .41 |

Notes: a: dependent variable: number of donors reported as odds ratios; b: dependent variable: individual donation amount measwwured in euros.

***$p$ <.001; **$p$ <.01; *$p$ <.05

international relief (8) and international relief projects struggle to assemble enough money (9). Next to this, we asked participants about the perceived injunctive norm (10) in an open-ended question: what do you perceive as an appropriate amount to give to this project?' We explored the robustness of the effect of social information with respect to these additional personal characteristics and statements using a multiple regression. The results show that overall, the effect of the condition seems robust, for both the individual donation amounts and the number of donors. The effect of social information is around €5.24 on the individual donation amount

and it increased the number of donors with 20. Model 2 and 3 show that women donated higher amounts and more women donated, but the effect was no longer significant in Model 4. Model 4 shows that while the effect of condition was still significant after including the perceptions, the injunctive social norm significantly influenced the donation amounts and the number of donors. As a next step, we examined how social information affected the perceived injunctive norm, see Appendix F.

In sum: apart from the injunctive social norm, none of the additional personal characteristics, opinions about the project or perceptions is related to the amounts donated. The relationship with the injunctive social norm is weak, and the effect of social information on the donation amount and number of donors remained significant.

## 3.6 Discussion and conclusion

Contrary to our expectations, social information increased (16%) rather than decreased the number of donors. Earlier studies report a decrease in the number of donors (Klinowski, 2015; Murphy et al., 2015; Reingen, 1982). It is possible that the mentioned amount in our studies was too low to result in a diffusion of responsibility as described by Latené & Darley (1970), since we based the suggested amount on the average instead of a high amount.

Our analyses revealed support for our main hypothesis that social information increases donation amounts. We found a positive effect of about 35% on the individual donation amount, which is higher than the effect sizes in previous studies, generally ranging from 12% (Croson & Shang, 2013; Shang & Croson, 2009; Bekkers, 2012) to 18% (Alpizar et al., 2008a; 2008b). Yet, our study is not the only one to find a higher effect size, as Croson et al. (2013) found an increase of 43% among donors to a radio campaign, and another study conducted among students found an effect size of 64% (Hysenbelli et al, 2013).

Interestingly, while social information increased the number of donations of the suggested amount of €15, this was not the modal amount: the amount most frequently donated was €20. Perhaps individuals preferred this amount (€20) to the suggested amount (€15) because there is no €15 banknote in the Netherlands. The donation of €30 (twice the suggestion amount) was also more popular in the treatment than in the control condition. Earlier studies have also reported an increase in the number of donors who donated amounts twice the suggestion amount (Bekkers, 2012; Cro-

son, Handy & Shang, 2009).

We hypothesized that certain donor characteristics, namely a shared identity, need to belong and reputational concerns would amplify the effect of social information on online donation behavior. However, our analysis revealed no support for any one of these three personal characteristics. The current results indicate that the effect of social information does not depend on these three personal traits/characteristics. Perhaps this was because donations were made in an anonymous context, and participants assumed that it was unlikely that others would learn about their donation, rendering it unlikely that others would use information about their donation as a reason to include them in their groups. For instance, reputation effects are most profound when the behavior is observable. When people believe that group members are likely to gossip, a public context has a stronger impact on cooperative behavior (Beersma & van Kleef, 2011). Another option is that the sample was too small to find moderating effects, since the effect size was small.



### *3.6.1 Implications*

We conclude that social information is an effective stimulant for online campaigns and that social information has a generic effect, regardless of donor characteristics measured in this article. Based on our data, we expect that social information will mostly affect the donation amounts, and to a lesser extent, increase the number of donors. As a result, social information could be implemented as a solicitation method to increase donation amounts. To a lesser extent, social information can be used to increase the number of donors.

### *3.6.2 Limitations*

A first limitation is the small sample size of the pilot study aiming to shorten the survey measuring reputational concerns. Naturally, we would have preferred a larger sample, but practicalities prevented this. We could have used a crowdsourcing platform such as MTurk to recruit donors online. However, we wanted to conduct the pilot study in a similar context (classroom experiment, online survey) with a similar sample (students from the social science department at the Vrije Universiteit).

While our sample is small, the results should not be disregarded. Earlier research shows that an exploratory factor analysis can yield reliable results

with a sample size below 50, especially when the factors and variables are low in combination with high factor loadings (Winter, Dodou & Wieringa, 2009). According to the estimation of Winter et al. (2008), our small sample should be enough: our factor loadings hover around .80, with no more than two factors and no more than 10 items.

A second limitation concerns the generalizability of the results. First, our experiment is based on a student sample, like earlier studies examining social information effects (e.g., Bicchieri et al., 2009; Hysenbelli et al., 2013; Klinowski et al., 2015; Reingen, 1982; Sell et al., 1991; Vesterlund, 2003). We found similar results as studies conducted among actual donors (i.e. field experiments): donation amounts increased because of social information. To the best of our knowledge, this study is the first to use a randomized controlled setting with online donations. Since earlier studies focusing on an offline context found negative results (Croson & Shang, 2008; Meyer & Yang, 2016); social information, therefore, could be harmful for practitioners. Therefore, to make sure that we did not lower donation amounts and thus damaged the fundraising campaign, we opted for a student sample, as we wanted to examine the effect of social information in an online context before we applied it in an online context. We included several questions to assess whether the sample was a good representation of general givers. For instance, 32% of the participants had donated to an international relief-related project in the last year, and 41% expected to do so in the coming year. These percentages are in line with the donation behavior of Dutch households, 41% of which donate to international relief campaigns (Bekkers, Schuyt & Gouwenberg, 2015). In addition, 74% of the participants were familiar with crowdfunding.

Third, we used seed money in a semi-hypothetical context; there was a chance that if a participant decided to donate, the amount would be donated to the project. Research shows that paying only a subset of participants is a useful approach and leads to similar results as studies in which all participants are paid (Charness, Gneezy & Halladay, 2016). A next step would be to test if social information had a similar effect in an online donation context using a similar design as the second experiment, but then with actual donors: i.e. a natural field experiment among crowdfunding donors.

Fourth, we measured the participants' personal traits after they had indicated their donating decision during the donation task. Participants in the treatment condition, therefore, were exposed to social information before

they filled out the surveys measuring their personal traits. Some might argue that this affected the way participants filled out the surveys measuring the traits. However, since personality traits are relatively stable over time (i.e. fixed) and are hardly affected by external stimuli (Heineck and Anger, 2010; Mueller and Plug, 2006; Nyhus and Pons, 2005), we do not expect that our manipulation affected the way participants filled in the survey. A linear regression supported this reasoning.

Fifth, in the introduction of the second experiment we asked students to imagine being 'potential donors'. The addition of the word 'potential' was already an improvement compared to the introduction of the pilot, where we asked students to imagine being a donor. However, in retrospect it would have been better to avoid the word 'donor' altogether. The mention could have set the norm that donating was mandatory, while this was not the case. During the oral introduction we made no mention of the word donor and focused solely on mentioning that we were interested in crowdfunding and their knowledge related to this subject.

In all, our work sheds new light on social information effects in an online context, suggesting that it may be an effective stimulant to increase both the individual donation amounts and the number of donors. The effects are not related to experiencing a shared identity with previous donors, need to belong or reputation concerns.

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# Appendix A

Example of the treatment condition. The yellow block includes our manipulation, mentioning the average daonation amount donated by earliers donors of the project. The control condition showed participants the exact same picture, with the expection of the yellow block and its information.


**Het verhaal.**
**Wij helpen kinderen uit zeer arme gezinnen in Kampala, waarbij de kinderen een hoog risico lopen om op straat terecht te komen door armoede in het gezin. Wij hebben een opvang waar zo'n 15 kinderen verblijven, leeftijd 4-18 jaar. Naast het bieden van eten en onderdak geven wij deze kinderen ook les. Helaas kunnen wij niet meer kinderen opvangen, om toch te helpen betalen we voor zo'n 50 andere kinderen hun schoolgeld. Nu hebben wij een nieuw project: het bouwen van een buurtcentrum met een groter bereik voor onderwijs.**

Alsnog lopen er een hoop kinderen op straat, daarom willen wij een 'drop-in' buurtcentrum in de sloppenwijk bouwen. Hier willen wij dagbesteding (sport- en spelactiviteiten), basisonderwijs en eten aan straatkinderen aanbieden. Wij hebben geld nodig om boeken, schriften en vooral ook eten te kopen. Dit is erg belangrijk aangezien wetenschappelijke studies aantonen dat het aanbieden van basisonderwijs aan straatkinderen de kansen om later werk te vinden verbeterd.

**Kortom, genoeg goede bedoelingen. Om dit te realiseren hebben wij uw hulp nodg! Uw donatatie zal gebruikt worden voor het bouwen van ons buurtcentrum, bieden van onderwijs en opvang van kansarmen kinderen. Bedankt!**

# Appendix B

Bolded items are included in the second experiment. The left column includes the items in Dutch as used in the experiment; the right column represents the English translation of the items. The complete surveys have been uploaded as supplementary documents.

Link to survey experiment I:
https://mfr.de-1.osf.io/render?url=https://osf.io/3fhwa/?direct%26mode=render%26action=download%26mode=render .

Link to survey experiment II:
https://mfr.de-1.osf.io/render?url=https://osf.io/87drs/?direct%26mode=render%26action=download%26mode=render .

Items measuring reputational concerns, based on De Cremer & Tyler (2005).

| | |
|---|---|
| 1. Ik maak mij zelden zorgen over mijn reputatie | I am rarely concerned about my reputation. |
| 2. Ik denk niet aan wat anderen over mij zeggen | I do not consider what others say about me. |
| 3. Ik wens om een goede reputatie te hebben | I wish to have a good reputation. |
| 4. Als mijn reputatie niet goed is, voel ik me slecht | If my reputation is not good, I feel bad. |
| 5. Ik vind het belangrijk dat anderen mijn reputatie serieus nemen | I find it important that others consider my reputation as a serious matter. |
| 6. Ik werk hard aan mijn reputatie (in mijn relatie met andere) | I try hard to work on my reputation (in my relationship with others) |
| 7. Ik vind het moeilijk als anderen een incorrect beeld van mij schetsen | I find it difficult if others paint an incorrect image of me |

Items measuring social identification, based on Postmes et al. (2012).

| | |
|---|---|
| 1. Ik identificeer mij met andere donateurs die doneren aan internationale hulpprojecten. | I identify with other donors who donate to international relief projects. |

Item measuring the need to belong, derived from Lee & Robbins (1995).

| | |
|---|---|
| 1. Ik voel mij meer comfortabel wanneer er constant iemand bij mij is. | I feel more comfortable when someone is constantly with me. |
| 2. Ik voel mij rustiger wanneer ik dingen samen met andere mensen kan doen. | I'm more at ease doing things together with other people. |
| 3. Samen met iemand anders werken is comfortabeler dan alleen werken. | Working side by side with others is more comfortable than working alone. |
| 4. Zonder mijn beste vriend is mijn leven incompleet. | My life is incomplete without a buddy beside me. |
| 5. Het is moeilijk voor mij om mijn vaardigheden en talenten te gebruiken zonder iemand bij mij in de buurt. | It is hard for me to use my skills and talents without someone beside me. |
| 6. Ik plak aan mijn vrienden. | Is tick to my friends like glue. |
| 7. Ik word eerder lid van groepen voor de vriendschap dan voor de activiteit. | I join groups more for the friendship than the activity itself. |
| 8. 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. |

Item measuring the need to belong, derived from Leary et al. (2001).

| | |
|---|---|
| 1. Ik vind het belangrijk om bij een groep te horen. | I find it important to belong to a group. |
| 2. Ik wil graag betrokken zijn bij een groep. | I want to be included in the group. |

# Appendix C

## *Experiment I*

To test if the donations are higher in the treatment condition versus the control condition, we used a Wilcoxon Signed Rank Test focusing on the medians instead of the averages, see Table 1. We expected that donations would be higher in the treatment condition than the control condition, however there was no significant difference ($Z$ = -1.34, $n$ = 20, $p$ = .180). The, median donation amount was 5.00 both for the control and treatment setting. Most of the participants (60%) indicated that they did not see a difference between the two conditions, which is probably why social information did not increase

their donation amounts.

Descriptive statistic of the donation behavior

| | Control | Treatment | Test statistics | Significance |
|---|---|---|---|---|
| **Mean amount donated** | €5.20 | €11.20 | $F$ = -6.00 | $p$ = .2428 |
| **Median amount donated** | €5.00 | €5.00 | $Z$ = -1.34 | $p$ = .180 |
| **Modal donation** | €0.00 | €0.00 | | |
| **Number of donors** | 60% | 65% | $X^2$ = .05 | $p$ = 1.00 |

# Appendix D

Descriptive statistics need to belong (experiment I)

| 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 | | | | | | | | | | - |

Descriptive statistics reputation concerns (experiment I)

| 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 |

[8] A Linear Mixed Model, shows that there was no significant difference between the two conditions, (F (1, 19) = -6.00, p = .242).

| Item | M | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|---|
| 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 | | | | | | | - |



# Appendix E

Descriptive statistic table of all the participants in Experiment II.

| | Measure-ment | Control | Treatment | Test statistics | Significance |
|---|---|---|---|---|---|
| **Participant** | | 54% | 46% | $X^2$=.36 | $p$ = .549 |
| **Female** | Yes/no | 55% | 53% | $X^2$=.04 | $p$ = .766 |
| **Age** | Years | $M$ = 21.14, $SD$ = 2.02 | $M$ = 21.06, $SD$ = 2.14 | $F$ = .06 | $p$ = .802 |
| **Interest in this crowdfunding project** | Five-point scale | $M$ = 3.44, $SD$ =.92 | $M$ = 3.45, $SD$ = 1.08 | $F$ = .01 | $p$ = .909 |
| **Hopes the project is successful** | Five-point scale | $M$ = 3.82, $SD$ = 1.12 | $M$ = 3.95, $SD$ = 1.35 | $F$ = .45 | $p$ = .505 |
| **Would donate with their own money** | Five-point scale | $M$ = 2.67, $SD$ = .86 | $M$ = 3.01, $SD$ = 1.04 | $F$ = 5.64 | $p$ = .019 |
| **Injunctive norm** | Open answer (numeric value) | $M$ = 20.69, $SD$ = 18.60 | $M$ = 21.44, $SD$ = 15.55 | $F$ = 1.34 | $p$ = .248 |
| **Made donati-on to international relief and development in last year** | Yes/no | 34% | 29% | $X^2$ = .26 | $p$ = .525 |

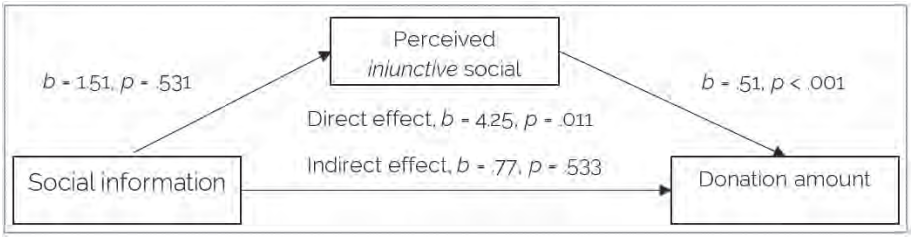
| | Measure-ment | Control | Treatment | Test statistics | Significance |
|---|---|---|---|---|---|
| **Expects to donate to international relief in upcoming year** | Yes/no | 44% | 39% | $X^2$ = .22 | $p$ = .548 |

# Appendix F

### Mediation analysis donation amount

We examined how the relationship between social information and donation amounts is mediated by the perceived injunctive social norm. To test this mediation, we conducted a mediation analysis with a regression, excluding outliers. The figure below shows how the mediator operates, which demonstrates that: (a) there is a direct effect of social information on donation amounts, (b) there is no effect of social information on the perceived injunctive social norm, (c) there is an effect of the perceived injunctive social norm on the donation amount. Our finding is not in line with the findings of Bicchieri & Xiao (2009) or Croson, Handy & Shang (2009).

Figure 5. Model of social information as a predictor of donation amounts, mediated by the perceived injunctive social norm. Excluding outliers.



# CHAPTER 4

## FOLLOW THE CROWD: SOCIAL INFORMATION AND CROWDFUNDING DONATIONS IN A LARGE FIELD EXPERIMENT

**Claire van Teunenbroek & René Bekkers**

CVT and RB designed the study; CVT collected the data and performed the statistical analyses; CVT wrote the article and RB provided critical feedback on earlier drafts of the manuscript.

Data, Syntax and supplementary materials are available through the Open Science Framework at: https://osf.io/epuj6/. This chapter was pre-registered as JOINING THE CROWD under number 1186 and available through As Predicted at https://aspredicted.org/u5w9u.pdf

This chapter is an adapted version of: Van Teunenbroek, C., & Bekkers, R. (2020). Follow the crowd: Social information and crowdfunding donations in a large field experiment. *Journal of Behavioral Public Administration*, 3(1).

## Abstract

Purposely guiding human decision-making with a discrete suggestion, 'nudging', is increasingly popular. One particularly promising nudge is to provide decision makers with information about the decisions of others, also referred to as social information. Social information is often applied in fundraising campaigns to increase individual donations. A discrete suggestion such as the donation amount of others can result in donors donating similar amounts. We examined effects of social information in a relatively new context, namely crowdfunding. Crowdfunding is a new online fundraising tool. Our study, based on a large natural field experiment ($n$ = 24,070), tests to what extent social information affects online donation behavior and how its effects vary throughout the duration of a campaign. We show that social information increases the individual donation amount by 17%, which is close to the average of 14% found in previous studies. However, social information did not attract more donors: the participation rate was not affected. Our study is the first to pinpoint the stage of the funding campaign at which the effect of social information is most pronounced. We found that social information is most effective in increasing donations at the beginning of crowdfunding campaigns. All materials for this article are available at https://osf.io/epuj6/.

**Keywords:** crowdfunding, donation behavior, natural field experiment, online donations, social information

## 4.1 Introduction

Research shows that donors tend to mirror the donation amounts of others. This behavior, adjusting the donation amount to the donation behavior of others, is described as the social information effect (Shang & Croson, 2009). A recent systematic literature review (van Teunenbroek, Bekkers & Beersma, 2020) shows that donors informed about the donation amount of previous donors tend to donate higher amounts. While overall previous research tends to find positive effects of social information, its effect depends on several context factors. First, prospective donors who find the amount donated by others excessively high may refrain from giving altogether (Croson & Shang, 2013), while an amount that is too low may lower donation amounts (Croson & Shang, 2008; Meyer & Yang, 2015). In addition, the published research shows that whether social information encourages donation behavior depends on how donors interpret it, and they may do so in different ways. Several studies suggest that social information provides donors with a norm that guides their donation behavior (Croson, Handy & Shang, 2009; Smith, Windmeijer & Wright, 2015); such that donors think that previous donations indicate a standard for what is appropriate.

We provide further evidence on the effects of social information on donation behavior in a large-scale field experiment. Our paper contributes to the literature in two ways. First, we examined the effects of stating donation amounts of earlier donors in a context in which it has hardly been tested before, namely crowdfunding. Crowdfunding is a new online fundraising tool that builds on small donations from a large (and mostly unknown) crowd (Mollick, 2014). Our research question is: "what is the influence of social information on online donation behavior through a crowdfunding platform?"

Second, we provide evidence on the optimal timing of social information. Crowdfunding campaigns are launched online at a platform for a specific duration. Our study is the first to pinpoint the stage of the funding campaign at which the effect of social information is most pronounced. Is social information more effective when the campaign just launched, or towards the end? An answer to this question adds further evidence to the stock of knowledge on contexts in which 'nudges' such as the provision of social information work.

The implications are important for practitioners since there is a need to understand possible stimulants for donating to crowdfunding projects (Zvili-

chovsky, Danziger, & Steinhart, 2018), as many crowdfunding projects fail to assemble enough funding. For instance, between 2014 and 2018 about two-third of the projects on one of the most popular and successful crowdfunding platforms, Kickstarter, failed to assemble the target amount (The Crowdfunding Center, 2018). Second, and more broadly, crowdfunding is a private source of income that may replace government funding for the arts. After a large cut in government funding for the arts in the Netherlands, the sector struggled financially (Blankers et al., 2012). To reduce their dependence on government funding, arts organizations are forced to acquire income from alternative sources such as donations (Algemene Rekenkamer, 2015). Our findings could be used to increase the effectiveness of crowdfunding campaigns.

To test the effect of social information, we conducted a large-scale field experiment among all visitors ($n$ = 24,070) on a Dutch crowdfunding platform. The experiment tested the effects of social information on donation behavior. In the treatment condition, the message "*Did you know that on average donors on Voordekunst donate 82 euros?*" was displayed next to the project information. This was the actual average amount donated by donors on the platform of the preceding six months. In the 'base' condition, there was no visible average donation amount (see appendix A for stimulus materials).

## 4.2 Theoretical framework and hypotheses

### *4.2.1 The effect of social information in previous studies*

Donors adjust their charitable behavior according to social information. When individuals are presented with information on the donation amount of previous donors their donation amount increases (for example Alpizar, Carlsson & Johansson-Stenman, 2008; Bekkers, 2012; Edwards & List, 2014; Martin & Randal, 2008; Shang, Croson & Reed, 2012; van Teunenbroek, 2016; van Teunenbroek, Bekkers & Beersma, 2020).

Only three studies (Croson & Shang, 2008; Kubo, Shoji, Tsuge, & Kuriyama, 2018; Meyer & Yang, 2015), that examined effects of social information (reviewed by van Teunenbroek et al., 2020) reported a negative effect on the individual donation amount. Four studies (Catt & Benson, 1977; Croson & Shang, 2013; Murphy, Batmunkh, Nilsson, & Ray, 2015; Shang & Croson, 2009) reported no effect: donors donated similar amounts if they did or did not know about the donation of other donors. 24 papers reported a positive effect. The estimates vary between studies. A first group of studies with

small effect sizes report, that social information increases donations with about 10% (Bekkers, 2012; Croson & Shang, 2008; Shang et al., 2012; Shang & Croson, 2009), a second group hovers around 15% (Cialdini & Schroeder, 1976; Croson et al., 2013; Smith et al., 2015) and several studies report values in the 20% range (Agerström, Carlsson, Nicklasson, & Guntell, 2016; Alpizar et al., 2008; Martin & Randal, 2008). The average increase due to social information is 14%.

The prevailing explanation why social information works is that information about the decision of others creates a social norm (Croson et al., 2009; Croson & Shang, 2008, 2013; Edwards & List, 2013; Meyer & Yang, 2015; Murphy et al., 2015; van Teunenbroek et al., 2020; Sasaki, 2019; Smith et al., 2015). The average donation amount provides a cue about what is typically done by others. A classic premise in social psychology is that humans have a strong desire to follow social norms and mirror the behavior of others (Bernheim, 1994; Festinger, 1954). According to social comparison theory, humans evaluate themselves in comparison with others, for instance to reduce uncertainty (Festinger, 1954). Thus, human decision-making is influenced by social norms and people mimic the behavior of others. When the default is not to give or to give less than the norm, social information increases donations. Accordingly, in our ***social information hypothesis*** we propose that:

*Hypothesis 1: Social information increases the amount donated.*

### *4.2.2 The additional information can backfire if the amount is called into question*

Next to the desire to follow a social norm, people are driven to decrease material costs (money, in this case) (Sargeant & Jay, 2004). This also applies to a charitable context: when the costs of donating are lower, donations increase (Bekkers & Wiepking, 2011). This would mean that if the shown amount is perceived as too high, people may judge the amount as unfair or excessive. As a result, it would decrease charitable giving (Hysenbelli, Rubaltelli, & Rumiati, 2013), because people feel that the amount is too high. Thus, social information that is perceived as too high should be less effective in influencing giving (van Teunenbroek, et al., 2020). Social scientists describe this phenomenon as reactance (Brehm, 1966), which has been broadly studied in social marketing. For example, potential buyers develop a negative view and even avoid websites using pop-up advertisements (S.

M. Edwards, Li, & Lee, 2002)S. M., Li, H., & Lee, J. H. (2002 or even persuasive advertisements (Koslow, 2000).

The amount shown through social information is a symbolic infringement on the donor's freedom to choose a donation amount. When the average donation amount is much higher than the amount that a donor is willing to give, she ultimately refrains from giving altogether. This also means that mentioning the average donation amount can backfire. There are a few studies that support this line of reasoning: social information based on the 99th percentile is no longer effective in increasing the individual donation amount (Croson & Shang, 2013; Shang & Croson, 2006). In addition, we argue that social information could decrease the propensity to give, because some donors perceive the amounts as to high and therefor refrain. Accordingly, our ***reactance hypothesis*** proposes that:

*Hypothesis 2: the amount displayed in the social information condition could decrease the propensity to give.*

### *4.2.3 How the effect of social information varies with the project funding stage*

A crowdfunding campaign runs for a predefined number of days, during which the target amount must be assembled to be considered successful. Taking the project funding stage into account is important, since the effects of social information could vary with the fundraising stage. An earlier study found that social information in the form of fake (i.e. created to mislead consumers) Facebook Likes affected the number of donors to crowdfunding campaigns differently depending on the fundraising stage: initially there was a positive effect, followed by a negative effect over time (Wessel, Thies & Benlian, 2016). While the social information observed by Wessel et al. (2016) differs from mentioning the donation amount of others, it does show the importance of the funding stage. We assume that the donors in the middle of the campaign are especially sensitive to our form of social information. The assumption is based on the idea that that social information provides a quality signal to donors (Potters, Veston & Vesterlund, 2001; van Teunenbroek et al., 2020; Vesterlund, 2003), as argued in theories on philanthropy from communication science, behavioral economics, and social psychology.

*Begin stage:* At the initial stage, a project is seen as a new and innovative which attracts individuals motivated by contributing to new ideas (Rogers,

1995). These donors are not motived by the example of others. Instead, they want to lead, and they want to be first: they are the 'early adopters'. Rogers argues that innovations spread through communication among peers. In our case, the number of donors and the amount assembled per day is expected to be relatively high in the beginning of a campaign, see Figure 1.

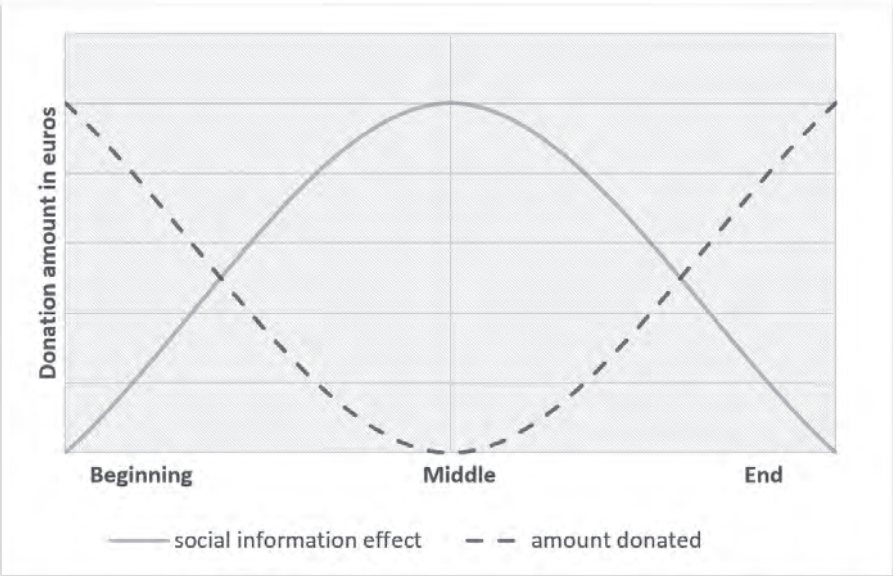



Figure 1. Expected distribution of the social information effect and amount donated

A similar donor type is described in the philanthropic literature: 'the altruistic donor'. Someone described as an altruistic donor cares about the impact of her donation on the provision of a public good (Andreoni, 2006). Duncan (2004) prefers the term 'impact donor'. Regardless, both authors refer to a donor wanting to be pivotal, and caring about the difference that their donation makes on beneficiaries (Duncan, 2004).

The altruistic motive explains why some donors prefer to fund a specific part of a project rather than the entire project. According to the altruistic motive, a project is less attractive if more donors have contributed. Duncan (2004) describes that for a potential donor, the contributions of other donors reduce the perceived impact of her additional donation. This implies that for altruistic donors, social information (through which individuals learn about the contributions of others) in the initial stage will have no or even a negative effect. In addition, in the beginning of the campaign the crowdfunding proj-

ect is mostly supported by family and friends who have strong ties to the creator. They donate because they have a close connection with the creator (Borst, Moser & Fergfuson, 2018) and not so much because they want to make a difference or support a high quality project.
*Middle stage:* After the group of innovative enthusiasts and strong ties from the creators' network is exhausted, a different type of donors must step in. The crowdfunding literature describes that at this point, in the middle of the campaign, the number of donations per day decreases (Kuppuswamy & Bayus, 2015). This is the stage where social information could have the greatest impact, because identification with the creator is relatively weak. In the middle stage of crowdfunding projects donors are much less likely to have a social connection with the creator (Borst et al., 2018; de Witt, 2012). When identification is weak, individuals mainly base their donation decision on the perceived quality of the project and they wonder whether the project is worthwhile (Fishbach et al., 2011). We expect that social information could be particularly effective at this stage, since social information signals that others value the project enough to support it (Vesterlund, 2003). Knowing that others have already donated, new donors can assume that other donors have checked it out and rest assured that the project is worthwhile supporting.

*End stage*: Throughout the fundraising period, the distance to the target amount decreases with each donation. As the number of previous donors to a project increases, so do the odds of a new donor making a donation (Oliver, & Marwell, 1988): the closer a crowdfunding campaign comes to the target amount the higher the participation rate (Kuppuswamy & Bayus, 2017; Zvilichovsky et al., 2018). As the total number of donors reaches a certain threshold it becomes increasingly attractive for individuals who want to interact in a successful social setting (Oliver, Marwell, & Teixeira, 1985). In other words, by donating at this stage, donors become part of the critical mass that reaches the target amount (Markus, 1987). We expect that these donors are not searching for a quality signal, as they are more interested in being part of the critical mass than the projects' quality.

Our *project funding stage hypothesis* proposes that:

*Hypothesis 3: social information is less effective in the beginning as well as towards the end of the campaign, and most effective in the middle of the campaign.*

### *4.2.4 Why is a simple addition enough to influence donations?*

Besides the suggestion that social information is interpreted as a quality signal, it has been suggested that information about the decision of others influences the perceived social norm (Bøg, Harmgart, Huck & Jeffers 2012; Croson et al., 2009; Croson & Shang, 2008, 2013; Edwards & List, 2013; Meyer & Yang, 2015; Murphy et al., 2015; Sasaki, 2019; Smith et al., 2015). By providing the average donation amount individuals attain a cue about the social norm: 'what is typically done in this context'. Humans have a strong desire to follow social norms and are often affected by them (Bernheim, 1994; Festinger, 1954). Thus, human decision-making is greatly influenced by social norms.

There is overwhelming evidence for the importance of the influence of social norms on donation behavior: donating is a form of social behavior encouraged by social norms and social incentives (Bekkers & Wiepking, 2011). If social information functions as a social norm, people would donate amounts that resemble the suggested amount (i.e. conforming). Such a tendency to conform would result in a stronger clustering of amounts donated around the suggested amount and a lower variance (Sasaki, 2015). We expect that if the donation amount is higher than the intended donation amount, the effect of social information is positive (Croson & Shang, 2008). However, social information could also have a negative effect: a low donation amount signals that the norm is to make a small donation which is in accordance with an individual's self-interest in terms of decreasing costs: the individual can donate a lower amount (that is save money) and still follow social norms. Previous studies have indeed found negative effects (Croson & Shang, 2008, 2013; Meyer & Yang, 2015). Also, the effectiveness of social information seems to be asymmetric: negative social information has a stronger influence (26% decrease) than positive social information (10% increase) (Croson & Shang, 2008). In sum, social information is suggested to imply a social norm and therefore influence donation amounts. The effect of social information can be positive and negative, depending on the individuals intended donation amount. Accordingly, our *social norm hypothesis* proposes that:

*Hypothesis 4: When the amount displayed in the social information condition is larger than the intended donation amount, the amount donated increases, and when the amount displayed is lower the amount donated decreases.*

## 4.3 Methods

### *4.3.1 Study context*

The data we analyzed was collected at Voordekunst, the largest crowdfunding platform in the Netherlands for cultural and arts projects, including for example dance, photography, music, theatre, movies and visual arts productions. More information about the platform can be found in Appendix B.

Before the data collection started, we conducted a power analysis to determine the number of participants required to detect a 14% effect size at 80% power and a desired significance level of p = .05, resulting in a required sample of ~900. At a conversion rate of 5.27%, we computed that around 45,000 visitors to the website were required to achieve the desired sample size. Based on the number of visitors per week, we estimated that the experiment would need to run about 4 weeks. Coincidentally, we were told that on average a project initiator needs about 1 month to assemble the money. Thus, we reasoned that one month should be enough to reach the desired sample and assemble information of the whole lifespan of a project. Consequently, we planned the data collection for our study to span a period from September 15 until October 16, 2016. All projects in this time are included.

An anonymous reviewer noted that the effect size we projected in the preregistration was biased because it was based solely on studies reporting positive effects. We recalculated the effect size, this time including all studies that manipulated the donation amount of donors by showing (or telling) the average donation amount of previous donors. We only included papers that reported the average donation amount and as an independent variable focused on average donations. We excluded papers that mentioned the donation amount of one previous donor, such as Klinowski (2015), Murphy et al. (2015) and Croson et al. (2013), because Sell and Wilson (1991) found that aggregated social information results in lower contributions than specific social information about one individual. Of the 35 studies reviewed by

van Teunenbroek et al. (2020), six studies (Adena et al., 2014; Hysenbelli et al., 2013; Jones & McKee, 2004; Sell et al., 1991; Catt et al., 1977; Cialdini et al., 1976) fitted our criteria. The amounts donated in the treatment conditions of these papers were on average 22% higher than in the control groups. In retrospect, we should have used the 22% effect size to conduct the power analysis to calculate the minimum sample size. With this effect size, the minimum sample size would have been $n$ = 652. As the conversion from visitors to donors in the period we conducted our experiment (11.0%) was about twice the number we projected (5.3%), our sample of 2,657 is well-powered.

### *4.3.2 Study design*

After a pre-test in a classroom setting (Van Teunenbroek, 2016) we preregistered the experiment at Aspredicted.org (https://aspredicted.org/u5w9u.pdf).

We measure two dependent variables: 1) individual donation amount; and the 2) number of donors. Visitors to the website were randomly distributed (50:50) over two conditions using browser cookies. The cookies ensured that participants using a specific desktop end up in the same condition each time they visit the website, regardless of the project(s) they view or what entry to the website (e.g., through social media, email or a direct URL visit) they used. Our treatment (Appendix A) is the addition of social information to all projects advertised on the platform with the following sentence: "*Did you know that the average donation amount at Voordekunst is €82?*". Convinced by Hertwig & Ortmann (2001), we used the principle of no deception, and showed website visitors in the treatment group the actual average amount donated by donors on the platform of the preceding six months. This is important because, an earlier study found that misleading social information (fake Facebook Likes) had a negative effect on consumer decisions (Wessel, Thies & Benlian, 2016), which could damage the platforms reputation.

Because it was not possible to include a manipulation check after donors finalized the payment procedure on the platform, we do not know if the participants paid attention to the social information given in the treatment condition. However, the only difference between the control and the treatment group is the provision of social information. Therefore, is it reasonable to assume that a difference in behavior between the two conditions is a result of the manipulation in the treatment condition.

The experiment was only conducted among desktop users, ignoring

other devices such as mobile phones and tablets. While we preferred to include all types of devices, due to technical limitations this was not possible. Data provided by the platform revealed that about two thirds of donors use a desktop (64%).

Crowdfunding platforms host many projects and each project receives donations from many donors. The data assembled give us a unique opportunity to test for these project effects. We exploit the natural variation in crowdfunding at two levels: project funding time (i.e., the number of days since the project launched, at the time of the individual donation), and projects. Because the data were completely anonymized, we do not have information identifying website visitors or donors.

### *4.3.3 Study procedure*

On the crowdfunding platform, each project has a separate webpage. If a participant decides to donate on a project page, the donor is sent from the 'project page' to the 'donation page'. In the treatment condition, the average donation amount is mentioned on both pages, at the same place, with similar framing (see appendix A). We included the manipulation on both pages (see Figure 2), since a potential donor can enter the donation page without first visiting the project page.

On the donation page, the donor specifies the amount she wants to donate, and whether she wants to receive a reward if the donation is high enough to receive a reward. The participant is then guided towards the 'transaction page'. On this page, no social information was mentioned.

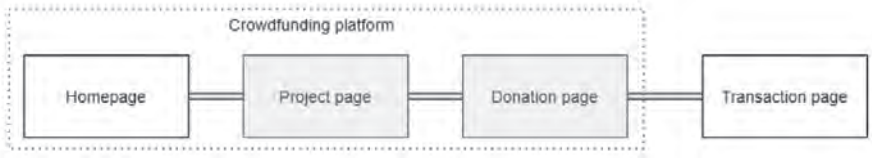



Figure 2. Simplified presentation of the different pages of a crowdfunding platform, with the grey blocks representing the pages where we included the manipulation. Each project has a personal project and donation page.

### *4.3.4 Participants*

The experiment was conducted among 24,070 unique website visitors of the Voordekunst platform (see Appendix B for a description of the platform) in September 2016. 11,973 website visitors were assigned to the treatment condition and 12,097 in the control condition. A total of 2,657 website visitors (11.0%) donated, 1,374 in the control group (51.7%) and 1,283 in the treatment condition (48.3%).

### *4.3.5 Data description*

The data consists out of visitors and donors (see table 1). Website visitors are all individuals who visited the platform using a desktop within our period. Donors are all individuals who donated using a desktop in the time of our period. Each donation is made by a donor to a specific project. During the period of our experiment, donations were made to $n$ = 119 different projects.



Table 1. Data description by condition

| | Treatment | Control | All |
|---|---|---|---|
| **Number of visitors** | 11,973 | 12,097 | 24,070 |
| **Number of donors** | 1,283 | 1,374 | 2,657 |
| **Mean amount donated** | 97.53 (*SD* = 310.24) | 94.33 (*SD* = 347.20) | 95.87 (*SD* = 310.24) |
| **Median amount donated** | 35.00 | 30.00 | 35.00 |
| **Mode amount donated** | 25 | 25 | 25 |
| **Number of outliers** | 9 | 10 | 19 |
| **Mean amount donated excluding outliers** | 80.73 (*SD* = 146.96) | 69.54 (*SD* = 116.74) | 74.95 (*SD* = 132.29) |

As the histogram in Figure 3 shows the amounts donated are not normally distributed, giving rise to the possibility that a few very large donations greatly affect the total amount donated. We used a single-construct technique of standard deviation analysis (Aguinis, Gottfredson, & Joo, 2013), and considered a data point as an outlier if it was more than three standard deviations from the mean. While most donations hover around 25 euros for both the control and treatment condition, there were a few exceptionally large

donations (1.39%, $n$ = 19), more than three standard deviations above the average. Therefore, we focus on median amounts, and use a Mann-Whitney $U$ Test unless otherwise noted. See Appendix C for a robustness analysis where we explore the data with a model including the natural logs of the amounts donated.

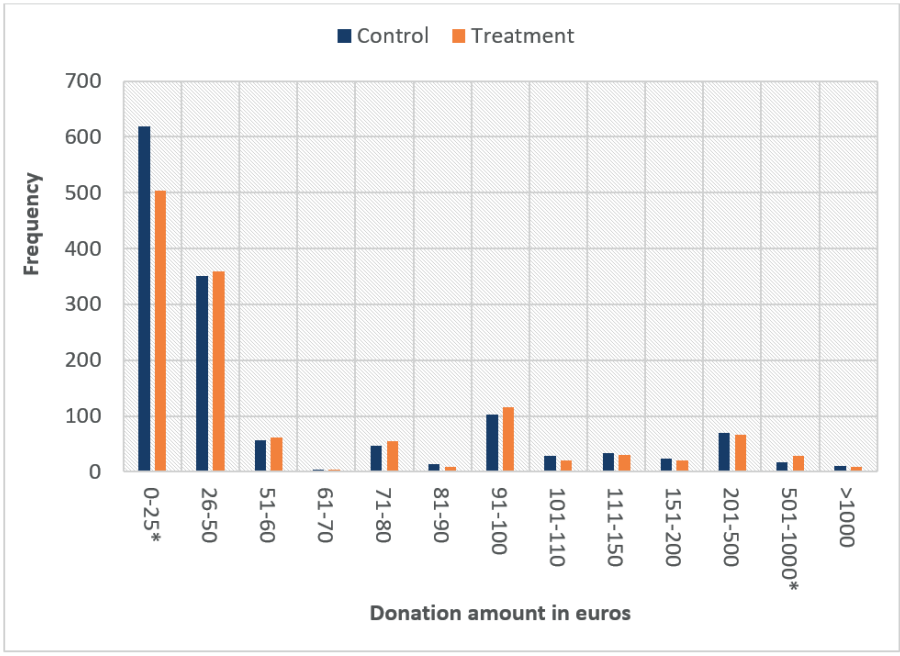



Figure 3. Histogram of the amounts donated per condition. A chi-square test indicates that social information did not affect the distribution of amounts over all categories (significance indicated by a * at p<.05).

## 4.4 Results

### *4.4.1 Social information increases amounts donated but leaves the number of donors unaffected*

In our *social information hypothesis,* we hypothesized that social information increased individual donation amounts. This hypothesis was supported by the data ($U$ = 836375.50, $n$ = 2,657, $Z$ = -2.289, $p$ = .022, $r$ = .04). The median donation in the treatment group (€35) was 17% higher than in the control group (€30). A regression analysis of the natural log of the amounts donated with project fixed effects confirmed that social information increased amounts donated ($b$ = 3.68, $n$ = 2,657, $p$ = .018). These findings support

hypothesis 1: social information increased donation amounts.

To test the *reactance hypothesis*, we compared the conversion rate of the control condition with the treatment condition. We expected a negative effect of social information on the number of donors. On the contrary, there was no difference in the number of website visitors who donated between the treatment and control condition ($X^2$ (1, $n$ = 24,070) = 1.50, $p$ = .221). The conversion rate for the control condition was 11.4% and it 10.7% for the treatment condition. Social information did not decrease the propensity to give. This finding does not support hypothesis 2: reactance did not occur.

### *4.4.2 Social information effects throughout the campaign*

In our *project funding stage hypothesis,* we hypothesized that social information is less effective in the beginning as well as towards the end of the campaign, and most effective in the middle of the campaign. To test this, we compared the amounts donated in the treatment and control group in the beginning, middle and end stage of crowdfunding projects (Table 2; Appendix D provides a more elaborate description).



Table 2. Median amount donated per funding stage

| Project stage | Control | Treatment | Test statistics | Significance |
|---|---|---|---|---|
| **Beginning** | €25.00 | €30.00 | $U$ = 278984.50 | .039 |
| **Middle** | €40.00 | €50.00 | $U$ = 29327.00 | .421 |
| **End** | €40.00 | €36.75 | $U$ = 46898.50 | .714 |

The median amount donated was highest in the middle stage (see Table 2). While median amounts in the middle stage were 25% higher in the treatment than the control condition, the effect was not significant in this stage, $U$ = 29327.00, $n$ = 495, $p$ = .421. The effect was only significant in the beginning stage ($U$ = 278984.50, $n$ = 1,544, $p$ = .039), when median donation amounts were 20% higher in the treatment condition than in the control condition. Social information did not increase donations in the end stage, with median donations being slightly lower (8%) in the treatment condition than in control. The effect of social information was not significant at this stage, $U$ = 46898.50, $n$ = 618, $p$ = .714. Next, we tested whether the effect of social information on donation amounts was moderated by the project funding scale. Given the skewness of the data, we used the natural log of the donation amounts. A regression showed a negative but insignificant effect of the

moderation effect (*b* = -.01, *n* = 2,657, *p* = .769). These findings did not support hypothesis 3: social information mainly increased donation amounts in the beginning of a campaign.

### *4.4.3 Social information did not constitute a social norm*

In our *social norm hypothesis*, we hypothesized that social information ensured that donors donated amounts around the suggestion amount: donors who intended to donate higher amounts, decrease their donations and donors who intended to donate lower amounts, donate higher amounts. Figure 3 shows the distribution of the amounts donated per condition. The difference between the control and the treatment group was not as predicted. In the treatment condition, only one donation of exactly €82 was made, and fewer donations in the category of €81-90 were made in the treatment group (0.6%) than in the control group (0.9%). However, A chi-square test indicates that the difference was not significant, $X^2(1, N = 2{,}657) = .88$, $p = .348$ (see Figure 2). This result indicates that the amount we mentioned did not constitute a social norm that the participants followed. Instead, the treatment seems to have increased the number of donations that are clearly higher than the average donation of €82 we mentioned. In the treatment condition, 9.0% donated between €91 and €100 vs 7.6% in the control group. However, A chi-square test indicates that the difference was not significant, $X^2$ (1, $N = 2{,}657$) =1.90, $p = .169$. The number of donations up to €25 was significantly lower in the treatment condition (39.3%) than in the control condition (45.1%), $X^2(1, N = 2{,}657) = 9.05$, $p = .003$. Importantly, the treatment significantly increased amounts between €501 and €1,000 (1.7% vs 2.7%), $X^2(1, N = 2{,}657) = 3.96$, $p = .047$. These findings do not support hypothesis 4: social information did decrease low donations, it increased the highest donations, but it did not ensure that donors in the treatment condition donated more often around the suggestion amount than donors in the control condition.

## 4.5 Discussion and conclusion

Our analysis revealed support for the *social information hypothesis*, that social information increases amounts donated. We found a modestly positive effect of about 17%, which is close to the 14% found in previous studies. However, social information did not attract more donors: the participation rate was unaffected. This is an important result because nudges can also backfire in

the form of a lower likelihood of donations when donors consider them as coercive (Goswami & Urminsky, 2016). The social information we provided did not scare away donors who planned to give lower amounts. In addition, we found no support for the *reactance hypothesis:* social information did not decrease the propensity to donate.

In our *project stage hypothesis,* we predicted that the effect of social information would be strongest in the middle of the campaign, in which most donors consist out of individuals searching for quality cues. While we found individuals in the middle of the campaign to give 25% higher amounts when presented with social information, this difference was not significant. We only found a significant effect (20% increase) of social information at the beginning of crowdfunding campaigns. Our assumption that individuals in the middle of the campaign are more uncertain about the quality of the project and therefore rely more heavily on social information than donors in the beginning stage may be incorrect. In addition, our assumption that friends and family are less strongly affected by social information may also be incorrect. We know from an earlier study of donations on the same platform with similar projects that donors in the beginning and end stage of a crowdfunding project mainly consist out of family and friends, while donors in the middle of the project are mostly unknown to the creator (Borst et al., 2018). Our current results indicate that social information is most effective in the beginning of crowdfunding campaigns but continues to be effective in the middle and end stage. This pattern is unlikely to be a result of differences in the social ties with creators alone.

In our *social norm hypothesis, w*e explored whether the specific amount we mentioned (€82) would set a norm that others follow by donating the exact same amount as found by Sasaki (2019), van Teunenbroek (2016) and Bekkers (2012). We clearly did not find such a pattern. Perhaps the discrepancy is a result of the amount we suggested being a peculiar number (€82) rather than a round number such as €35 or ¥10,000. In any case, our results suggest that social information can affect giving also when it does not create conformity. Alternatively, it is possible that social information increases the awareness of need for donations and provides a signal of quality (van Teunenbroek et al., 2019). Because we could not include a manipulation check in the field experiment, future research is required to test these explanations.

### *4.5.1 Limitations*

A first limitation is that we were unable to rule out contamination due to the field setting. First, participants in the treatment group may have shared the social information with participants in the control group. While we cannot rule out that contamination occurred, we do not have indications that participants were troubled by the manipulation and discussed it with others. Second, website visitors that disabled or remove cookies after a browsing session, browse in incognito mode, or use different browsers may be exposed to different conditions. Data collected by the platform indicates that the proportion of recurring donors on the platform was low (13%) (Voordekunst, 2016). While we have received no questions or remarks from website visitors about peculiarities in the design of the platform, it is possible that some users were exposed to different conditions. This may have weakened the effect of our manipulation, and the effect size we obtained may be an underestimation.

A second limitation of our experiment is that we have no information about the characteristics of individual donors. We considered adding a short survey to collect individual donor data. However, we opted not to do so because in all likelihood the response rate would be very low and selective. More research is needed to specify segments of donors for whom social information is particularly effective.

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# Appendix A

### Example of a treatment condition

The text in the yellow rectangle, "Wist je dat de gemiddelde donatie op Voordekunst €82 is?" – "Did you know that the average gift on Voordekunst is €82?", was only shown in the treatment condition.

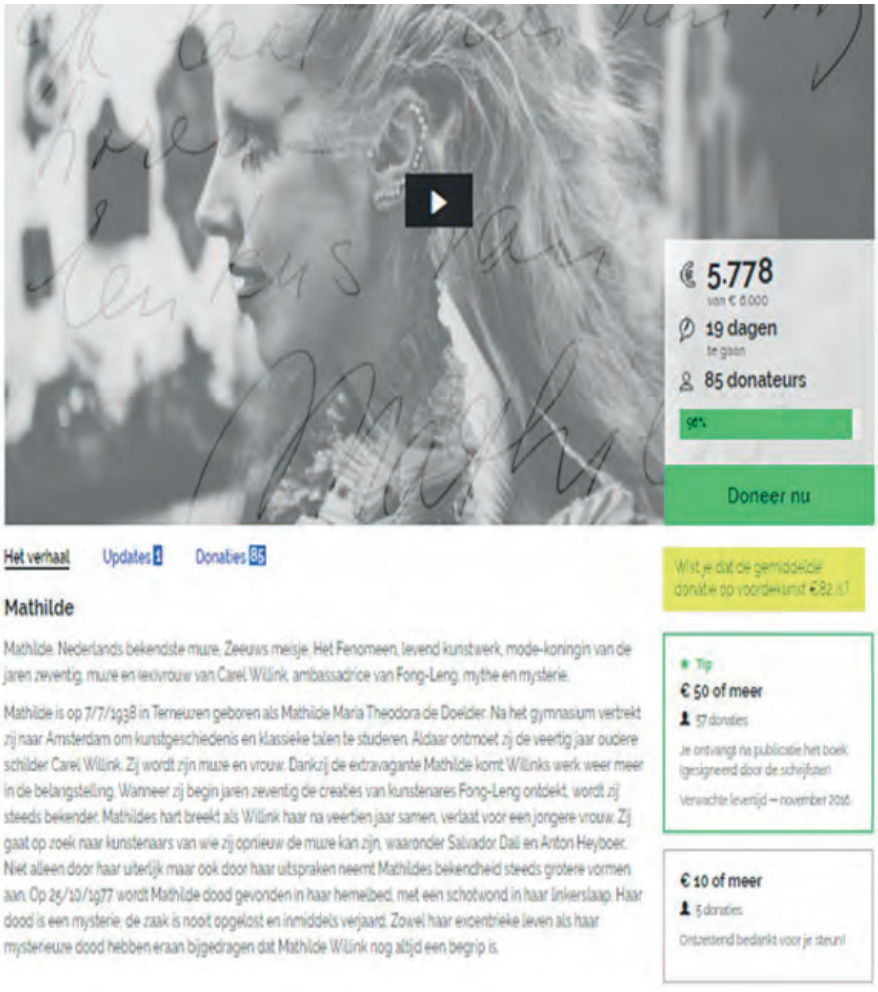



Figure 4: Example of a treatment condition

# Appendix B

**The Voordekunst crowdfunding platform**

Voordekunst is a philanthropic crowdfunding platform that uses a reward and donation-based model, with an all or-nothing model at an eighty per cent rule. This means that projects advertised on the platform must assemble at least eighty per cent of the target amount within the time frame, otherwise all donations are returned to the donors. The rewards range from a mere thank you message to a private tour through a museum at night. The minimum donation amount on the platform is €10. The rewards are presented in a reward scheme on the projects page. The rewards do not always occur at the same donation amounts; fundraisers can design their own reward schemes. The project page shows information about the target amount, the number of days remaining until the campaign is closed, the number of donors, and the percentage of the target amount donated thus far. While both companies and individuals can make donations, we excluded donations from companies during our analysis. In 2015 the platform hosted 712 projects with a success rate of 81% and a total donation amount of €3,558,549, donated by 40,107 donors (Voordekunst, 2016). A small minority of donors (13%) supported multiple projects on the platform in the same year (Voordekunst, 2016).



# Appendix C

**Robustness Analysis**

An Ordinary Least Squares (OLS) regression analysis of all raw data shows a positive, but insignificant parameter. However, the data is heavily right skewed (see Figure 3). The Q-Q Plot of amounts donated (Figure 5) indicates that our data are very unlikely to have been generated by a normal distribution and contain outliers.

Deaton and Cartwright (2018) describe three ways to deal with outliers: 1. eliminating, 2. trimming or 3. transforming observations. We tested the effect of social information in eight additional analyses reported in Table 4. First, we eliminated donations above three standard deviations (see Aguinis et al., 2013), resulting in a positive significant effect. Second, we winsorized the data. In analyses capping donations three standard deviations above the mean (€1026), the effect of social information was not significant. Similar results emerged when we winsorized observations at two standard devia-

tions (€716), or one standard deviation (€407) above the average. Third, we transformed the data using the natural log of the donation amounts. This resulted in a positive and significant effect of social information. Transforming the data helped to produce symmetry (Figure 6), even more so when we excluded the outliers (Figure 7).

Table 4: Summary table of the effect of social information on donation behavior

| Test | Parameter | *P* value |
|---|---|---|
| **0. Regression including outliers** | *b* = 3.21 | .790 |
| **1. Regression excluding outliers** | *b* = 11.19 | .030 |
| **2a. Regression Winsorizing at one standard deviation** | *b* = 5.50 | .119 |
| **2b. Regression Winsorizing at two standard deviations** | *b* = 8.33 | .090 |
| **2c. Regression Winsorizing at three standard deviations** | *b* = 10.86 | .070 |
| **3a. Regression natural log** | *b* =.08 | .041 |
| **3b. Regression natural log excluding outliers** | *b* =.09 | .024 |

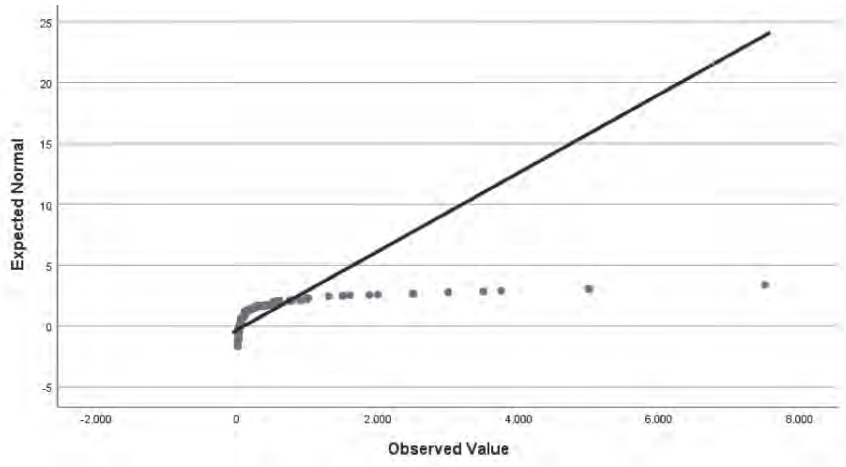



Figure 5: Q-Q plot of the amounts donated

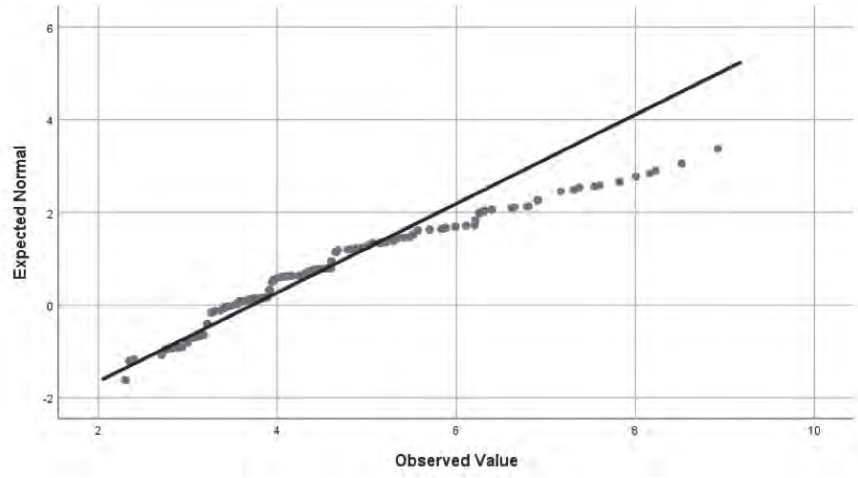



Figure 6: Q-Q plot of the natural log of the amounts donated

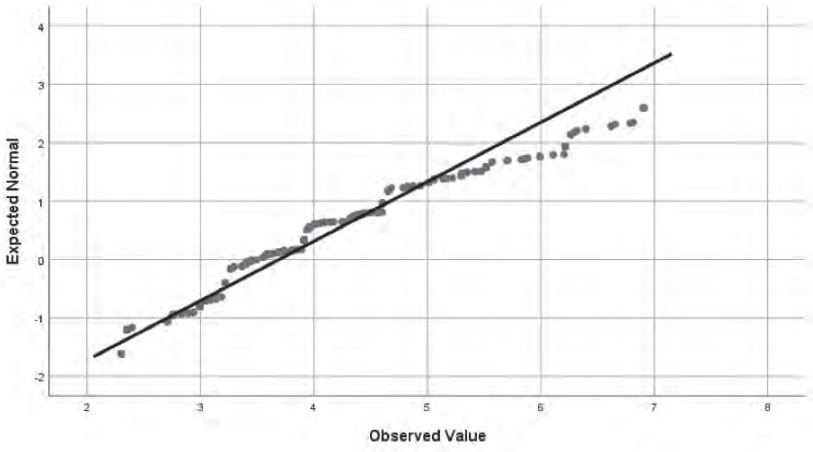



Figure 7: Q-Q plot of the natural log of the amounts donated, excluding outliers

# Appendix D

## Description of the project period stages

On average, the number of days since the project started at the time of donation was 32.69 days (*SD* = 19.67, *n* = 2,657), with a maximum of 96 days. Since this is longer than the time window we planned for the experiment, we focused solely on the projects that started before the launch of our study to divide the funding campaigns into stages. We computed a project funding stage based on the quantiles of the numbers of days since the project was launched since a donation. We categorized donations made in the first 25 days as belonging to the beginning of the campaigns. As it happens, donations made in the first 25 days also constitute the first quartile of donations made. These donations were assigned the value of 0. Donations made in the second and third quartile (the 25th to 75th percentile) were categorized as the middle of the campaigns. These donations were assigned the value of 1. Finally, donations made in the fourth quartile were made after 40 days since the beginning of the campaigns and were categorized as the end of the campaign (value 2).

Median amount donated per funding stage are reported in Table 2, number of donors per funding stage are reported in the figure below

.

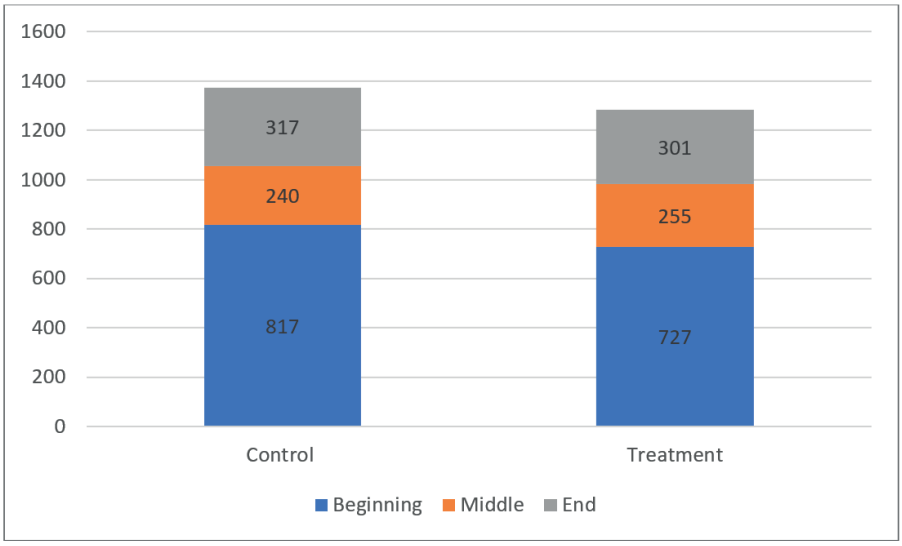



Figure 8: Number of donors per funding stage by condition

# Appendix E

**Project characteristics**

At each project page, a visitor can see additional information about the project: (1) the amount donated thus far, (2) the number of donors thus far and (3) the percentage of the target amount assembled thus far. We explored the robustness of the effect of social information with respect to these project characteristics in a regression analysis analyzing the natural log of donation amounts reported in Table 4. We provide estimates for two models: a. including all observations; b. excluding outliers. As in the main analyses, the results show positive coefficients for social information in both models. The significance level is sensitive to inclusion of outliers ($p$ = .051 including all donations, $p$ = .029 excluding outliers). The results also show that the total amount of previous donations is related to the amount donated by new donors, but the effect is miniscule. Model 3 shows a negative relationship between the amount donated and the total number of donations made to a project. However, the effect is small. The percentage of the target amount assembled is not related to the amount donated. In sum: the previously donated amount and the number of donations are related to the amounts donated. However, the relationship with the amount donated is miniscule and the effect of social information holds while including these additional information aspects.

Table 4: Regression analysis of the natural log of the amounts donated including project characteristics

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| | a | b | a | b | a | b | a | b |
| **Social information** | .08* | .09* | .08* | .09* | .08 | .08* | .08 | .08* |
| **Amount donated[1]** | | | 1.97*** | 1.79*** | 3.78*** | 3.28*** | 3.77*** | 3.26*** |
| **Number of donations** | | | | | -.01*** | -.01*** | -.01*** | <.01** |
| **Percentage assembled** | | | | | | | <.01 | <.01 |
| **Donors** | 2,657 | 2,638 | 2,657 | 2,638 | 2,657 | 2,638 | 2,657 | 2,638 |
| **Projects** | 119 | 119 | 119 | 119 | 119 | 119 | 119 | 119 |
| **Constant** | 3.68 | 3.65 | 3.62 | 3.60 | 3.69 | 3.66 | 3.58 | 3.53 |
| **R Square** | <.01 | <.01 | .02 | .02 | .03 | .03 | .03 | .03 |
| **Project fixed effects** | YES | YES | NO | NO | NO | NO | NO | NO |

Notes: a: including all observations; b: excluding outliers

1 multiplied by 1,000

***$p<.001$; **$p<.01$; *$p<.05$

# CHAPTER 5

## THEY OUGHT TO DO IT TOO: UNDERSTANDING EFFECTS OF SOCIAL INFORMATION ON DONATION BEHAVIOR AND MOOD

**Claire van Teunenbroek, René Bekkers & Bianca Beersma**

CvT, RB and BB designed the study; CvT collected the data and performed the statistical analyses; CvT wrote the article and RB and BB provided critical feedback on earlier drafts of the manuscripts.

This chapter is under review as: Van Teunenbroek, C., Bekkers, R., & Beersma, B. (2020). They ought to do it too: Understanding effects of social information on donation behavior and mood. International Review on Public and Nonprofit Marketing, May 2020.

This chapter was pre-registered as OTHERS ARE DOING IT TOO under number 20805 and available through As Predicted at https://aspredicted.org/vz83y.pdf

## Abstract

Social information, providing potential donors with information about the donation amount given by earlier donors, is often applied as an intervention in online donation contexts. It has been suggested that social information informs others about the most common (descriptive norm) or appropriate (injunctive norm) behavior, and that these perceived social norms explain its effects. We present evidence from a preregistered online experiment testing to what extent perceived social norms mediate effects of social information on charitable giving. In addition, we examine whether social information affects donors' moods. A positive mood after donating is important to avoid negative side effects of a nudge like social information. We argue that social information increases social pressure to donate in a certain way and therefore decreases donors' moods. In an experiment among British citizens ($n$ = 1,029), we manipulated descriptive and injunctive social information. We show that injunctive social information, mentioning the appropriate donation amount, increases donation amounts (10%) and donors' moods (10%). Contrary to earlier research, merely stating descriptive social information did not affect the donation behavior or mood. We found no evidence that social information affects giving behavior or mood via perceived social norms. Our findings how different types of social information affect charitable giving are important for fundraisers or policy makers aiming to increase charitable behavior.


**Keywords:** donation behavior, mood, online experiment, social information, social norms

Data, Syntax and electronic supplementary materials are available through the Open Science Framework at: https://osf.io/jqvaw/. This manuscript was pre-registered as OTHERS ARE DOING IT TOO under number 20805 and available through AsPredicted at https://aspredicted.org/vz83y.pdf

## 5.1 Introduction

What happens when fundraisers mention the donation amount of other donors? An intervention often applied in online donation contexts is to provide social information, that is: to provide potential donors with information about the donation amount given by earlier donors. Influencing decision-making with a discrete suggestion, or "nudging" (see Thaler & Sunstein, 2008), is increasingly popular. A nudge uses the human tendency to be influenced by ways in which information is presented and choices are constructed (Thaler & Sunstein, 2008). Practitioners largely depend on the effect of social information to increase donations, especially now that donation amounts are decreasing (Bekkers & van Teunenbroek, 2020; van Teunenbroek & Bekkers, 2020a). It is unclear, however, why social information affects charitable giving. A common explanation of the effects of social information refers to social information being perceived as a social norm. Even so, there are no studies that convincingly demonstrate that perceived social norms mediate social information effects in a charitable setting. Therefore, our central research question is: "To what extent does social information increase charitable giving and why?" With this research question, we aim to examine (1) a probable explanation for the direct effect of social information: social norms, and (2) a new outcome variable: mood.



First, we aim to test the proposed idea that social information effects are mediated by perceived social norms (Bicchieri & Xiao, 2009; Croson, Handy & Shang, 2009; Goeschl, Kettner, Lohse & Schwieren, 2018; van Teunenbroek & Bekkers, 2020b). In the literature on social norms, two categories of norms are usually distinguished: descriptive and injunctive social norms (Cialdini, Reno & Kallgren, 1990). Descriptive norms reflect what is normally done in a certain situation: they give information about the prevalence of behavior. Injunctive norms reflect what most people consider the right thing to do: they give information about which behavior is appropriate. Croson et al. (2009) found that mentioning descriptive norms affects giving by affecting the perceived descriptive norm. Bicchieri et al. (2009) found that people do not distinguish between the two norms: social information in the form of a descriptive norm or in the form of an injunctive social norm both influenced the perceived descriptive and injunctive social norm (Bicchieri et al., 2009). We argue, however, that the findings of Bicchieri et al. (2009) may not directly translate to a charitable setting. The participants were asked to distribute

an amount to another participant in a dictator game, which is more akin to private funding, while charities collect funding for a public good. Goeschl et al. (2018) did focus on a charitable context, but the participants were only presented with descriptive norms. In sum, these three experiments did include an explicit test for possible mediation of social information effects by perceived social norms, but the findings are either not directly applicable to a charitable context (Bicchieri et al., 2009), or ignored information based on injunctive norms (Croson et al., 2009; Goeschl et al., 2018). We will therefore further examine how social information changes charitable behavior by affecting the perception of social norms. In addition, we will test social information effects and measure perceived social norms in an online rather than an offline context. In an online context social pressure on adhering to norms is expected to be lower (van Teunenbroek, Bekkers & Beersma, 2020) and social information effects have been found to be less profound (Alpizar, Carlsson & Johansson-Stenman). As the importance of online fundraising for charities is increasing (Bekkers & van Teunenbroek, 2020), it is important to examine whether social information and social norms exert similar effects on donation behavior as have been found in offline contexts.

Second, we examine whether social information affects not only donation behavior, but also people's mood. A common criticism of the use of social information and nudges in general is that it comes at a price: most people dislike being "nudged" because it reduces their perception of control (Hagman, Reese, Seewalk & Loeschinger, 2015; Brehm & Brehm, 1981). People experience a positive mood when they feel in control of their own behavior (Dunn, Aknin & Norton, 2014; Harbaugh, Mayr & Burghart, 2007). We argue that social information decreases feelings of control, by informing people how to behave in order to appear kind and generous. People care about attaining a positive perception of one's self (Bem, 1972), and based on this, we expect people to follow the behavior of other kind and generous people to feel kind and generous as well. A potential donor might reason: '*I am a generous person, if other generous persons are donating a certain amount, I must do so as well*'. In this way, social information could decrease the perception of control and therefore it could decrease peoples' mood. Thus, social information could lead to a long-term negative effect of social information on donating as it could lead to a negative view of, or even aversion against, donating. Should our results support this idea, this would be problematic for charities aiming to increase donations by providing po-

tential donors with social information, as a positive mood is an important prerequisite for donating (O'Malley & Andrews, 1983). A positive mood after donating, therefore, is important for retaining charitable behavior over time. Unfortunately, studies dedicated to social information effects have tended to focus exclusively on influencing donation behavior and have ignored donors' mood. This research seeks to fill this gap.

In the present study, we make a further attempt to clarify the effects of social information in a charitable context on people's decision to donate, the donation amount and their mood. We conducted a preregistered[9] online experiment with British subjects accessed via an online platform (Prolific), in which we randomly assigned participants ($n$ = 1,029) to one of four conditions. In condition 1, the descriptive norm condition, we referred to the actual behavior of previous participants by mentioning: "*Did you know that other participants gave £5?"* In condition 2, the injunctive norm condition, we referred to other participants' expected behavior by mentioning: "*Did you know that other participants said that participants such as yourself should give £5?"* In condition 3, the both condition, we combined both norms by mentioning both the expected and actual amounts: "*Did you know that other participants gave £5 and they said that participants such as yourself should give £5?"* (4) The control condition included no social information.



## 5.2 Prior research and hypotheses

Most of the times people behave as others do (i.e. conforming, Bernheim, 1994). Researchers have offered various reasons for why people conform. Psychologists describe that peoples' behavior is largely motived by social factors and avoiding social sanctions, such as a desire for acceptance, prestige and popularity (Bernheim, 1994). However, in the absence of social monitoring and social sanctions, such as in an online environment, people have still been found to conform (Bøg, Harmgart, Huck, & Jeffers, 2012; Raihani & Smith, 2015; Sasaki, 2019, Smith, Windmeijer & Wright, 2015). For instance, Sasaki (2019) found that donors donating via an online platform in Japan prefer to donate amounts that resemble previously donated amounts. Thus, apparently, avoiding potential social sanctions is not the

9 This manuscript was pre-registered as OTHERS ARE DOING IT TOO under number 20805 and available through AsPredicted at https://aspredicted.org/vz83y.pdf. Since the preregistration, we changed the order in which we discuss the hypotheses. An overview of the original lineup can be found in the electronic supplemental materials or on the Open Science Framework at: https://osf.io/jqvaw/.

only reason why people conform. Maintaining a positive self-concept has also been argued to be an important motivator for following others (Brewer & Roccas, 2001; Pool, Wood & Leck, 1998). Economists assume that people follow others because they are inclined to imitate those who are expected to be better informed (Bikhchandani, Hirshleifer & Welch, 1992; Conlisk, 1980). Another explanation for following norms is that people act like others to create mutually positive externalities (Banerjee & Besley, 1990; Katz & Shapiro, 1986): if all donate higher amounts, the chance of reaching the target goal is higher.

From the above, it follows that if others' behavior is described, people tend to adjust their behavior to that of others (Van Teunenbroek, Bekkers & Beersma, 2020). Studies show that, social information based on descriptive (for example, Kawamura, Ida & Ogawa, 2019; Sasaki 2019; Van Teunenbroek & Bekkers, 2020) or injunctive (Bicchieri et al., 2009) norms have been shown to increase donation amounts. Hence, both information about what others tend to do or what others see as appropriate should influence peoples' donation behavior. We examine how people adjust their donation amount as a function of the type of social norm that is tied to social information. We propose that:

*Hypothesis 1a: Descriptive social information increases the donation amount among donors.*

*Hypothesis 1b: Injunctive social information increases the donation amount among donors.*

The two types of norms do not always influence behavior to the same extent (Cialdini et al., 1990; Schultz et. al., 2018). Bicchieri et al. (2009) found that participants in an offline dictator game are more likely to follow social information based on the descriptive than the injunctive norm, if both are present. The researchers explain their finding by observing that while people are expected to follow both type of norms, repercussions are less likely to occur when a large group is not following the norm. As a result, we expect that fewer people follow injunctive social information than descriptive social information. We examine whether this still holds in an online and charitable context, where the behavior is not observed by others. In doing so, we tested the following hypothesis:

*Hypothesis 1c: Descriptive social information increases the donors' donation amount more than injunctive social information.*

Our next hypothesis refers to whether combining the descriptive and injunctive norm leads to a stronger effect than mentioning one at a time. We expect that social information based on both a descriptive and injunctive norm is more effective than information based on only one of these norms. More recent work on charitable behavior recognizes that a large percentage of donors donate while they prefer not to do so (that is, reluctant giving, DellaVigna et al., 2012; Andreoni, et. al., 2017). We argue that some people, presented with social information mentioning a descriptive norm, excuse themselves from following the information by telling themselves that they follow the injunctive norm instead, they might reason: "*other donors might donate that amount but that does not mean that I have to do so.*" Alternatively, donors could ignore an injunctive social norm and follow the descriptive norm instead. In this case, someone might reason: "*other people may think I ought to donate that amount, but other people are not doing it either*." In both cases, donors come up with an excuse not to conform to the social norm and thus save money. However, if both norms are presented, no such excuses can be made, and it becomes harder to ignore the information. We examine if combining both norms leads to a stronger effect of social information; therefore, we tested the following hypothesis:

*Hypothesis 1d: Mentioning both descriptive and injunctive social information increases the donation amount among donors more than mentioning either the descriptive or injunctive social information.*

The prevailing suggestion for why people follow social information is because they interpret information about the behavior of others as a social norm (Blake et al., 1955; Bøg et al., 2012; Croson et al., 2009; Croson & Shang, 2008, 2013; Edwards & List, 2013; Meyer & Yang, 2015; Murphy et al., 2015; Sasaki, 2019; Smith et al., 2015). We are aware of three studies that included an explicit test of participants' perception of social norms (Bicchieri et al., 2009; Croson et al. 2009; Goeschl et al. 2018). These studies report that social information changes both the perceived descriptive norm (Bicchieri et al., 2009; Croson et al., 2009; Goeschl et al., 2018) and the injunctive norm (Bicchieri et al., 2009). Donors do not seem to distinguish between the actual or appropriate donation amount and are influenced by both forms of social information. In accordance, we propose that:

*Hypothesis 2: The relation between social information and donation behavior is mediated by perceived social norms.*

The few studies reporting social information effects on the decision to donate found no effect of social information on the participation rate (the decision to donate; Goeschl, 2018; Klinowski, 2015; Murphy et al., 2015; Reingen, 1982; van Teunenbroek & Bekkers, 2020b). In the current study, participants were informed that they could make certain decisions with their windfall money (earned by winning a lottery after successfully completing a test), before being confronted with social information, namely in the introduction of the study. Because of this order, it is likely that some participants have already decided to keep the money instead of using it for something (like giving it away), before being confronted with social information. As a result, social information is unlikely to affect the decision to donate. In accordance, we propose that:

*Hypothesis 3: The decision to donate is similar among participants who received social information and participants who did not receive social information.*

### *5.2.1 Effects on mood*

Studies on prosocial behavior show that donors experience a positive mood change after donating, also referred to as the joy of giving (Steinberg, 1987). A more recent study that randomly assigned participants to spend windfall money either on themselves or on someone else found that participants who gave away money reported happier moods (Dunn, Whillans, Norton & Aknin, 2020). It is suggested that people experience a positive mood after donating, because it alleviates feelings of guilt or it makes people feel better because they acted in line with a specific self-image (Bekkers & Wiepking, 2011). In accordance we propose the following hypothesis[10]:

*Hypothesis 4a: Donors report happier moods than non-donors.*

10 Since the preregistration, we changed the presentation of this hypothesis (2d in the preregistration), but the content remains the same. Hypothesis 2d stated: "Individuals who donated feel happier than individuals who do not donate, but especially if they were not confronted with social information. Thus, social information moderates the relation between donating and happiness". We decided to split hypothesis 2d into two separate hypotheses. First, we explain the direct effect of donating on mood (hypothesis 4a).

Second, we discuss the moderating effect of social information (hypothesis 4b). We came to this decision after careful reflection, and we changed the presentation to make the text as simple as possible.

Yet the magnitude of the effect depends on the extent to which donors perceive autonomy with regards to the decision to donate or not (Dunn, Aknin & Norton, 2014; Harbaugh, Mayr & Burghart, 2007); donors experience happier moods when they give more, rather than less, money away, but only if they have a choice about how much to donate (Weinstein & Ryan, 2010). We argue that social information decreases feelings of autonomy, because it provides a possible answer to the question: how should I behave to be a kind and helpful person? According to self-perception theory, people want to retain a positive self-perception, which is attained by interpreting their own behavior (Bem, 1972). Because social information shows the amount that other generous and kind people gave, it might make potential donors feel forced to follow the example set by social information, to feel kind and generous as well. As such, social information might decrease the perception of control: donating a certain amount (an amount that is in line with social information) confirms to the donor that she has positive personality traits (Baumeister, 1998; Bem, 1972), while deviating from the amount suggested by social information disconfirms this belief. Thus, donating an amount lower than the amount suggested by social information could make donors feel ungenerous and unkind, whereas an amount that is higher than the amount suggested by social information could make them feel like a showoff. What is left then, is to donate an amount that resembles the amount of others, which decreases donors perception of control and, as a result, their moods. Therefore, we expect that social information moderates the relation between donating and happiness. We propose the following hypothesis:

*Hypothesis 4b: Donors report happier moods than non-donors, especially if they were not presented with social information.*

In addition, among those who decide to donate we expect a negative effect of social information on mood. As previously stated, people may experience decreasing control as a result of social information, which negatively affects donors' mood (Brehm & Brehm, 1981) as human well-being partially depends on the feeling of autonomy (Weinstein & Ryan, 2010).
In accordance, we propose that (among donors only):

*Hypothesis 4c: Descriptive social information decreases donors' moods.*

*Hypothesis 4d: Injunctive social information decreases donors' moods.*

The existing research suggests that descriptive social norms affect behavior more strongly than injunctive social norms (Bicchieri et al., 2009; Rivis & Sheeran, 2003). Therefore, we expect that descriptive social norms have a stronger negative effect on mood than injunctive social norms. To examine this, we propose the following hypothesis (among donors only):

*Hypothesis 4e: Descriptive social information decreases donors' moods more so than injunctive social information.*

We expect that presenting both forms of social information at the same time decreases the perception of control more than presenting just one form of social information. Freedom of choice is an important aspect of happiness (Weinstein & Ryan, 2010), and we expect, therefore, that information based on both norms decreases the feeling of autonomy more than information based on one of these norms. In accordance, we propose that (among donors only):

*Hypothesis 4f: Mentioning both descriptive and injunctive social information decreases donors' mood more than mentioning either the descriptive or injunctive social information.*

In addition, we tested whether the relation between social information and mood is mediated by the perceived social norm, as suggested by the literature on social information effects on donation amounts (Bicchieri et al., 2009; Croson et al. 2009; Goeschl et al. 2018; Sasaki, 2019; Smith et al., 2015; van Teunenbroek & Bekkers, 2020b). Therefore, we tested the following hypothesis (among donors only):

*Hypothesis 4g: The relation between social information and mood is mediated by perceived social norms.*

## 5.3 Methods

To test the hypotheses, we conducted an online survey experiment on the British online platform Prolific, which enables researchers to find participants to collect reliable and high-quality data. The data for this study were collected between March 13, 2019 and March 19, 2019, resulting in a sample of 1,029 participants. We invited only participants with British nationality for the experiment. No other requirements were set. The participants were paid per minute (£8.58/hr.). We preregistered the experiment at Aspredicted.org (see https://aspredicted.org/vz83y.pdf).

### *5.3.1 Participants*

The sample characteristics of the participants revealed that 64% of the participants identified themselves as women. The average age was 38 years (*SD* = 12.51). The largest share of participants donated to charities on a regular basis: 37% gave bi-annually, and 31% gave bi-monthly. Only 4% indicated that they gave rarely, and none of the participants indicated that they never donated on a yearly basis. Additional sample characteristics are outlined in Appendix A.

### *5.3.2 Research design and procedure*

The study consisted of five parts: introduction, vocabulary test, donation task, survey and debriefing (see Figure 1).

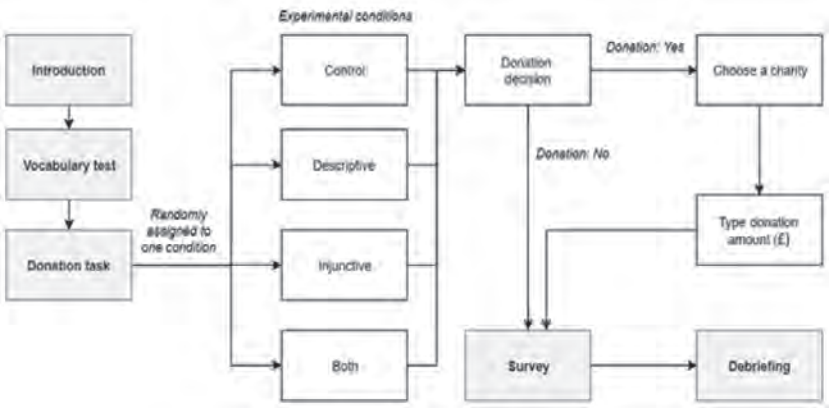



Figure 1. Flowchart of the research design and procedure

At the beginning of the study, we informed the participants that the study was part of a series of studies, and that this was a follow-up study. Participants were told that we might show them information about the behavior of participants in earlier studies, and that their own behavior and choices might be shown to other participants in later studies. In addition, we explained that we would raffle several £10 gift cards among those who successfully completed the vocabulary test and that they could decide what to do with the money.

We included the vocabulary test to make sure that if participants won the gift card, they felt they earned the £10. We used the vocabulary test from the General Social Survey in the United States (Malhotra, Krosnick & Haertel, 2007). The test consists of ten items, ranging from very easy to difficult, which tests vocabulary knowledge. Each item includes a word for which participants must find the synonym out of a set of five choices. The score is calculated by adding the number of correct answers, with 10 being the highest possible score.

We did not clearly define a criterion for "success" in our study. Regardless of their performance, all participants were included in the lottery: we informed all participants that they had performed well enough to participate in the lottery, and all participants won a £10 gift card. After the lottery, participants entered the donation task (see the supplementary information for a full description), with which we assessed how people adjusted their donation behavior to social information as a function of the type of social norm tied to the information. We employed a 2 (social information based on a descriptive norm: yes vs. no) x 2 (social information based on an injunctive norm: yes vs. no) design (see Table 1).

Table 1. Schematic overview of the four conditions participants were randomly assigned to.

| | | **Descriptive social norm** | |
|---|---|---|---|
| | | **No** | **Yes** |
| **Injunctive social norm** | **No** | Control: - | Descriptive: *Did you know that other participants gave £5?* |
| | **Yes** | Injunctive: *Did you know that other participants said that participants such as yourself should give £5?* | Both: *Did you know that other participants gave £5 and said that participants such as yourself should give £5?* |

There was virtually no non-response (1%), and a chi-square test confirmed that participants had been randomly assigned to one of the conditions ($X^2$ = 4.23, $n$ = 1,029, $p$ = .219). After assigning participants to conditions, we presented them with a list of charities and measured the dependent variables "decision to donate" and "donation amount" by asking them if they wanted to keep the money, or if they wanted to donate a part of the £10 earnings to a charity of their choosing, and if so, how much.

The donation task was followed by a series of questions. To measure the dependent variable "mood", for instance, we asked participants one question, derived from Whillans, Dunn, Smeets, Bekkers & Norton (2017): *"How are you feeling at this moment?"* Response options ranged from 1 ("Very bad") to 10 ("Very good"). To measure the mediator "perceived descriptive norms," participants were also asked to indicate how much they thought other people had donated (Goeschl et al., 2018): "*On average, how much (of the £10 gift card) do you think other participants donated? Please indicate the amount"*. Participants could enter amounts ranging from £0 to £10. To measure the mediator "injunctive social norm", we asked participants to indicate how much they thought others should have donated: *"what amount do you think other participants should have donated?"* Participants could enter amounts ranging from £0 to £10.

To verify that participants had perceived the manipulation (in other words, perception manipulation check), we asked participants in the treatment conditions if they had seen any information about the other participants' behavior. Next, we asked them to describe the information (open answer), to confirm that they really saw the information. The electronic supplementary information includes a full description of the manipulation check.

### *5.3.4 Descriptive statistics and treatment of the data*

Table 2 shows the correlations between variables conducted among the complete sample (donors and non-donors). While we expected no effect of social information on the decision to donate, mentioning both norms correlated significantly with the decision to donate. Mentioning only descriptive or injunctive norms did not significantly correlate with the decision to donate. We expected a positive effect of social information on the donation amount, however, none of the conditions significantly correlated with the donation amount. We expected a negative effect of social information on donors' mood; however, we found a positive and significant correlation

between the injunctive condition and mood. Mentioning descriptive or both norms correlated negatively with donors' mood, but not significantly so. The perceived descriptive and injunctive norms correlated significantly with both the decision to donate and the donation amount, with the perceived injunctive norm resulting in a stronger correlation. However, donors' mood was only significantly correlated with the perceived injunctive norm, and not with the perceived descriptive norm. The two perceived norms were significantly and positively correlated. In addition, there was no significant correlation between our manipulation and the perceived social norms. An exception is the negative correlation between the descriptive condition and the perceived descriptive norm. It appears that the descriptive condition is correlated with a lower perceived descriptive norm, while we expected this relationship to be positive. Overall, we conclude that our manipulation barely or not at all affected the perceived norms.

Table 2. Intercorrelations between the main variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Descriptive condition[a] | - | - | - | - | - | - | - | - | - |
| 2. Injunctive condition[a] | -.33*** (<.001) | - | - | - | - | - | - | - | - |
| 3. Both condition[a] | -.34*** (<.001) | -.34*** (<.001) | - | - | - | - | - | - | - |
| 4. Donation decision[b] | -.04 (.158) | .01 (.705) | .06 (.074) | - | - | - | - | - | - |
| 5. Donation amount[c] | -.04 (.243) | .02 (.594) | .04 (.234) | .79*** (<.001) | - | - | - | - | - |
| 6. Mood[d] | -.001 (.963) | .07* (.033) | -.001 (.932) | .13*** (<.001) | .14*** (<.001) | - | - | - | - |
| 7. Perceived descriptive norm[e] | -.07* (.032) | -.004 (.900) | -.004 (.895) | .08** (.009) | .30*** (<.001) | .03 (.430) | - | - | - |
| 8. Perceived injunctive norm[e] | -.05 (.126) | .003 (.936) | -.01 (.770) | .36*** (<.001) | .55*** (<.001) | .09** (.005) | .52*** (<.001) | - | - |
| 9. Manipulation check[f] | .26*** (<.001) | .08* (.012) | .25*** (<.001) | .14 (.665) | -.10* (.002) | -.02 (.459) | -.16*** (<.001) | -.003 (.912) | - |

Note. N = 1,029, including both donors and non-donors. The p-values are reported between the brackets.

[a]The different social information conditions are included as dummies on a set of 0-1 indicators for

each condition, with participants of the control group in the (omitted) reference category.

[b]1- if a participant decided to donate and 0- if a participant decided not to donate (i.e. non-donors).

[c]Values reflect the donation amount, answers ranged from 0 to 10.

[d]Values reflect a participants' mood on a scale from 0 to 10.

[e]Values reflect the perceived norm, answers ranged from 0 to 10.

[f]1- described the information in our manipulation accurately and 0- did not describe the information accurately.

***indicates p<.001, ** indicates p<.01, * indicates p<.05

The histograms in Figure 2 show a peak of £10 donations at the far end. The peak occurs in all four conditions, suggesting that social information had no effect on the number of donors giving £10: the percentage of participants donating £10 was similar across different conditions (see Table 3).

Table 3. Distribution of donation amounts by conditions

| | **All participants** | **Among donors** | | | |
|---|---|---|---|---|---|
| | £0 | £1 - £5* | £5** | £6-£9 | £10 |
| Control | 61% | 53% | 26% | 2% | 19% |
| Descriptive condition | 59% | 52% | 32% | 2% | 15% |
| Injunctive condition | 64% | 47% | 34% | 3% | 17% |
| Both condition | 68% | 44% | 37% | 1% | 18% |
| Total | 63% | 49% | 32% | 2% | 17% |

** significant at a .01 level, * significant at a .05 level

While the social norm provided them with an excuse to give £5 and save money (van Teunenbroek & Bekkers, 2020), this group of participants still gave away their complete endowment. Deaton and Cartwright (2018) suggest that eliminating observations is appropriate in some cases. As we know that social information effects are restricted (in other words, not everyone is affected, see Murphy et al. (2015) and Shang et al. (2009)), and as earlier studies report that a minority of participants in giving experiments donate their complete endowment regardless of the treatment they receive (Bekkers, 2015; Bekkers, 2012; Engel, 2011), we excluded the group of donors who donated £10 ($n$ = 176) from our analysis. The findings including all donors can be found as electronic supplemental materials.

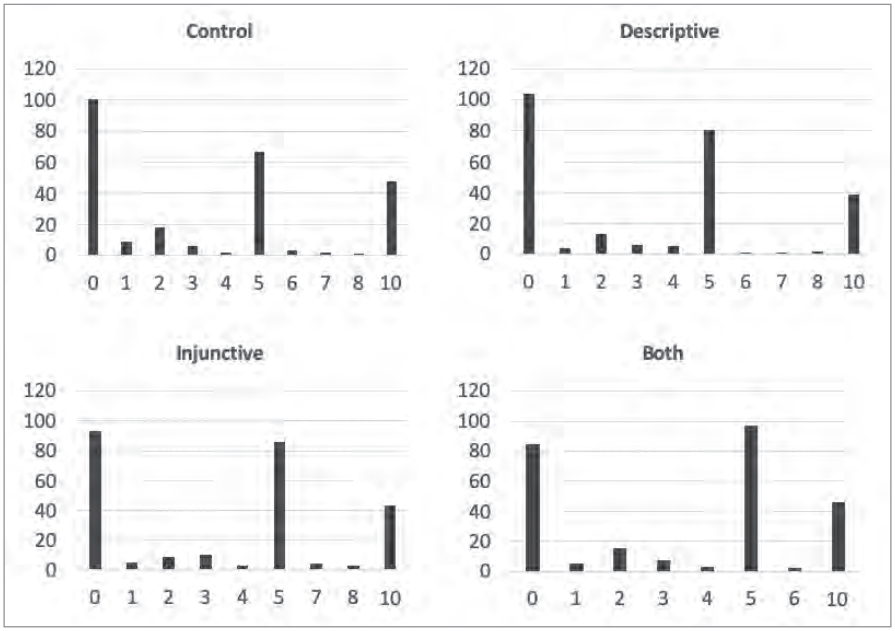



Figure 2. Histograms reporting the frequencies of the amounts donated by condition

Apart from Hypotheses 3, 4a and 4b, we tested the hypotheses among donors only. We opted for this method to make the results comparable with the leading articles focused on social information effects in a charitable context (Croson, Handy & Shang 2009, 2010; Croson & Shang,2008, 2013; Shang & Croson 2009; Shang, Reed & Croson 2008), since these analyzed effects solely among donors.

## 5.4 Results

Table 4 reports the descriptive statistics by condition. We will discuss the hypotheses one by one in the sections below. Unless noted otherwise, we conducted a multiple regression analysis in which we regressed the donation amount on a set of 0-1 indicators for each condition, with participants of the control group in the (omitted) reference category.

Table 4. Descriptive statistics by condition, with the control group as a reference.

| | Number of participants | % that gave | Average donation amount among donors(in £) | Average donors' mood | Perceived descriptive norm | Perceived injunctive norm |
|---|---|---|---|---|---|---|
| Control condition | 209 | 52% | 4.10 (*SD* = 1.62) | 6.39 (*SD* = 1.87) | 4.06 | 4.23 |
| Descriptive condition | 217 | 52% | 4.45(*) (*SD* = 1.31) | 6.73 (*SD* = 1.78) | 4.20 | 4.59 |
| Injunctive condition | 213 | 57% | 4.53* (*SD* = 1.43) | 7.02* (*SD* = 2.03) | 4.35 | 4.64 |
| Both | 214 | 61% | 4.35 (*SD* = 1.28) | 6.78 (*SD* = 1.85) | 4.22 | 4.43 |
| All | 853 | 56% | 4.36 (*SD* = 1.42) | 6.78 (*SD* = 1.85) | | |

*significant at a .05 level, (*) significant at a .10 level



### *5.4.1 Social information increased donation amounts*

We hypothesized a positive effect of all three forms of social information (Hypotheses 1a, 1b and 1d). Our data only support Hypothesis 1b, with a positive effect of social information using an injunctive norm. Participants who were informed about injunctive social information gave 10% higher amounts ($M$ = 4.53, $SD$ = 1.43) than participants who received no social information ($M$ = 4.10, $SD$ = 1.62), $b$ = .43, $n$ = 473 $p$ = .022.

We found no support for Hypothesis 1a, in which we predicted a positive effect of social information using a descriptive social norm. While participants presented with descriptive social information donated 9% higher amounts than participants who received no social information, the difference was only marginally significant ($b$ = .35, $n$ = 473 $p$ = .065). In addition, we found no support for Hypothesis 1d, in which we expected that presenting both norms would affect donation amounts. Participants confronted with both types of social information at the same time donated 6% higher amounts than those who received no social information, but the difference was not significant ($b$ = .25, $n$ = 473, $p$ = .168).

In addition, we found no support for Hypothesis 1c, stating that descriptive norms would increase the donation amounts more so than injunctive norms. We conducted a multiple regression analysis in which we regressed

the donation amount on a set of 0-1 indicators for each condition, with participants of the *injunctive* group in the (omitted) reference category. Compared with injunctive social information, descriptive social information yielded similar donation amounts. The difference between the descriptive and injunctive condition was not significant (see Table 5).

Table 5. Multiple regression with dummies for social information on donation amounts, with the injunctive group in the reference category (n = 473)

| | | | 95% Confidence interval | |
|---|---|---|---|---|
| | b (SE) | p-value | Lower bound | Upper bound |
| Constant | 4.53 (.13) | .001 | 4.277 | 4.781 |
| Descriptive condition | -.08 (.19) | .674 | -.440 | .285 |
| Both condition | -.18 (.18) | .326 | -.525 | .175 |
| Control condition * | -.43 (.19) | .022 | -.794 | -.062 |

*significant at a .05 level

### *5.4.2 Social information effects on donation amounts are not mediated by perceived social norms*

We hypothesized (H2) that the effect of social information on donation amounts among donors would be mediated by the perception of social norms. To test the mediations with the multicategorical independent variable (i.e. different forms of social information), we used the PROCESS model for multicategorical independent variable of Hayes & Preacher (2014). We used indicator coding (i.e. dummy coding), where the control group functions as the reference group. Using dummy coding for the independent variable, the mediation model is parameterized with two equations, one for the mediator (*M)* and one for the dependent variable (*Y)*:

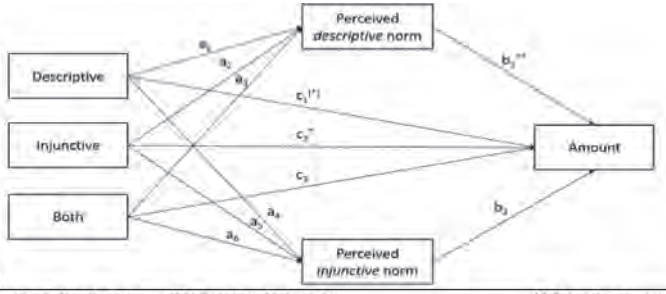
$$M = i_1 + a_1 D_1 + a_2 D_2 + a_3 D_3 + e_M$$

$$Y = i_2 + c'_1 D_1 + c'_2 D_2 + c'_3 D_3 + e_Y$$

This approach ensures that we retain all information about how the three treatment groups differ from the control group. The total effect ($c_i$) and relative direct effect ($c'_i$) are reported in Figure 3. The relative indirect effect ($a_i b_i$) in this model refers to the effect of social information on donation amount through perceived social norms. First, we discuss the relative indirect effect through the perceived *descriptive* norm, and second, we discuss the effect

through the *injunctive* norm. There was no significant relative indirect effect of mentioning descriptive social information on donation amounts through perceived *descriptive* norms, *b* = .05, BCa CI [-0.731, 0.263]. There was no significant indirect effect of mentioning injunctive social information on donation amounts through perceived descriptive norms, *b* = .11, BCa CI [-0.055, 0.255]. There was no significant relative indirect effect of mentioning both types of social information on donation amounts through perceived descriptive norms, *b* = .06, BCa CI [-0.055, 0.255].

We found similar effects with the perceived *injunctive* norm, namely no significant relative indirect effect of either of the social information forms on donation amounts. There was no significant relative indirect effect of mentioning descriptive social information on donation amounts through perceived injunctive norms, *b* = .001, BCa CI [-0. 032, 0. 201]. There was no significant indirect effect of mentioning injunctive social information on donation amounts through perceived injunctive norms, *b* = .001, BCa CI [-0.013, 0.255]. There was no significant relative indirect effect of mentioning both types of information on donation amounts through perceived injunctive norms, *b* = .01, BCa CI [-0. 140, 0. 074].




| Outcome: | | M1: Perceived descriptive norm | | | M2: Perceived injunctive norm | | | Y: Donation amount | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *b* (SE) | p-value | | *b* (SE) | p-value | | *b* (SE) | p-value | | *b* (SE) | p-value |
| Constant | $i_1$ | 4.06 (.14) | <.001 | $i_2$ | 4.23 (2.19) | .054 | $i_4$ | 4.10 (.14) | <.001 | $i_3$ | 2.48 (.21) | <.001 |
| Descriptive condition | $a_1$ | .14 (.19) | .489 | $a_4$ | .36 (3.07) | .908 | $c_1$ | .35 (.19) | .065 | $c'_1$ | .30 (1.71) | .087(*) |
| Injunctive condition | $a_2$ | .28 (.19) | .140 | $a_5$ | .41 (3.02) | .892 | $c_2$ | .43 (.19) | .022 | $c'_2$ | .31 (1.85) | .066(*) |
| Both condition | $a_3$ | .15 (.19) | .423 | $a_6$ | 3.96 (2.97) | .183 | $c_3$ | .25 (.18) | .168 | $c'_3$ | .18 (.17) | .275 |
| M1 | | | | | | | | | | $b_1$ | .40 (.04) | <.001** |
| M2 | | | | | | | | | | $b_2$ | .002 (.003) | .358 |

** significant at a .01 level, *significant at a .05 level, (*) significant at a .10 level
Note: the labels 'descriptive', 'injunctive', and 'both' in the figure refer to dummies for social information on donation amounts, with the control group in the reference category.

Figure 3. Model of social information (included as dummies) as a predictor of donation amounts, mediated by two mediators in parallel: relation perceived descriptive injunctive social norm.

In sum, the perceived norms were unaffected by our manipulation of mentioning social information. However, the perceived descriptive norm was correlated with the donation amount, while the perceived injunctive norms were not correlated with the donation amount. The analysis does not support Hypothesis 2, the relation between social information and donation behavior is not mediated by perceived social norms.

### *5.4.3 No increase in the decision to donate because of social information*

We expected no effect of social information on the decision to donate, see Hypothesis 3, to test this we run a series of chi square tests. As expected, none of the conditions significantly increased the number of donors (see Table 4), in comparison with the control group. A chi-square test shows that stating descriptive social information left the number of donors unaffected, $X^2$ (1, $N$ = 426) < .01, $p$ = .987). Stating injunctive social information increased the proportion of participants making donations but this difference was not significant ($X^2$ (1, $N$ = 422) = .92, $p$ = .337). Stating both norms seems to increase the proportion of donors more strongly, but the difference was not significant at conventional levels ($X^2$ (1, $N$ = 423) = 3.18, $p$ = .075). The results support Hypothesis 3; social information did not affect the decision to donate.

### *5.4.4 Donating increases participants' mood*

In Hypothesis 4a, we predicted a positive effect of the decision to donate on mood. As expected, a regression analysis showed that donors reported 9% happier moods ($M$ = 6.74, $SD$ = 1.89) than non-donors ($M$ = 6.17, $SD$ = 2.22), $b$ = .57, $n$ = 853, $p$ <.001. We found no support for Hypothesis 4a.

In Hypothesis 4b, we predicted that the positive effect of the decision to donate on mood would be stronger among participants presented with social information. To review whether the relation of the decision to donate on mood was moderated by any of the social information conditions, we used the PROCESS model for multicategorical moderating variable. We regressed the effect of donating on peoples' mood, including social information as a moderator on a set of 0-1 indicators for each condition, with participants of the control group in the (omitted) reference category.

None of the social information conditions moderated the effect of donating on peoples' mood (see Table 6). We found no support for Hypothesis 4b.

Table 6. Multiple regression with donors as a predictor of peoples' mood, and social information as a moderator. With dummies for social information, with the control group in the reference category (n = 853)

| | | | 95% Confidence interval | |
|---|---|---|---|---|
| | b (SE) | p-value | Lower bound | Upper bound |
| Constant | 6.11 (.20) | <.001 | 5.709 | 6.511 |
| Donation decision | .28 (.28) | .331 | -.280 | .831 |
| Descriptive condition | .01 (.29) | .985 | -.556 | .567 |
| Injunctive condition | .28 (.30) | .344 | -.298 | .861 |
| Both condition | -.04 (.30) | .899 | -.632 | .555 |
| Descriptive condition *donation decision | .34 (.40) | .399 | -.443 | 1.113 |
| Injunctive condition *donation decision | .36 (.40) | .371 | -.427 | 1.143 |
| Both condition *donation decision | .43 (.40) | .285 | -.340 | 1.220 |

¨ significant at a .01 level, *significant at a .05 level, (·) significant at a .10 level

### *5.4.5 Social information increases donors' mood*

Next, we tested how donors' moods were affected by social information. We hypothesized a negative effect of all three forms of social information on the donors' mood (Hypotheses 4c, 4d and 4f). However, we found a positive direction for all forms of social information, though not all significant (see Table 4). We found effects like those found for donation amount: solely mentioning injunctive social information resulted in a significant positive effect. Though we expected a negative effect, donors informed about injunctive social information reported significantly better moods (10%) than participants in the control condition ($b$ = .64, $n$ = 473, $p$ = .011). The size of the effect of injunctive social information on donors' moods (10%) is in line with the effects on the donation amount (also about 10%).

Mentioning descriptive social information had no effect on donors' moods (Hypothesis 4c). While a regression analysis showed that participants confronted with descriptive social information reported higher levels of happiness (5%) than participants who received no social information, the effect was not significant ($b$ = .34, $n$ = 473, $p$ = .179). In addition, mentioning both social information types at the same time did not significantly affect donors' moods (Hypothesis 4f). While donors confronted with both types of social information reported 6% better moods than those who received no social information, the effect was not significant, $b$ = .39, $n$ = 473, $p$ = .110.

We found no support for Hypothesis 4e, stating that descriptive social information had a stronger negative effect than injunctive social information. We conducted a multiple regression analysis in which we regressed the donors' mood on a set of 0-1 indicators for each condition, with participants of the injunctive group in the (omitted) reference category. Compared with injunctive social information, the descriptive social information decreased donors' mood with 4%. The difference between the injunctive and descriptive condition was not significant (see Table 7), $b$ = -.30, $n$ = 473, $p$ = .226.

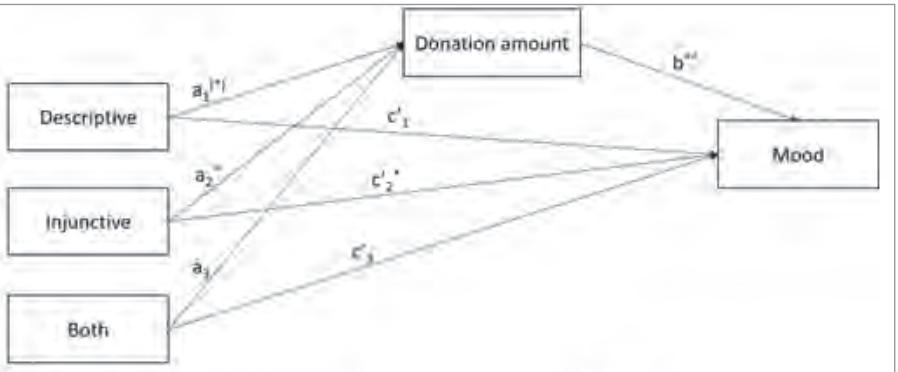
Table 7. Multiple regression with dummies for social information effects on donors' mood, with the injunctive group in the reference category (n = 473)

| | | | **95% Confidence interval** | |
|---|---|---|---|---|
| | b (SE) | p-value | Lower bound | Upper bound |
| Constant | 7.03 (.17) | <.001 | 6.688 | 7.362 |
| Descriptive condition | -.30 (.25) | .226 | -.784 | .186 |
| Both condition | -.25 (.24) | .299 | -.716 | .220 |
| Control condition* | -.64 (.25) | .011 | -1.129 | -.150 |

** significant at a .01 level, * significant at a .05 level, (*) significant at a .10 level

In addition, we examined whether the effect of social information on donors' mood was mediated by their donation amount. We once again relied on the PROCESS model for multicategorical independent variable of Hayes & Preacher (2014): conducting a mediation analyses with dummy coding for the independent variable, with participants of the control group in the (omitted) reference category. The total effect ($c_i$) and relative direct effect ($c'_i$) are reported in Figure 4.

The relative indirect effect ($a_i b_i$) in this model refers to the effect of social information on donors' mood through donation amounts. There was a significant relative indirect effect of mentioning the injunctive norm on donors' mood through donation amounts, $b$ = .09, BCa CI [0.010, 0.220]. Hayes et al. (2014) discourage reporting an effect size while working with relative effect sizes, since contrast options are not yet available for mediations with multicategorical independent variables. However, we do see that including donation amount as a mediator decreases the correlation between injunctive norm and mood with only 14%. Therefore, the effect of injunctive norms on mood is unlikely to be fully mediated by donation amounts.




| Outcome: | M: Donation amount | | | Y: Mood | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *b* (SE) | p-value | | *b* (SE) | p-value | | *b* (SE) | p-value |
| Constant | $i_1$ | 4.10 (.14) | <.001 | $i_3$ | 6.39 (.18) | <.001 | $i_2$ | 5.56 (.31) | <.001 |
| Descriptive condition | $a_1$ | .35 (.19) | .065 | $c_1$ | .34 (.25) | .180 | $c'_1$ | .27 (.25) | .284 |
| Injunctive condition | $a_2$ | .43 (.19) | .022 | $c_2$ | .64 (.25) | .011 | $c'_2$ | .55 (.25) | .026 |
| Both condition | $a_3$ | .25 (.18) | .168 | $c_3$ | .39 (.24) | .111 | $c'_3$ | .34 (.25) | .162 |
| M | | | | | | | *b* | .20 (.06) | .001 |

** significant at a .01 level, *significant at a .05 level, (*) significant at a .10 level

Note: the labels 'descriptive', 'injunctive', and 'both' in the figure refer to dummies for social information on donation amounts, with the control group in the reference category.

Figure 4. Model of social information (included as dummies) as a predictor of donors' mood, mediated by donation amount

There was no significant relative indirect effect of mentioning the descriptive norm, *b* = .09, BCa CI [-0.001, 0.204]. Nor was there a significant relative indirect effect of mentioning the both norms, *b* = .05, BCa CI [-0. 015, 0. 163].

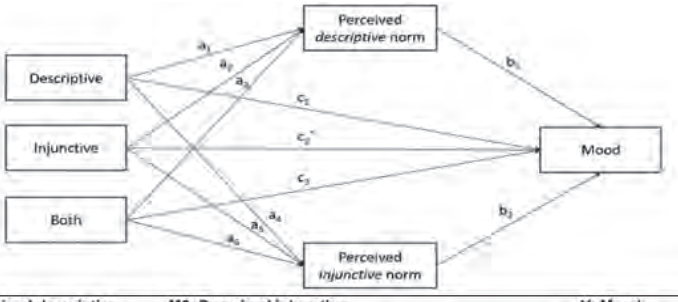
In sum, the effect of mentioning injunctive norms on donors' mood is mediated by the donation amount, but the effects of mentioning descriptive or both norms are not. Mentioning the injunctive norm increases participants donation amounts and as a result', their mood.

### *5.4.6 Social information effects on donors' mood are not mediated by perceived social norms*

As a final step, we tested whether the effect of social information on donation amounts was mediated by perceived norms (Hypothesis 4g). Like the effect on the donation amount, however, the relation between social information and mood was not mediated by perceived social norms. We used the PROCESS model for multicategorical independent variable of Hayes & Preacher (2014), with participants of the control group in the (omitted) reference category. The total effect ($c_i$) and relative direct effect ($c'_i$) are reported in Figure 5. The relative indirect effect ($a_ib_i$) in this model is the effect of social information on donors' mood through perceived social norms. Which was constructed by multiplying $a_i$ by $b_i$. First, we discuss the relative indirect effect through the perceived *descriptive* norm, and second, we discuss the effect through the *injunctive* norm.

There was no significant relative indirect effect of mentioning descriptive social information on peoples' mood through perceived *descriptive* norms, *b* = -.003, BCa CI [-0.067, 0.022]. There was no significant indirect effect of mentioning injunctive social information on donation amounts through perceived descriptive norms, *b* = -.01, BCa CI [-0.075, 0.031]. There was no significant relative indirect effect of mentioning both types of information on donation amounts through perceived descriptive norms, *b* = -.004, BCa CI [-0.001, 0.002].

We found similar effects with the perceived *injunctive* norm, namely no significant indirect effect of either of the social information forms on peoples' mood. There was no significant relative indirect effect of mentioning descriptive social information on peoples' mood through perceived *injunctive* norms, *b* = .002, BCa CI [-0. 014, 0. 055]. There was no significant relative indirect effect of mentioning injunctive social information on peoples' mood through perceived injunctive norms, *b* = .002, BCa CI [-0.032, 0.058]. There was no significant relative indirect effect of mentioning both types of information on peoples' mood through perceived injunctive norms, *b* = .02, BCa CI [-0. 032, 0. 058]. Our data does not support Hypothesis 4g, the relation between social information and donors' mood is not mediated by perceived social norms.




| Outcome: | M1: Perceived descriptive norm | | | M2: Perceived injunctive norm | | | Y: Mood | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Coefficient (SE) | p-value | | Coefficient (SE) | p-value | | Coefficient (SE) | p-value | | Coefficient (SE) | p-value |
| Constant | $i_1$ | 4.06 (.14) | <.001 | $i_2$ | 4.23 (2.19) | .054 | $i_4$ | 6.39 (.18) | <.001 | $i_3$ | 6.47 (.30) | <.001 |
| Descriptive condition | $a_1$ | .14 (.19) | .489 | $a_4$ | .36 (3.07) | .908 | $c_1$ | .34 (.25) | .180 | $c'_1$ | .34 (.25) | .178 |
| Injunctive condition | $a_2$ | .28 (.19) | .140 | $a_5$ | .41 (3.02) | .892 | $c_2$ | .64 (.25) | .011 | $c'_2$ | .64 (.25) | .010 |
| Both condition | $a_3$ | .15 (.19) | .423 | $a_6$ | 3.96 (2.97) | .183 | $c_3$ | .39 (.24) | .111 | $c'_3$ | .38 (.25) | .127 |
| M1 | | | | | | | | | | $b_1$ | -.03 (.06) | .678 |
| M2 | | | | | | | | | | $b_2$ | .01 (.004) | .190 |

** significant at a .01 level, *significant at a .05 level, (*) significant at a .10 level

Note: the labels 'descriptive', 'injunctive', and 'both' in the figure refer to dummies for social information on donation amounts, with the control group in the reference category.

Figure 5. Model of social information (included as dummies) as a predictor of donors' mood, mediated by two mediators in parallel: relation perceived descriptive injunctive social norm.

## 5.5 Discussion and conclusion

This study set out to investigate the effects of social information on donation behavior and mood. Our online experiment among British citizens reveals a series of results with important implications for both theory and various actors in practice. First, we found that the decision to donate was positively affected by social information, but not significantly so. The strength of the effect depends on the social information mentioned. Mentioning both the descriptive and injunctive social information at the same time resulted in the highest participation rate (16%), but the effect was only marginally significant. Mentioning only the descriptive social information did not affect the decision to donate (0%), which is in line with earlier studies (Goeschl, 2018; Klinowski, 2015; Murphy et al., 2015; Reingen, 1982). Mentioning injunctive social information increased the participation rate with 9%, but not significantly so.

Second, a small difference emerged between the conditions in terms of the donation amount, indicating that donors gave slightly higher amounts when social information was provided. However, only mentioning injunctive social information resulted in a significant effect, increasing donations with 10%. This effect size resembles effect sizes found in earlier studies (Bekkers, 2012; Croson & Shang, 2008; Shang et al., 2012; Shang & Croson, 2009; van Teunenbroek, 2016). These earlier studies, however, mostly focused on providing social information based on descriptive social norms, except for Bicchieri et al. (2008), who also reported a positive effect of injunctive norms. Hence, our study provides one of the first indications of social information effects reporting injunctive social norms.

Contrary to most literature reporting on social information effects, mentioning descriptive social information did not significantly increase donation amounts but resulted in a non-significant increase of 9%, compared to the control condition. However, our study is not the first to report no effect, see Catt & Benson, 1977; Kubo et al, 2018; Murphy et al., 2015 and Shang & Croson, 2009. It is possible that the online context in which we conducted our study influenced the effect of social information (see also Van Teunenbroek et al., 2020). Earlier we descussed that a reason why people tend to follow descriptive social norms is that these norms give them the idea that a large group of people is engaging in the same behavior and that deviating from this norm might be punished. The online nature of our experiment caused social control and therefore social sanctions to play a less important role,

since participants made their choices without being observed by others. This may have caused social information based on descriptive norms to be less influential in this context. Injunctive norms, on the other hand, are applicable in multiple settings and convey more general rules about what sort of behavior is appropriate (Reno et al., 1993).

Third, we found a positive, rather than a negative, effect of social information on donors' moods. However, only mentioning injunctive social information resulted in a significant effect on mood (in other words, it led to a 10% increase in mood compared to the control condition). This effect size was like the effect on the donation amount. Our results are the first to report on social information effects on donors' moods. Our results suggest that social information does not lead to a decreasing perception of control because a positive perception of control is associated with a positive mood effect (Brehm & Brem, 1981). Donors apparently perceived a freedom of choice, regardless of our manipulation. We analyzed the effect of social information on mood among donors only. The effect we obtained may be an underestimation, since donors reported happier moods than non-donors.

Fourth, we found no mediation effect of perceived social norms on the relation between social information and the donation amount or mood. While perceived social norms affect donation amounts, our manipulation did not affect the perceived social norms. The absence of such a mediation could be context-related: social norms have a more profound impact in a context where there is direct contact between participants, and the context of our study did not allow for any contact between the participants. Another explanation is the order in which we measured the dependent and mediating variables. Since we measured the perceived norms after participants indicated their decision (Bekkers, 2012; Bicchieri et al., 2009), participants may have adapted their perceptions of norms after they engaged in charitable giving (Bekkers, 2012). Bekkers found that the donation amounts were consistent with the perceived norm, but only if participants indicated the perceived social norm after donating.

Fifth, in line with earlier findings (see Murphy et al., 2015 and Shang et al., 2009), our results identify a group of donors that is unaffected by social information: donors who intend to give away all their money. Donors in this group did not lower their donation amount when norms were presented to them. This is good news for fundraisers intending to use social information as a charitable stimulant: our study shows that the effect of social informati-

on is restricted to a specific group of potential donors and that not everyone is affected.

Finally, our findings suggest that injunctive social information increases donations slightly above the suggested amount (five pounds) by decreasing the number of small donations, without decreasing the number of donations around the maximum. Social information, therefore, ensures that donors who would have donated lower amounts, donate higher amounts (in other words, it has a positive effect), without decreasing the number of high amounts (which would imply a negative effect). Hence, we further add to the literature by describing how social information works: the negative effect of social information (increasing the number of low donations) is smaller than the positive effect (increasing the effect of high donations).

### *5.5.1 Limitations*

Whereas a field experiment in which participants make decisions about donating money they earned earlier is arguably the ideal setting for answering our research question, we considered an online experiment the next best thing.

A limitation of using windfall money to study giving behavior is that participants are more generous with windfall money than with earned money (Li, Liang, Xu & Liu, 2019). Therefore, we implemented pay-for-performance; participants had to earn the endowment by successfully completing the vocabulary test as an earned endowment is more likely to be considered as part of the participants' wealth than money that has simply been given (in other words, windfall gain) (Carlsson, He & Martinsson, 2013). We opted to pay only some participants because recent findings also support designs that pay only a few participants rather than all participants (Charness, Gneezy, Halladay, 2016; Clot, Grolleau & Ibanez, 2018).

The data presented here do not allow conclusions regarding whether social information increases donors' total giving or whether it leads to substitution, i.e. one donation coming at the cost of another donation, and thus, the total amount given to charities remaining the same. We encourage future researchers to examine possible substitution effects as the result of social information.

### *5.5.2 Implications for practitioners*

Social information did not increase the number of donors (in other words, conversion rate) in a significant manner, but it did increase the donation amount and donors' mood, though this effect does depend on the type of norm mentioned. Mentioning injunctive social information is most effective in increasing both the donation amount (10%) and donors' mood (10%), but mentioning both injunctive and the descriptive social information at the same time led to the highest overall collected amount, mostly by increasing the decision to donate.

While the effect of social information on the donation amount is small, a clear advantage of social information is that it is easy to implement and that it is virtually costless. All that is needed is information on the average donation amount. In addition, our study shows that social information is a low-risk intervention. Social information affects the donation behavior by having a positive effect on the donation amount, without decreasing the number of donors. More specify, it decreased the number of low donations (£1 - £5) without decreasing the number of high donations (£10). Next to this, social information increases rather than decreases people's mood. Based on our results, we advise practitioners to mention injunctive social information while attempting to affect donations.

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# Appendix A

## *Data description of the participants by condition*

We checked whether the covariates differed between the conditions. Age ($t$ = 97.27, $n$ = 1,002, $p$ <.001), vocabulary test scores ($t$ = 128.33, $n$ = 1,029, $p$ <.001) and satisfaction with income ($t$ = 67.87, $n$ = 1,029, $p$ <.001) differed significantly between conditions. Participants in the descriptive norm condition were slightly younger than participants in the control group (a difference of 5%). Participants in the control condition obtained lower scores on the vocabulary test than participants in other conditions. Participants in the treatment conditions reported higher levels of satisfaction with their income; mentioning the descriptive social norm resulted in the highest level and the control condition in the lowest (difference of 4%). The results presented below did not change when satisfaction with income, age, and the vocabulary test score were included as covariates (see the text below), nor did any of the other covariates influence the results.

| | Control | Descriptive | Injunctive | Both | All |
|---|---|---|---|---|---|
| Number of participants | 257 | 256 | 256 | 260 | 1,029 |
| Number of donors | 61% | 60% | 64% | 68% | 63% |
| Female | 63% | 64% | 64% | 64% | 64% |
| Average age¨ | 39.32 (*SD* = 13.10) | 37.36 (*SD* = 11.77) | 39.22 (*SD* = 12.95) | 37.82 (*SD* = 12.13) | 38.43 (*SD* = 12.51) |
| Student status yes | 12% | 15% | 11% | 12% | 13% |
| Employment yes | 75% | 85% | 79% | 78% | 79% |
| Average satisfaction with income¨ | 5.01 (*SD* = 2.44) | 5.21 (*SD* = 2.41) | 5.18 (*SD* = 2.36) | 5.18 (*SD* = 2.52) | 5.14 (*SD* = 2.43) |
| Average giving | 3.26 (*SD* = 1.21) | 3.30 (*SD* = 1.19) | 3.29 (*SD* = 1.23) | 3.19 (*SD* = 1.24) | 3.26 (*SD* = 1.21) |
| Average vocabulary test score¨ | 5.59 (*SD* = 1.49) | 5.99 (*SD* = 1.52) | 6.05 (*SD* = 1.41) | 5.85 (*SD* = 1.52) | 5.95 (*SD* = 1.49) |

¨ significant at a .01 level

### *Robustness of the effect of social information*

We explored the robustness of the effect of social information with respect to several personal characteristics in a multiple regression analysis, reported in Table C. We provide estimates for two models: a. including the donated amount as a dependent variable; b: including donor's mood as a dependent variable. Starting with the first model, we see that as in the main analyses, the results show positive correlations for all three forms of social information, but the significance differs per the social information mentioned. Again, only social information reporting an injunctive norm results in a significant effect. Model 2 includes the variables that significantly differed between the four conditions, as reported in Table C. The effects of social information are unchanged, while age is significantly correlated with donation amounts. However, the effect is small and no longer significant in Model 3. Model 3 includes the personal characteristics that did not significantly differ between the conditions (see Table C). In sum: the effect of social information on donation amounts holds while including these additional personal characteristics.



Table C. Regression analysis of the amounts donated (model a) and donor's mood (model b) including project characteristics

| | **Model 1** | | **Model 2** | | **Model 3** | |
|---|---|---|---|---|---|---|
| | a | b | a | b | a | b |
| Descriptive | .34 | .39 | .37 | .37 | .37 | .34 |
| Injunctive | .46* | .73** | .47* | .70** | .46* | .69** |
| Both | .26 | .50* | .27 | .46* | .27 | .47* |
| Satisfaction with income | | | .05 | .26*** | .05 | .24 |
| Age | | | .01* | .02** | .01 | .02* |
| Vocabulary test score | | | <.01 | .04 | <.01 | .04 |
| Female yes | | | | | -.08 | -.02 |
| Students status yes | | | | | -.08 | .24 |
| Employment status yes | | | | | .06 | -.08 |
| n | 473 | 473 | 473 | 473 | 473 | 473 |
| Constant | 4.11 | 6.29 | 3.62 | 3.95 | 3.69 | 3.34 |
| R Square | .01 | .02 | .04 | .15 | .04 | .17 |

Notes: a: amount donated as dependent variable; b: donor's mood as dependent variable

*** significant at a .001 level. ** significant at a .01 level, *significant at a .05 level, (*) significant at a .10 level

Next, we focus on donor's mood (model C). As in the main analyses, the results show positive correlations for all three forms of social information, but the significance differs per type of social information. Social information reporting an injunctive norm and information reporting both norms results in a significant effect. Model 2 includes the variables that significantly differed between the four conditions, as reported in Table C. The effects of social information are unchanged, while satisfaction is significantly correlated with donation amounts. However, the effect is no longer significant in Model 3. Model 2 also shows a significant effect of age, which is also significant in Model 3. However, the effect is small. Model 3 includes the personal characteristics that did not significantly differ between the conditions (see Table C). In sum: a donor's age is related to the amount donated. However, the relationship with donor's mood is minuscule and the effect of social information on donation amounts holds while including these additional personal characteristics.

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# CHAPTER 6

## GENERAL CONCLUSION AND DISCUSSION

Parts of the practical and theoretical recommendations for using social information are published as: Van Teunenbroek, C. (2019). Stimulating giving with one small addition: Practical implications for the use of social information as a stimulant for donation behavior. *De Dikke Blauwe*. Retrieved from: https://www.dedikkeblauwe.nl/news/praktisch-rapport-hoe-sociale-informatie-geefgedrag-stimuleert.

## 6.1 Conclusion

This dissertation aimed to answer five questions: (1) to what extent does social information affect donation behavior?; (2) which mechanisms explain social information effects?; (3) how do personal characteristics moderate the effect of social information on donation behavior?; (4) how does the donation context moderate the effect of social information on donation behavior; and (5) to what extent does social information affect people's mood in a charitable context? An extensive systematic literature review and three empirical studies, all based on self-collected datasets, were conducted to provide an answer to these questions. What follows is an overview of the findings per research question.

### *6.1.1 To what extent does social information affect donation behavior?*

This dissertation is concerned with donation behavior: the way people behave in a charitable context. While we found an effect of mentioning previous donors' average donation amount on donation behavior, the magnitude of the effect differs between the studies. In addition, the effect on the decision to donate and the donation amount is not the same (see Table 1).

*Decision to donate.* To what extent did social information stimulate people to give? Table 1 provides an overview. The literature review in Chapter 2 shows that, with effect sizes reported by earlier studies ranging from -40% to 75%, the decision to donate is not always affected by social information. Earlier studies provide no explanation behind the lack of findings demonstrating social information effects on the decision to donate. In Chapter 5 we suggest that the lacking effect is the result of participants deciding whether they want to donate, before the confrontation with social information. It is possible that among those who decide not to donate, the information about the donation behavior of other donors is ignored. As a result, the decision to donate is not affected. This assumption remains untested.

*Effect size per chapter.* In our studies, we mostly found non-significant effects of social information on the propensity to donate money. The only significant effect was reported in Chapter 3: mentioning social information to students in a classroom resulted in a 16% increase in the number of donors. Chapter 4 reports the findings of a field experiment, in which we found a slight decrease of 6% among visitors to a crowdfunding platform. However, the effect was not significant.

Table 1. Overview of the results of the direct effect of social information on donation behavior, as discussed in previous chapters

| Chapter | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| **Sample** | Empirical articles | Students | Visitors of crowdfunding platform "Voordekunst" | Online Prolific participants |
| **Country** | Worldwide | The Netherlands | The Netherlands | Britain |
| ***n*** | 36 | 180 | 24,070 | 1,029 |
| **Setting/ context** | Lab and field studies | Online experiment conducted in classroom setting | Online field experiment | Online experiment |
| **Increase decision to donate** | From -40% to 75% | 16%* | -6% | 0%, 9% and 16% |
| **Increase donation amount** | From -27% to 64%* | 35%*[a] | 17%*[b] | 6% [b], 9% [b] and 10%* [b] |

[a] test based on all participants

[b] test based on donors only

* Significant at $p < .05$



In Chapter 5 we manipulated different kinds of social norms to test how social information effects differ as a function of their presentation. We presented British participants with either social information reporting a descriptive norm (information about other people's donation amount: "other participants donated £5"), an injunctive norm (information about the appropriate donation amount: "other people said participants such as yourself should donate £5") or both norms. Mentioning both injunctive and descriptive social information at the same time resulted in the strongest increase on the incidence of giving (16%), but the effect was only marginally significant.

The combination of the insights from the different chapters, provides an inconsistent view. The effect of social information on the incidence of giving ranged from negative (-6%) to positive (16%). To examine the effect of social information on the decision to donate further, we conducted a mini-meta analysis, including the results reported in the empirical chapters reported in this dissertation.

*Mini-meta analysis.* We conducted a meta-analysis using the Meta-Essentials tool for binary data (Suurmond, Rhee & Hakm 2017). Meta-Essentials is an open source tool that has been validated by comparing the results conducted by Meta-Essentials with findings from CMA, the metafor Package for R and MIX Pro (Suurmond et al., 2017).

The meta-analysis (see Table 2 and Figure 1) shows a positive non-significant effect of social information on the decision to donate across different contexts and samples, $Z = .80$, $n = 25{,}790$, $p = .212$. Figure 1 reports a logarithmic forest plot with the effect sizes (OR) per chapter including a 95% confidence interval (the black lines around the dots) and the prediction interval (green lines). The dots represent the effect sizes, with larger dots representing a higher weight factor (see Table 2) to determine the combined effect size. The weight depends on the sample size, for instance Chapter four has the highest weight since this chapter include the largest sample. Most of the chapters report an odds ratio around 1, except for Chapter 3. However, Chapter 3 is based on a smaller sample, and thus receives a lower weight (see Table 2). As a result, this effect weights less strongly on the combined effect size.

The combined odds ratio of the different chapters ($N = 25{,}790$) for social information and the decision to donate lies around 1 (OR = 1.12) (see Table 2 and Figure 1). In addition, the confidence interval of the combined effect (.75-1.69) is very wide and includes 0. This implies that there is no difference between the control and treatment condition. The prediction interval gives the range in which the point estimate of 95% of future studies will fall if they are drawn from the same distribution as the 5 studies reported in this dissertation. The prediction interval of the odds ratio of the combined effect ranges from .56 to 2.25: 95% of the studies focused on social information are predicted to have an odds ratio between .56 and 2.25.

The non-significant reported combined odds ratio of 1.12 is in line with the few studies reporting social information effects on the decision to donate. Social information does not always enhance people's decision to donate (Goeschl, Kettner, Lohse & Schwieren, 2018; Klinowski, 2015; Murphy et al., 2015; Reingen, 1982). Overall, in this dissertation we found no support for social information effects on the decision to donate.

Table 2. Meta-analysis of the effect of social information on the decision to donate (n = 25,790) of the empirical papers included in this dissertation. Reporting the sample size per chapter, effect sizes (OR), 95% confidence interval of the effect size and the weights used to calculate the combined effect size

| | Chapter | *n* | OR | 95% confidence interval | | Weights |
|---|---|---|---|---|---|---|
| | | | | Lower limit | Upper limit | |
| **1** | Three | 177 | 3.41 | 1.26 | 9.25 | 5.02% |
| **2** | Four | 24,070 | 0.94 | 0.86 | 1.02 | 34.91% |
| **3** | Five, descriptive norm | 513 | 0.96 | 0.67 | 1.37 | 20.21% |
| **4** | Five, injunctive norm | 513 | 1.14 | 0.79 | 1.63 | 20.03% |
| **5** | Five, both norms | 517 | 1.36 | 0.95 | 1.95 | 19.83% |
| **6** | Combined effect size | 25,790 | 1.12 | 0.75 | 1.69 | |

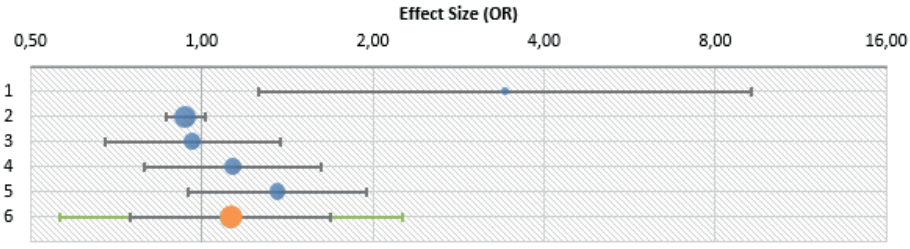



Figure 1. Logarithmic forest plot of a meta-analysis (n = 25,790) of the effect sizes (OR) of social information on the decision to donate reported in the empirical chapters in this dissertation, including a 95% confidence interval (black lines) and 95% prediction interval (green lines).

The criticism by Vosgrau, Simonsohn, Nelson & Simmons (2019) that mini-meta analyses suffer from publication bias does not apply here, because we report all our analyses, and 2 out of 3 Chapters were preregistered.

*Amount donated*. To what extent did social information increase the donation amount? The literature review in Chapter 2 shows that the effects of social information on the donation amount found in earlier studies were sometimes positive, but sometimes also absent or even negative. The empirical papers reviewed in Chapter 2 mostly report positive effects of social information on the amount donated.

In this dissertation, we focus on mentioning the average donation amount. By using the average, we take advantage of the fact that giving is right-skewed; the average is often much higher than the median. In this dissertation, we analyzed the donation amounts either among all participants, or only among donors. For instance, the analyses of Chapter 3 were conducted among all participants, including the decision not to donate as a 0. The effect size reported in chapter 3 is likely an underestimation, since social information is less effective among non-donors than donors. The analyses of Chapter 4 and 5 were conducted among donors only, to make the results comparable with earlier studies of Croson, Handy & Shang (2009, 2010), Croson & Shang (2008, 2013) and Shang & Croson (2009), Shang, Reed & Croson (2008), which can be considered the leading articles focused on social information effects in a charitable context.

*Effect sizes per chapter:* The strongest effect was found in Chapter 3. Students in the treatment condition indicated that they wanted to donate amounts that were 35% higher than students in the control condition. Chapter 4 reports an increase of 17% in the amount donated by donors at a crowdfunding platform if they could see the previous donors' average donation amount. In Chapter 5, we report the effects of different presentations of social information. The injunctive social information (i.e. appropriate amount) increased donations significantly: participants donated 10% higher amounts. We found a non-significant but positive effect (9%) of mentioning descriptive social information (i.e. actual donation amount). Mentioning both norms at the same time (i.e. appropriate and actual donation amounts) resulted in a non-significant increase of 6%. The combined insights from the different chapters suggest that social information increases donation amounts. The increase ranged from small (6%) to medium (35%). To examine this further, we conducted a mini-meta analyses, including the empirical chapters reported in this dissertation.

*Mini-meta analysis*. We conducted the mini-meta analysis using the Meta-Essentials tool for continuous data (Suurmond, Rhee & Hakm 2017). The meta-analysis shows a positive effect of social information on donation amounts across different contexts and samples (see Table 3 and Figure 2), $Z = 4.35$, $n = 4{,}085$, $p < .001$.

Figure 2 shows that that the combined effect size of the different chapters ($N = 4{,}085$) is small: Cohen's d = .19. The confidence interval (black lines in Figure 2) of the combined effect ranges from .07 to .31, not including zero. The prediction interval (green lines in Figure 2) predicts that studies focused on social information will have an effect between -.02 and .40.

Table 3. Meta-analysis of social information effects on donation amounts (n = 4,085) of the empirical papers included in this dissertation. Reporting the sample size per chapter, effect sizes (Cohen's d), 95% confidence interval of the effect size and the weights used to calculate the combined effect size.

| | Chapter | *n* | Cohen's d | 95% confidence interval | | Weights |
|---|---|---|---|---|---|---|
| | | | | Lower limit | Upper limit | |
| **1** | Three[a] | 177 | 0.37 | 0.07 | 0.67 | 8.31% |
| **2** | Four[b] | 2,638 | 0.10 | 0.03 | 0.18 | 41.64% |
| **3** | Five descriptive[b] | 426 | 0.24 | 0.05 | 0.43 | 16.74% |
| **4** | Five injunctive[b] | 422 | 0.28 | 0.09 | 0.47 | 16.60% |
| **5** | Five both[b] | 422 | 0.17 | -0.02 | 0.36 | 16.70% |
| **6** | Combined effect size | 4,085 | 0.19 | 0.07 | 0.31 | |

[a] conducted among all participants

[b] conducted among donors only

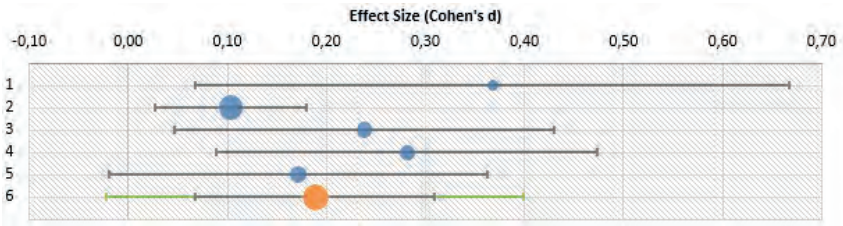



Figure 2. Forest plot of a meta-analysis (n = 4,085) of the effect sizes (Cohen's d) of social information on donation amounts of the empirical chapters, including a 95% confidence interval (black lines) and 95% prediction interval (green lines).

### *6.1.2 Why does social information affect donation behavior?*

Chapter 2 reports an extensive literature review based on 35 studies, suggesting a model with four mediators that are expected to explain why social information affects the donation amount. We will discuss the suggested mediators as presented in Figure 3 one by one.

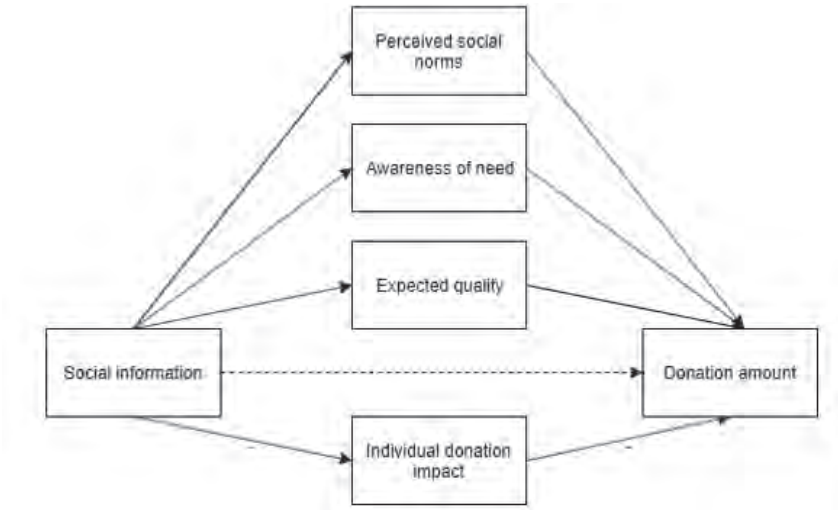



Figure 3. A visual representation of the proposed framework in Chapter 2, including the independent variables, dependent variables and mediators. All displayed relationships are positive unless noted otherwise.

The first proposed mediator is social norms: people are expected to perceive social information as information about how to behave. The second proposed mediator is awareness of need: people are expected to perceive social information as a signal that there is a real need for help and donate higher amounts accordingly. The third proposed mediator is expected quality: people are expected to perceive social information as a signal of quality, which provides them with the feeling that the charity or project can be trusted. Fourth, we suggested a negative mediator, namely individual donation impact. Some donors donate to make a personal difference; social information is expected to decrease the perceived individual impact if the donation is perceived as being just one of many and unlikely to make a big difference.

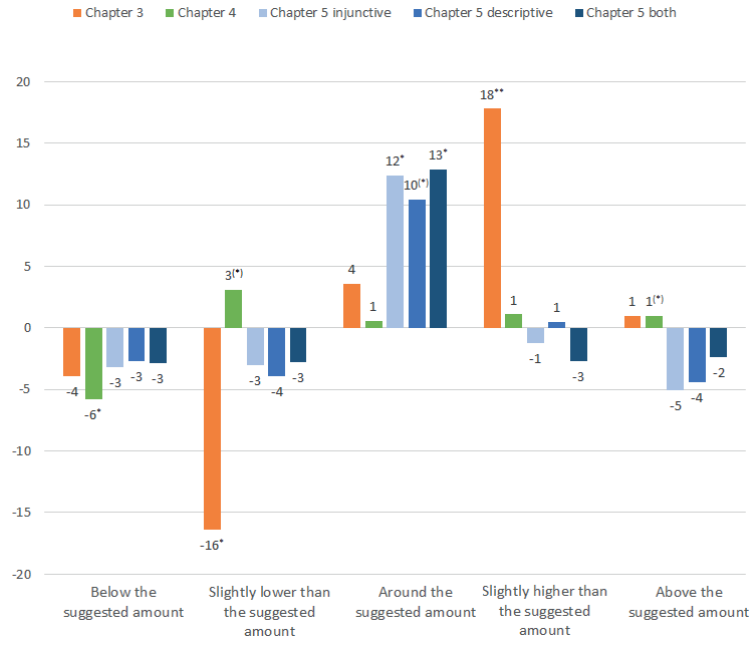
*Perceived social norms*. In the empirical papers, we focused on the first mediator, that is, the perception of social norms. We did so because this mediator received most attention from other researchers (Bicchieri & Xiao, 2009; Croson, Handy & Shang, 2009; Goeschl et al., 2018), and our findings could add to theirs. While the earlier studies report that social norms are mediated by social information, we found no support for the idea that people perceive social information as an indication of a social norm and that this leads them to adjust their donation behavior. We came to this conclusion by reviewing the donation amounts, standard deviations and by conducting mediation analyses.

*Donation amounts around and above the suggested amount.* If social information functioned as a social norm, people would donate amounts that resemble the suggested amount (i.e. conforming). Such a tendency to conform would result in a stronger clustering of amounts donated around the suggested amount and a lower variance. Figure 4 shows the proportion of people who donated amounts around the average. The graph is based on the percentiles, dividing the data of each chapter over five percentiles.

Convinced by Hertwig & Ortmann (2001), we used the principle of no deception and showed participants in the treatment group the actual average amount previous donors had donated. The average amount donated in the control group, therefore, was equal to the suggested donation amount.

If social information operates as a social norm, then one would expect the bars around the suggested amount to be the highest: most people donate amounts around the average. However, only Chapter 5 reports a significant increase of the number of people who donated amounts around the average in all three treatment conditions. The increase reported in Chapter 3 was not significant, and in Chapter 4, we found a similar proportion of people donating around the average among the control and treatment groups.






**Significant at $p$ <.01 *Significant at $p$ <.05 (*) Significant at $p$ <.10

Figure 4. Categorization of participants that donated a certain amount. The bars report the difference between the treatment and control group in the percentage of people donating a certain amount within a category. The categories are based on percentiles, with the 50th percentile representing the average amount and, therefore, the suggested amount.

In general, it appears that participants in the treatment conditions more often donated amounts around, above or slightly above the average amount than participants in the control groups. However, few of them donated amounts below or slightly below the suggested amount. Bekkers (2012) and Croson et al. (2009) reported similar findings.

*Similar standard deviations.* We also examined the standard deviations (Sasaki, 2015). In the case of conforming to the average amount donated, the standard deviations should be smaller for the treatment condition than for the control condition. The standard deviations of the treatment and control groups for Chapter 3 and 5 hardly differed (see Figure 5). However, we do see a difference in Chapter 4 which was based on field data, and therefore most realistic. Levene's test showed that the variances for donation amounts between the treatment and control condition were not equal, $F(1, 2637) = 8.59$, $p = .003$. In this study the dispersion is actually larger in the treatment group than in the control group.

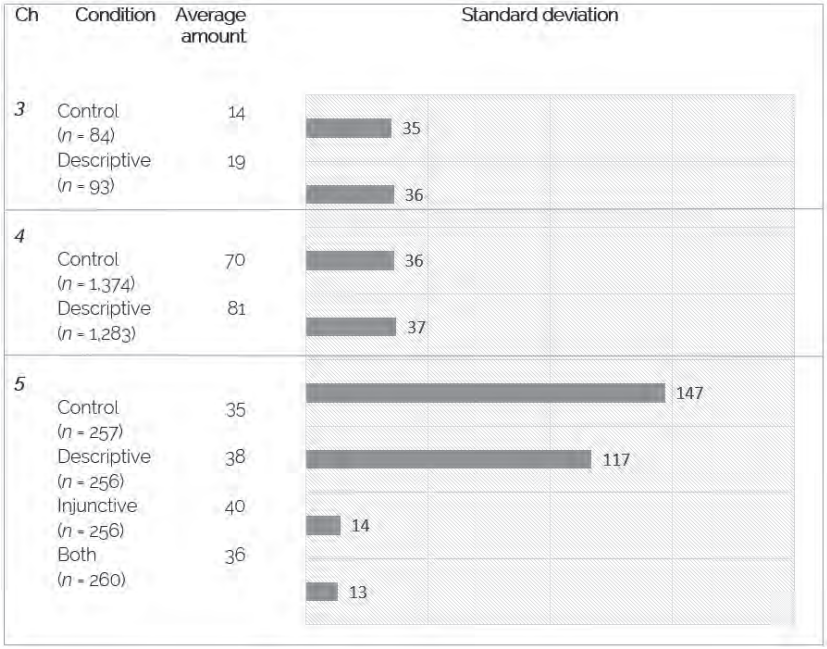
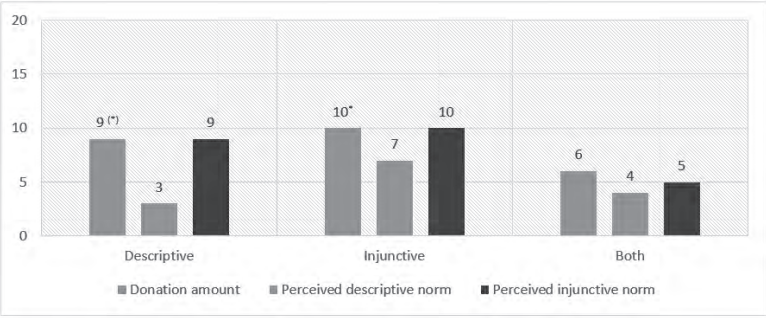



Figure 5. Average donation amount per chapter by condition, including one standard deviation above and below the average. The amounts for Chapter 5 have been converted from pounds to euros and multiplied by 10 to make them comparable with the other chapters.

*Mediation analyses.* We also tested to what extent perceived social norms can explain effects of social information. In Chapter 5, we report the results of a mediation analysis, in which we tested whether social information affected giving behavior to the extent that it influenced the perception of social norms. We found no support for a mediation effect. While both perceived injunctive and descriptive social norms influenced donation behavior, our manipulation of social information did not affect these norms (see Figure 6). In Chapter 3 (see Appendix E), we found similar results as in Chapter 5.




** significant at a .01 level, *significant at a .05 level, (*) significant at a .10 level

Figure 6: Percentage of increase donor's donation amount (Chapter 5), perceived descriptive and perceived injunctive norm by condition, in comparison with the control group.



The perceived injunctive social norm positively affected the donation amount, however, it was not influenced by our manipulation of social information. These results suggest that social information can affect giving also when it does not affect the perceived social norm. Also, these results suggest that participants may have adapted their perceptions of norms after they engaged in charitable giving (Bekkers, 2012). Bekkers assigned participants to one of six conditions in a 2 (social information: yes versus no) x 3 design (not measuring perceived social norms vs measuring perceived social norms before the donation task vs measuring after the donation task). Bekkers found that the donation amounts resembled the perceived norm, but only if they indicated the perceived social norm after donating.

In sum, the results in this dissertation provide no support for the argument that social information affects donation amounts because it sets a social norm. Therefore, we now continue with a discussion of the three other mediators suggested in Chapter 2: awareness of need, quality signal and individual donation impact.

*Awareness of need*. In Chapter 2, we argued that social information might function as a signal that creates awareness of need. Several field studies demonstrated that the degree of need for help increases the likelihood of helping (Levitt & Kornhaber, 1977; Schwartz, 1974; Staub & Baer, 1974). Earlier we stated that people might reason as follows when they receive social information: *"If other people are willing to donate large amounts of money, there must really be a need for help, and I should donate a higher amount."* As such, the suggested amount should stimulate people to give higher amounts. Combining the chapters gave us a new insight, and we would like to refine the statement presented earlier (in Chapter 2) as follows: social information stimulates people to give amounts around or slightly above the average. We suggest that if people perceive the suggested amount as being too low, they donate higher amounts to compensate the low amount. A potential donor might reason: "*We know other people will donate only half of their money or windfall; therefore, I should donate a higher amount to ensure the project is successful."* As can be seen in Figure 5, social information increased the percentage of people who donated amounts around or slightly above the average (except for some kinds of social information in Chapter 5) in all the empirical chapters. Unfortunately, we did not include a measure to review whether participants indeed perceived the awareness of need as higher as the result of social information.

Besides an awareness of need, the tendency of some to donate amounts above the suggested amount could also be the result of people seeking prestige. While we did not specially include a section about reputation effects in Chapter 2, the philanthropic literature describes that donors are motived by reputational concerns (Bekkers & Wiepking, 2011), and some people "outgive" other people to appear generous (Bekkers, 2012). In this case, social information is used as a norm that operates as a threshold for generosity. Potential donors might reason: *"If we want to appear generous, we need to donate more than the rest."* However, in our studies a participant could only appear to be generous in the eyes of the experimenter as participants could not see each other's decisions, and participants were unlikely, moreover, to care about the experimenter's opinion of their behavior.

*Quality signal.* In Chapter 2, we describe how social information could function as signal for quality. Potential donors might reason: *"If others are donating this amount, they must perceive the project as of a good quality"*. Potters, Sefton and Vesterlund (2001) found that social information had no

effect if the quality of the public good was stated alongside social information, thus providing strong support for the quality signal mediator.

Combining the chapters, we provide an indirect test to examine whether social information operates as a quality signal. If social information operates as a quality signal, we expect social information to be more effective if people cannot choose the charity or project they will donate to (Heutel, 2014), which was the case in Chapter 3. On the other hand, in Chapter 4 and 5, participants could choose the charity or project themselves.

If people can choose their charity, they are likely to pick a charity or project they know and trust, and an additional quality signal, therefore, is not needed. If participants cannot choose their own charity, on the other hand, the effect of social information is expected to be stronger as participants depend on the information to determine the quality. In the study reported in Chapter 3, the project shown to the participants was not connected to an existing charity but to an unknown individual. In other words, participants had even less knowledge of the quality of the project than if the project had been connected to an existing charity. Interestingly, the effect size of 34% found in this study is higher than that found in all our other studies, suggesting that the social information provided to participants may have functioned as a quality signal for the charity. Unfortunately, we did not include a measure of the perceived quality of the charity/project, and, therefore, we cannot conclude with certainty whether the stronger effect of social information in Chapter 3 is the result of social information functioning as a quality signal.

*Individual donation impact.* In Chapter 2, we argued that social information might have a negative effect if donors experience that their donation impact is lower when many other people are donating to the same cause. The impact philanthropy model claims that donors enjoy personally increasing the output of a public good (Duncan, 2004) because this makes them appear more important. In this model, the attractiveness of giving decreases with each donation as its marginal impact will be lower. Providing social information, therefore, could be harmful. We found no support for this prediction as social information had a positive rather than a negative effect across studies.

### *6.1.3 Which conditions facilitate the effect of social information on donation behavior?*

If we review all empirical chapters at once, the results strongly suggest that moderators played a role. The variation in terms of the effect between studies (also visible in the large confidence interval of the combined effect

size in Figure 2), decreases the reliability of the combined effect on the amounts donated (see Figure 2). This suggests that the effect is subject to effects of moderators: conditions that facilitate or inhibit the effect of social information. In Chapter 2, we suggested a model that includes three moderators which could explain why the effect of social information differs: where, who and what (see Figure 7).

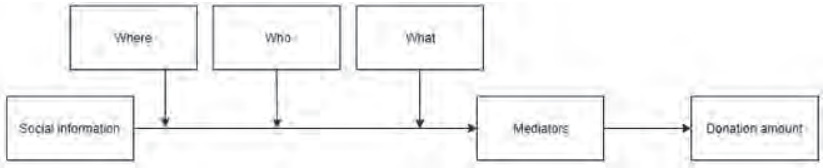



Figure 7. A simplified visual representation of the proposed framework presented in Chapter 2, including the independent variables, dependent variables, mediators and moderators. The mediators and moderators are presented in no particular order: there is not an order of events in relation to the moderators.

The following sections aim to shed further light on conditions that facilitate the effect of social information, we focus on two moderators of the proposed model in Chapter 2: who and where. We cannot review the 'what' moderator, since in all studies, we based the amount mentioned on the average donation amount, instead of for instance on a very low or high amount.

### *6.1.4 How do personal characteristics moderate the effect of social information on donation behavior?*

We will now discuss how personal characteristics moderate the effect of social information on donation behavior. An overview of the results can be found in Table 4.

Does social information affect me in a similar way as it would affect you? In other words, how do personal characteristics moderate the effect of social information on donation behavior? In general, the way in which potential donors are solicited, and the information mentioned determines the effectiveness of the solicitation (Bekkers & Wiepking, 2011). Studies focusing on social information effects report similar results. Social information becomes more effective, for instance, by emphasizing a shared identity of the solicited donor and previous donors (Croson, Handy & Shang, 2010; Hysenbelli et al., 2013; Shang & Croson, 2009). As described in Chapter 2, a shared identity can be achieved, for instance, by gender matching: if social information is based on a donor with the same gender as the participant, the information

had a stronger effect than in the mismatched condition (e.g., showing males the donation amounts of females, see Croson, Handy & Shang (2010)). Other ways of enhancing shared identity to increase the effectiveness of social information are matching based on participants' nationality (Hysenbelli, Rubaltelli & Rumiati, 2013) or by focusing on the identity of being a regular donor by stating that a previous donor donated a certain amount (Shang & Croson, 2009).

Table 4. Overview of the results of personal characteristics, as discussed in previous chapters

| Chapter | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| **Sample** | Empirical articles | Students | Online crowd-funding visitors "Voordekunst" | Online Prolific participants |
| **Personal characteristics** | Gender, nationality | Need to belong<br>Care for reputation<br>Shared identity | | People that intend to give away all their earnings<br>Regular versus non-regular donors |
| **Results** | Gender and nationality matching increase the effect of social information. | No moderation of either of the personal characteristics. | | Those who give away all their earnings are unaffected by social information<br><br>Regular donors are more strongly affected |



The earlier findings of Croson et al. (2010), Shang & Croson (2009) and Hysenbelli et al. (2013) suggest that relational aspects play an important role in the effect of social information. People often use information of groups to define their self-image (Tyler & Blader, 2000; Tyler & Blader, 2001). In Chapter 3, we examined whether people who reported a shared identity with other donors (i.e. people who answered affirmatively to questions like: "I identify with other donors who donate to international relief projects") were more susceptible to social information. Contrary to earlier findings, we found no

moderating effect: those who identified with earlier donors to the project were not more strongly affected by social information. Our assumption that individuals identified with earlier donors based on their shared caring for international relief projects, therefore, may be incorrect. Our current results indicate that a connection based on the shared love for a project's aim is not strong enough and possibly too vague to create a shared identity.

In Chapter 3, furthermore, we describe the outcomes of an experiment among students in which several psychological traits were also measured. We only found a positive effect of social information on the donation amount. We did not find any moderating effects of personal characteristics such as need to belong or reputational concern. In retrospect, this could be the result of the small sample size. Another option is that our initial assumption that individuals who have a general encourage to belong to a group are more strongly affected by social information may be incorrect. We know from earlier studies that people who have a strong need to belong are concerned with the issue of inclusion, which motivates them to behave in a way that increases the likelihood of their being accepted (De Cremer & Tyler, 2005; Lee & Robbins, 1995). Our current results indicate that social information is not used as an inclusion standard that increases the likelihood of being accepted. Perhaps this is because donations were made anonymously, and participants assumed that it was unlikely that other people would learn about their donation, rendering it unlikely that other people would use information about their donation as a reason to include them in their groups.

In addition, the data show that our assumption that individuals who are more concerned about their reputation are more strongly affected by social information also failed to be supported by the data. We know from earlier studies that reputation can act as a powerful mechanism in cooperation (Fehr & Fischbacher, 2003). Perhaps our finding was again the result of the study design: the participants' donation amount was not shared with other people. Reputation effects are most profound when the behavior is observable. For instance, when people believe that group members are likely to gossip, a public context has a stronger impact on cooperative behavior (Beersma & van Kleef, 2011).

*Those who give away all their earnings.* In Chapter 5, we tested whether participants in an online lab experiment were affected by social information. In addition, we tested whether a specific group would not be affected by social information. We know from earlier studies that a minority of partici-

pants in giving experiments donate their complete endowment (Bekkers, 2015; Bekkers, 2012; Engel, 2011). Therefore, we expected that people who aim to give away their complete endowment would be unaffected by social information. Indeed, as can be seen in Figure 8, we found that those who intend to give away all their money are unaffected by social information as the percentage of participants donating £10 was similar across the different conditions.

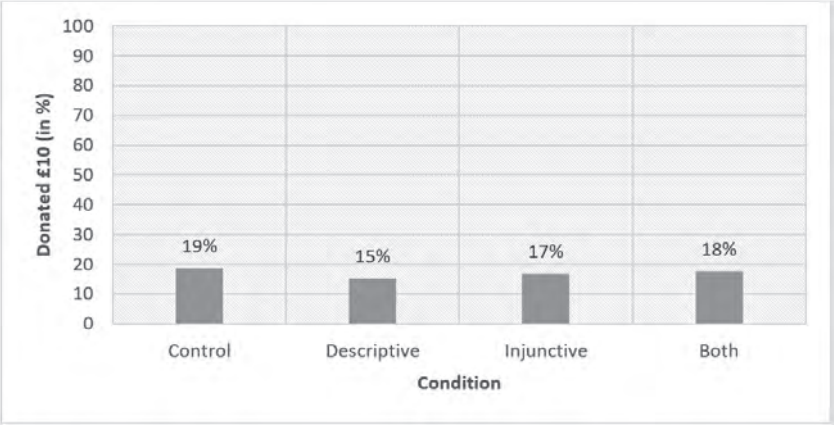



Figure 8. Percentage of donors donating £10, by condition (n = 176)

Our current results indicate that social information did not serve as an excuse for this group to lower their donation amount.

*Regular versus non-regular donors*. Does social information have different effects on regular and non-regular donors? Two previous studies report that new donors to a radio campaign were affected by social information, but renewing donors were not (Murphy et al., 2015; Shang & Croson, 2009). A greater uncertainty experienced by an individual in a social situation, results in a stronger inclination to seek clarifying information from others (King, 1975). As renewing donors are familiar with the context, it is not an ambiguous context to them, and, as a result, social information has a limited or no influence (Bekkers, 2012). Non-regular donors, on the other hand, are unaware of such a reference amount, and so they are looking for a social signal about the "correct" donation amount. The greater the uncertainty experienced by an individual in a social situation, the stronger the inclination to seek clarifying information from others (King, 1975).

Applying the same logic as Murphy et al. (2015) and Shang et al. (2009),

we reviewed the data of Chapter 5 to test whether participants who indicate they are regular donors are less affected by social information than non-regular donors. We asked participants if they donated money to charities in real life and how often. If social information is more effective in an ambiguous context, then we expect social information to increase the donation amount more among the non-regular donors than among the regular donors. The data show a similar effect of social information on both regular and non-regular donors (see Figure 9).


Figure 9. Bar graph reporting the donation amount (in £) of donors in Chapter 5, for non-regular donors and regular donors.

It seems that social information has a similar effect among non-regular donors and regular donors, which is not in line with the assumption that an ambiguous context strengthens the effect of social information. To test this, we regressed the effect of social information on the decision to donate, including whether one is a regular donor or not, as a moderator. We used indicator coding (i.e. dummy coding) for the different social information groups, where the control group functions as the reference group. This approach ensures that we retain all information about how the *three treatment* groups differ from the control group. Table 5 presents the results, which shows that, as reported in Chapter 5, only presenting injunctive social information affects the donation amount.

In addition to the findings of Chapter 5, Table 7 shows that being a regular donor is negatively correlated with donation amounts ($b$ = -.65, $n$ = 473, $p$ = .035), and that the effect of injunctive social information on donation amounts is moderated by whether someone is a regular donor ($b$ = .79 $n$ = 473, $p$ = .050). However, the relationship is positive, rather than negative: injunctive social information had a stronger effect among regular, than non-regular donors. Therefore, our findings are not in line with earlier findings of Murphy

et al. (2015) and Shang et al., (2009), who found that regular donors are unaffected by social information. However, Murphy et al. (2015) and Shang et al. (2009) presented descriptive social information.

Table 5. Multiple regression with social information as a predictor of the donation amount (Chapter 5), and regular donor as a moderator. Including dummies for social information, with the control group in the reference category (n = 473).

| | | | 95% Confidence interval | |
|---|---|---|---|---|
| | ***b (SE)*** | **p-value** | **Lower bound** | **Upper bound** |
| **Constant** | 4.14 (.15) | <.001** | 3.835 | 4.435 |
| **Descriptive** | .31 (.20) | .113 | -.074 | .701 |
| **Injunctive** | .40 (.20) | .049 * | .002 | .791 |
| **Both** | .22 (.19) | .258 | -0158 | .590 |
| **Regular donor** | -.65 (.31) | .035* | -1.245 | -.045 |
| **Descriptive* regular donor** | .51 (.40) | .201 | -.271 | 1.282 |
| **Injunctive* regular donor** | .79 (.40) | .050* | .001 | 1.578 |
| **Both* regular donor** | .37 (.38) | .334 | -.381 | 1.120 |

** significant at a .01 level, *significant at a .05 level, (*) significant at a .10 level

In sum, the results in this dissertation provide support for the argument that some participants are unaffected by social information, while others are more strongly affected. However, we found no support for moderation of the social information effect by the personal characteristics measured in Chapter 3.

### *6.1.5 How does the donation context moderate the effect of social information on donation behavior?*

In which context is social information more effective in changing donation behavior? As reported in the empirical chapters, we tested social information effects in different settings using a similar manipulation: an online classroom experiment among Dutch students (Chapter 3), an online field experiment with visitors to a Dutch crowdfunding platform (Chapter 4) and an online lab experiment among British participants (Chapter 5). We found positive effects of social information on the amounts donated by Dutch students

(Chapter 3), online lab participants in the UK (Chapter 5) and actual donors to a Dutch crowdfunding platform (Chapter 4). In addition, we found positive effects on the decision to donate among Dutch students (Chapter 3), but not among actual donors to a Dutch crowdfunding platform (Chapter 4) or British online lab participants (Chapter 5). Before we conclude that the effect of social information on students in Chapter 3 is stronger than the effect on non-students in the other chapters, we should take the context of the study in Chapter 3 into account.

Earlier we described that social information is expected to provide a quality signal. The higher effect size in Chapter 3 could be the result of our study design. The project shown to the participants was not connected to an existing charity but to an unknown individual. Therefore, participants had even less knowledge of the quality of the project than if the project had been connected to an existing charity. Suggesting that the social information provided to participants may have functioned as a quality signal for the charity.

*Project funding stage.* In Chapter 4, we report the results of a large-scale field experiment at an actual crowdfunding platform. For a month, we randomly distributed visitors to the platform over one of two conditions: the control condition or the treatment condition. A crowdfunding project runs for a predefined number of days. In Chapter 4, we examined at what moment social information effects are most pronounced. Our results indicate that social information is most effective in increasing donation amounts at the beginning of a campaign: at this stage, social information increased donations by 20%, whereas social information had no effect at the end of a campaign. Why does the effect of social information depend on the project funding stage?

Earlier studies have indicated that donors at the beginning and end stages of a crowdfunding project are mainly family and friends (Borst et al., 2018). So why is there no social information effect at the end of the campaign, when the same sort of donor is present, and the manipulation is the same?

Table 6. Overview of the results of the contexts, as discussed in previous chapters

| Chapter | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| **Setting** | Lab and field experiments | Classroom experiment | Field experiment | Survey experiment |
| **Online context** | Yes and no | Yes | Yes | Yes |
| **Sample country** | Several | The Netherlands | The Netherlands | The United Kingdom |
| **Participants could pick their own charity** | Yes and no | No | Yes, from 114 projects hosted at the same platform | Yes, from a list of 10 most popular charities |
| **Context factors** | | | Project funding stage | |
| **Outcome** | | | Social information is most effective at the start and least at the end of a campaign. | |



The data show that participants in the control group behave differently towards the end of a campaign: they donate higher amounts ($M$ = 99.10) than at the early stage ($M$ = 60.42). We argue that the different working of social information at the different stages is the result of our study design. Remember that the suggested amount in Chapter 4 was 82 euros. Compared to the average amount in the control group, therefore, the suggested amount was higher at the early stage and below average at the end stage. Therefore, increasing donations at the beginning and decreasing donations at the end, since social information reporting low amounts decreases giving (Croson & Shang, 2008). Indeed, Chapter 4 reports a positive effect at the early stage (20%) and a (non-significant) negative effect at the end stage (-6%). In conclusion, the different effects of social information across the funding stages is likely to be the result of the suggested amount in comparison with the actual average amount donated: donors donate higher amounts towards the end of the campaign (see Table 2 in Chapter 4), and our manipulation

had no positive effect because it was too low.

The results in this dissertation provide support that social information affects giving in an online context and for the argument that the effect of social information depends on the fundraising stage. However, more work needs to be done to review moderating effects of the context, since the focus on context effects in this dissertation was limited.

### *6.1.6 To what extent does social information affect people's mood in a charitable context?*

Suppose that I donate to a crowdfunding project, which gives me a feeling of satisfaction, thus improving my mood (Andreoni, 1989, 1990). Can this positive effect be undermined if I first read about other people's donation amount, for instance because the information reduces my perception that my donation was voluntary? In other words, to what extent does social information affect people's mood in a charitable context? We examined this question in Chapter 5.

In Chapter 5 we explored whether social information affects not only the donation behavior, but also people's mood. A common criticism of the use of social information and nudges in general is that it comes at a price: most people dislike being "nudged" because it reduces their freedom (Hagman, Reese, Seewalk & Loeschinger, 2015; Brehm & Brehm, 1981). In addition, people try to avoid being asked to give to charity (Andreoni, Rao & Trachtman, 2017; Dellavigna, List & Malmendier, 2012), revealing people's aversion to being asked, indicating that people in fact dislike social pressure. These results may be reconciled by the assumption that social pressure and lack of control lower donors' moods (Dunn, Aknin & Norton, 2014). Because non-compliance with norms often leads to social sanctions (Hechter & Opp, 2011; Horne, 2009; Schachter, 1951), therefore, it decreases perceived control: people might comply not because they want to, but to avoid sanctions. We assumed, therefore, that the presence of social information increases the social pressure to donate. As a result, we expect social information to decrease people's mood. Therefore, social information could lead to a long-term negative effect of social information on donating as it could lead to a negative view of donating (that is, aversion). Should our results support this idea, this would be problematic for charities aiming to increase donations by providing potential donors with social information as a positive mood is an important prerequisite for donating (O'Malley & Andrews, 1983). A positive mood after donating, therefore, is important for retaining charitable behavior

in the end.

In line with earlier studies (Batson & Shaw, 1991; Dunn, Aknin & Norton, 2008), our findings suggest that donating increases happiness: donors reported somewhat (9%) happier moods than non-donors. However, donors did not expect that their moods would go up as the result of donating, while non-donors did. These two findings contradict each other, we would expect that those who donate are happier and expect themselves to be happier. As explained in Chapter 5, we expect that the findings are be the result of the timing of donation task and the order in which the mood questions were asked.

We hypothesized a negative effect of all three forms of social information (descriptive, injunctive and both) on the donors' moods. However, we found a positive direction for all forms of social information, though not all significant. Mentioning the injunctive norm resulted in a significant increase in donors' moods of 10%. The size of the effects of social information on donors' moods (10%) is in line with the effects on the donation amount (also 10%) (see Figure 10). Mentioning the descriptive (5%) or both (6%) norm(s) had no significant effect on donors' mood. The difference in terms of the effect on donors' mood between the injunctive and descriptive condition was not significant.

Our results suggest that social information does not lead to a decreasing perception of control because a positive perception of control is associated with a positive mood effect (Brehm & Brem, 1981). Donors apparently perceived that they had freedom of choice, regardless of our manipulation.




*Significant at $p < .05$ (*) Significant at $p < .10$

Figure 10. Percentage of increase donor's mood and donation amount by condition, in comparison with the control group. Among donors only, based on data of Chapter 5.

## 6.2 Discussion

What follows is an overview of our findings for theory (including an updated version of the theoretical model proposed in Chapter 2), research and practitioners. In addition, we provide discuss the limitations of our studies and implications and guidelines for ethical and responsible use of social information.

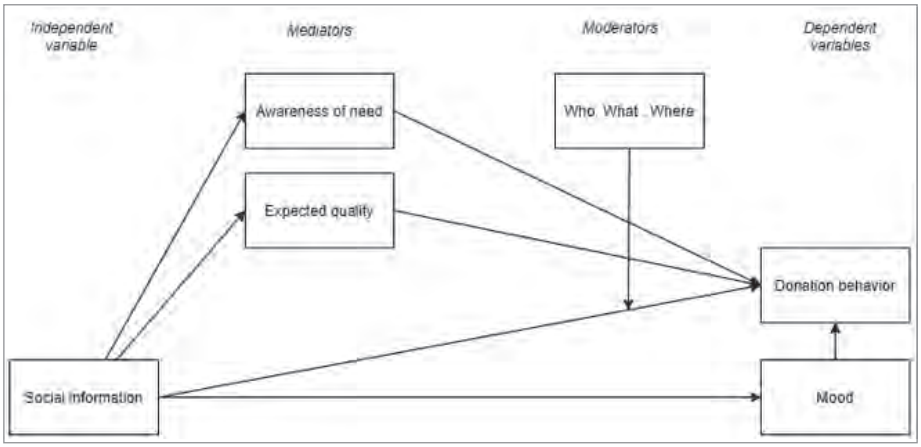



Figure 11. Updated version of the proposed framework in Chapter 2. All depicted relations are positive.

### *6.2.1 Implications and propositions for theory*

We now return to the theoretical model proposed in Chapter 2, Figure 11 presents an updated version. We added mood as a dependent variable and removed two of the moderators: perceived social norms and individual donation impact, since we did not find support for their influence. The moderators remain in the model because, our studies do not indicate they should not be included. Next, we discuss what the findings of the empirical chapters mean for the theories underlying the model.

*Social information increases donors' moods.* Studies on philanthropy report that while donors experience happier moods, this positive effect depends on people's perception of their autonomy: a positive mood is more likely to occur when people feel it was their choice to give (Dunn, Aknin & Norton, 2014). A common criticism of the use of social information and nudges in general is that they decrease peoples' mood: people dislike being "nudged" because this reduces their freedom (Hagman, Reese, Seewalk

& Loeschinger, 2015; Brehm & Brehm, 1981). If social information would decrease peoples' perception of autonomy, social information would decrease peoples' mood. Our findings, however, do not support this reasoning: social information did not result in a negative mood. Rather, we found that donors meeting with social information reported happier moods than those who saw no social information. In addition, the positive effect of social information on donors' mood is mediated by the donation amount: social information increases donors' donation amounts and therefore their mood.

Therefore, we found no evidence for a negative effect of social information on donors' moods. The absence of a long-term negative effect on donor's mood, however, does not automatically imply the presence of a positive long-term effect. More research is needed to review possible long-term effects. For instance, by monitoring participants behavior over a longer period, also reviewing how their donations are affected after being confronted with social information. We describe this in more detail in the section 'implications for research'.

*Perceived social norms do not mediate the social information effect.* Earlier studies suggest that social information effects are mediated by perceived social norms (Blake et al., 1955; Bøg et al., 2012; Croson et al., 2009; Croson & Shang, 2008, 2013; Edwards & List, 2013; Meyer & Yang, 2015; Murphy et al., 2015; Sasaki, 2019; Smith et al., 2015). However, the articles reporting on these effects are few (Bicchieri et al., 2009; Croson, Handy & Shang, 2009; Goeschl et al. 2018; Sasaki, 2019; Smith, Windmeijer & Wright, 2015), and only three of these studies included an explicit test of participants' perception of social norms (Bicchieri et al., 2009; Croson et al. 2009; Goeschl et al. 2018). We found no support for a mediating effect based on observational data and mediation analyses. If social information would imply a social norm and therefor affect giving, social information would result in a conforming effect: people donate as others do. As social information did not decrease the variation among the group presented with social information, it did not stimulate conforming behavior.

*Social information affects giving in an online context.* Chapter 4 shows that social information is an effective stimulant for increasing donation amounts in an online context: donors to a crowdfunding project donated higher amounts when presented with the average donation amount. Our findings add to the findings of Kawamura et al. (2018), who found a positive effect of social information among crowdfunding donors. This, therefore, supports

earlier suggestions from Bøg et al. (2012), Raihani & Smith, (2015), Sasaki (2019), Smith et al. (2015), who analyzed archive data of online donations and reported that if the donation amounts increases, so does the donation amount of later donors.

*Social information does not undermine altruism and it does not result in a crowding out effect.* An often-mentioned reason for giving is that people care about the output of a charity (Bekkers & Wiepking, 2011). Pure altruism (in the economic sense) would stimulate people who learn about the average donation amount of €15 to reduce their own donation with €15. This effect is also referred to as crowding out: the donation amount of one result in the decrease of later donations. However, we found no evidence to support the crowding-out effect as social information increased donation amounts. Nor did social information decrease the decision to donate. Our findings fit with more recent findings that question the validity of the crowding-out hypothesis (de Wit & Bekkers, 2017).

*Social information does not stimulate free riding.* Next to giving because someone cares about the charity's output (i.e. altruism), some people give because they want to benefit from the output. Others care more about benefitting from the output than contributing, also referred to as free riding. In social sciences, the free-rider problem refers to a type of market failure that occurs when people can benefit from a public good without contributing (Baumol, 2004). If social information stimulated free riding, we would have expected a smaller group of participants donating all their earnings in the treatment group. Figure 5 reports the percentage of people donating certain amounts, showing that free riding did not occur: social information decreased the proportion of people who gave amounts much lower than the suggested amount. On the other hand, social information did not decrease the number of high donations: Chapter 5 shows that the percentage of participants donating all their windfall money is the same in the control and the treatment conditions. We found that social information had a positive effect: it resulted in higher donation amounts without decreasing the number of donors and it decreased the number of low donations.

### *6.2.2 Implications for practitioners and policy*

Since the previous financial crisis, the Dutch cultural sector has been struggling financially. The current COVID-19 crisis and the drastic measures taken by the government of the Netherlands has major consequences for the culture sector. Additional measures taken by the government to financially

support the sector do not provide enough guarantees to the entire creative sector (De Jong & Baruch, 2020). Alternative financial sources, therefore, are essential to support the cultural sector.

Since 2010, when the government of the Netherlands announced substantial cuts in government funding, the arts sector has witnessed a decrease in donations despite the increased tax deductibility of donations to cultural organizations (Fransen & Bekkers, 2016). The philanthropic sector is facing two major problems: (1) charities have a hard time reaching potential donors (Bekkers, Schuyt & Gouwenberg, 2017), and (2) those who do give, donate lower amounts than they used to. For the cultural sector to advance using crowdfunding, therefore, its solicitation method needs a stimulant that can help charitable solicitation methods to attract more donors and increase donation amounts. To achieve this, we reviewed how mentioning other people's donation amount (i.e. social information) influences donation behavior. Our findings suggest that social information increases donation amounts. However, social information does not always increase the number of donors, though it did not decrease it. The effect size on the donation amount is rather small. We conclude, therefore, that social information is an effective method to increase donation behavior but that it does not work miracles. While social information has a small effect, it is a very low-cost intervention.

*Advantages and restrictions.* In this thesis, we aimed to examine the effects of social information and their boundary conditions, thereby providing insights into how donation behavior can be stimulated and help increase donation behavior. A clear advantage of social information is that it is easy to implement and that it is virtually costless. All that is needed is information on the average donation amount. Then social information affects the donation behavior by having a positive effect on the donation amount. Another advantage is that it does not decrease the number of donors. In addition, social information increases rather than decreases people's mood.

We found no evidence for a negative effect of social information. Social information does not decrease the donation amounts of donors who intend to give very high amounts, while it does increase the donation amounts of donors who intend not to give or give low amounts.

However, the strength of the positive effect of social information does depend on several conditions. An ambiguous context, for instance, strengthens the effect. From an ethical perspective, practitioners should always base the amount mentioned on truthful information and preferably on the average

donation amount. In addition, practitioners should also bear in mind that there is only a modest effect of social information, ranging from 6% to 35%.

The effect, however, has several restrictions. The effect of social information is most profound at the beginning of a campaign, and it has no effect at the end of a campaign. In addition, social information did not affect the decision to donate, and can therefore, not be used to increase the donor pool by attracting new donors.

*Social information in crowdfunding campaigns.* This dissertation provides one of the first insights into the application of social information in crowdfunding campaigns. We conclude that social information is an effective but moderate stimulant to increase donations to a crowdfunding campaign. Based on our findings, we advise crowdfunding creators to mention social information throughout the entire fundraising campaign as it increases donation amounts and does not have a negative effect at any point. While it is not expected to influence donation amounts in the last phase, removing the information at this point could create confusion.

In the early stages of our research, we questioned whether social information would affect giving because of the anonymous context of crowdfunding. We found positive effects in both lab and field settings in which the behavior of donors was unobservable.

Some crowdfunding practitioners voiced concern that adding yet another information source would cause donors to feel overwhelmed by the information (e.g. information overload). However, we found no support for this as the effect of social information was positive and donors following social information reported higher moods than those who received no social information.

*Social information does not result in people feeling manipulated.* Social information, like other nudges, come at the risk of people feeling manipulated. As people following social information reported happier moods, however, we found no evidence for this. These findings are important because low trust levels towards charities have been reported in the Dutch population (Bekkers, Schuyt & Gouwenberg, 2017). It is important, therefore, to review whether social information adds to this distrust as trust is an important prerequisite for donating (Bekkers, 2003; Chapman, 2019), and charities should focus on regaining the trust of the general population. The positive effect of social information on donors' moods gives hope that social information will not stimulate distrust towards charities or projects.

### *6.2.3 Limitations and suggestions for future research*

*Substitition.* The decreasing support from the Dutch government stimulated the cultural sector to find ways of attracting more funding from the public. In other words, the government wants the sector to increase the total amount given. Fundraisers depend on the influence of social information to increase the effectiveness of their solicitation method in attracting donors and increasing donation amounts. The studies in this dissertation have yielded several insights into the use of social information, such as empirical evidence for a positive effect, several methods for increasing the effectiveness of social information and a first step towards a theoretical framework explaining the effect of social information. However, we and previous researchers (except for Shang et al. (2009)) focused solely on one-time events, therefore, we can say nothing about possible substitution effects. In economics, substitution refers to that an increase in A comes at the cost of B. In the case of substitution, one donation would replace another donation, as a result, the total amount given to charities would remain the same. On the other hand, in the case of an income effect, total giving increases: one donation does not come at the cost of another donation, but it is an additional donation

It is unclear how social information affects giving to other organizations (e.g., substitution between organizations) and at other moments (e.g., substitution over time). In the case of substitution between organizations, a donation to one charity would come at the cost of a donation to another charity. In the case of substitution over time, a donation would come at the cost of another donation later in time. Both would be problematic for other fundraisers and charities.

The data presented here do not allow conclusions regarding whether social information increases donors' total giving or whether it leads to substitution. They only show that adding social information to an online fundraising campaign leads to a one-time increase in the amount donated. For the cultural sector and other fundraising efforts to advance by using social information, social information needs to increase people's general willingness to donate more rather than encourage single-shot donations.

We encourage future researchers to examine whether social information increases giving without resulting in substitution. We took a first step to examine possible negative effects of social information by testing whether social information decreases donor mood, as a positive mood is an important prerequisite for donating. Our data do not show a decrease in mood as a

result of social information. Although this finding can be viewed as positive news for those hoping to increase the success of funding campaigns, studies that shed light on whether social information leads to substitution is an essential next step to correctly inform practitioners about the use of social information.

We make two specific suggestions with regards to (1) substitution between organizations and (2) substitution over time. First, we suggest examining substitution between organizations. In this case, someone might reason: "I will donate more to charity A, but then I will donate less to charity B." If this happens, donors shift their donation from charity B to charity A. Studies could shed light on this through a field experiment by following a group of charities that do not yet use social information over a specified time period. Half of these charities could be randomly assigned to the control (i.e. no social information) or the treatment (i.e. social information) condition. In turn, researchers can assess whether: (1) the charities in the treatment condition receive more money and / or (2) the charities in the control condition receive less money. If substitution between organizations occurs, we would expect that the charities in the treatment condition receive higher donation amounts, whereas charities in the control condition receive lower donation amounts and, possibly, fewer donations. Another option to examine the substitution effect is to assign participants to two donation rounds, and to employ a randomized control setting in a 2 (social information about charity A: yes vs. no) x 2 (social information about charity B: yes vs. no) design, providing participants with windfall money. Participants would be asked to give twice, first for charity A then for charity B. If substitution occurs, the donation amounts in the second round be lower than in the first round, for those assigned to the social information group in the first round.

Second, we encourage researchers to examine whether social information increases donations at the cost of later donations: substitution over time. Potential donors might reason: "right now I will donate a higher amount, but then we will donate a lower amount next time I am asked to give." This way, donors shift the amount they would have donated at a later point to the time when they receive social information. Researchers should review whether donors donate lower amounts, or donate less often, after they have been presented with social information. This can be examined by following the same donor over a longer period, which, therefore, would require longitudinal data about donors' donation behavior.

Another option is to use a between-subjects design. For instance, using the panel survey used by Bekkers (2012). Bekkers (2012) conducted an experiment among Dutch households and found that social information increased the amounts donated. Bekkers used data from the fifth wave of the Giving in the Netherlands Panel Survey (2010), which is a biannual survey held among Dutch households. To review substitution over time, we could review the donation behavior of the same participants using the data of the sixth wave (2012) to see if those who received social information donated less or less often in the next wave. If social information results in substitution over time, the donation behavior of those presented with social information should be lower.

Another option is to use the additional data we collected for Chapter 5. During the experiment, we measured the participants' donation behavior twice, also assigning them to a different treatment condition. This specific part of the data has not been analyzed. We have data of a between-subject design in which participants were first included in the treatment condition and then in the control condition. If substitution over time occurs, we expect participants to donate lower amounts the second time they are asked to give (without social information) because they already donated a higher amount in the first round.

*Focus on one mediator.* The field of social information represents a vibrant area for theoretical development. In this thesis, we took a first step towards testing the model presented in Chapter 2. However, we focused on one of the mediators: social norms. We opted for this mediator because the idea that social norms mediate the social information effect received the most support from earlier studies. Our decision means that the other mediators deserve further scrutiny as we provide only indirect evidence for their absence or existence.

We found 35 empirical studies that focused on explanations for the effects of social information, and several other interesting theoretical perspectives, not all of which had been empirically tested, such as the idea that social information signals a need for help or provides a measure for the perceived impact of the donation. In addition, we suggested two additional mediators in the discussion: social information might function as a reference point and social information might lead to diffusion of responsibility. While we discussed these in Chapter 2 and in this discussion, these theoretical perspectives have not been tested empirically. Chapter 2, therefore,

suggests interesting new research directions that have been unexplored. Our hope is that Chapter 2 will be used as input for new innovative empirical studies testing the currently unexplored mechanisms in the theoretical model.

In this thesis, we have taken the first steps towards developing and testing a theoretical framework that specifies moderators that either increase or decrease the influence of social information on donation behavior. More work, however, needs to be done. Here, we present four suggestions for future research to test the theoretical framework proposed in Chapter 2.

First, we suggest that it would be fruitful to redirect efforts from trying to increase donation behavior and developing "the most effective stimulant" to focusing instead on "clean" manipulations based on clear theory-driven explanations for their hypothesized effects. A finding, the effect size, can confirm or reject a hypothesis underpinning a study. However, the act of articulating the results and explaining them would help scholars to understand social information effects and to view the effect from various perspectives, thus maturing the field. To explain findings, we need background information provided in the introduction section. Several studies reported in our literature review (Chapter 2), however, reported hardly any background information, and very few went beyond merely reporting earlier findings of social information effects. Few studies have sought to examine potential mediators to understand "why" the effect occurs. Instead, researchers have mostly focused their attention on the moderators to increase the effectiveness of social information. For instance, Croson & Shang (2013), Shang & Croson (2006), Croson & Shang (2008) and Meyer & Yang (2015) all focused on the question whether a large of small amount was more effective. We advise authors to think about explanations behind these effects to foster integrative theory building.

The second suggestion refers to an important empirical question that has remained unanswered: the relative influence of each of the mediators reported in Chapter 2 – whether social information primarily affects donation behavior because it influences the perceived social norms, awareness of need, expected project/non-profit quality or the individual donation impact – is still unclear at this point. Multiple mediators are likely to operate simultaneously, and their combinations are likely to differ across time, contexts and donors. We argue that in a crowdfunding context, for instance, social information mostly affects giving because it increases awareness of need or by providing a quality signal. In a more public context, however, social norms may be more at play. We believe that it is an important task for future

research, next to testing the proposed theoretical model, to identify systematic patterns in the effects of moderators, mediators and their interactions.

Third, we noticed that, while social information is studied by both behavioral economists and social psychologists, researchers from either field report virtually no findings from the other field in their empirical reports. It is important to combine findings from both fields as experiments in both fields have shown how social information influences giving behavior. Therefore, we advise researchers to collaborate with other researchers from different fields and read and cite each other's papers so that knowledge can be integrated across research fields.

Finally, we suggest conducting a meta-analysis to test and update the model proposed in Chapter 2. At the time, we opted for a systematic review as there was no overview of all empirical studies. Selecting studies via a systematic review is a precondition for performing a meta-analysis (Ahn & Kang, 2018), and are essentials to review possible mediators and moderators. Chapter 2 answers the question "why and when does social information increase charitable giving?" by summarizing all empirical evidence. This is but the first step, and researchers should proceed to use statistical methods to summarize the results of the studies used and those published since then. In addition, we encourage researchers not only to focus on social information in the form of donation amounts but also to include other forms of social information.

*Mono-operationalization bias.* This dissertation focuses solely on one type of social information: people's donation amount. However, several other types of social information exist, and several are being applied by practitioners hoping to affect donor behavior. The focus on one type of social information has the advantage that we could compare social information effects across different studies and contexts. As a result, the combination of the reported empirical chapters in this dissertation provides new insights next to the insights achieved from the separate chapters. Combining the chapters, for instance, enabled me to test (indirectly) that social information might be operating as a quality signal. Specifically, we compared the findings from Chapter 3, in which participants could not choose their own charity/project, with the findings in Chapters 4 and 5, in which participants could pick their own charity/project. We would not have been able to compare these findings had we used a different type of social information.

The sole focus on one type of social information, however, entails the risk of mono-operationalization bias. Because we operationalized social information in the same way across studies, we cannot be sure that effects can

be generalized to other operationalizations of social information (such as, for example, information about the number of donors). However, we argue that in a novel field such as philanthropy, where a solid theoretical framework is missing and the literature is mainly based on empirical studies (Bekkers & Wiepking, 2011), sacrificing generalization for in-depth systematic analysis is a logical choice. Researchers should only focus on generalization after social information effects have been supported by a theoretical model. We argue, in other words, that it is important first to understand one effect before generalizing findings to other operationalizations of social information.

*Investigate how the proposed model works with different groups of donors.* A challenge for future research is to investigate how the model proposed in Chapter 2 works with different groups of donors, by segmenting donors, for instance, based on common characteristics, such as shared needs, personality traits and socioeconomic status to identify "high-yield segments": What group of donors would profit most from using social information?

Personal characteristics of potential donors, such as personality traits and socioeconomic characteristics, are likely to influence social information effects. While we found no support for the personal traits measured in Chapter 3, this does not mean that there are no moderating effects of personal characteristics. The literature in psychology identifies a lot of personal traits (Fleeson & Jayawickreme, 2015), and we have only reviewed three of these.

*Focus on awareness of need and quality signal as potential mediators of the effect of social information.* We encourage researchers to move away from reviewing perceived social norms and investigate instead whether and how perceived awareness of need mediates relations between social information and donation behavior. The finding that donors donate not just around but also above the suggested amount suggests that social information may operate as a signal of need. The finding that social information increased donations more in a context in which donors make decisions about an unknown project instead of a well-known charity suggests that social information may operate as a quality signal.

Numerous studies examining donation patterns have shown that people must be aware of there being a need for help before they feel motived to give (more; Bekkers & Wiepking, 2011). Thus far, to the best of our knowledge, the idea of awareness of need as a mediator for social information effects has received no explicit attention from researchers. Combining our

empirical chapters, we made the first step to explore this mediator, and we hope that researchers will use this to further study this mediator. They could do so, for instance, by measuring, through survey-items, respondents' concern regarding the possibility that the project will succeed in raising the target amount. This measure should not be confused with our individual donation impact mediator, which refers to people's desire to fulfill an important role in ensuring the project is successful. Rather, awareness of need refers to the concern regarding the possibility that the project will fail, not referring to one's own personal impact. If social information operates as a signal of need, then those presented with social information are expected to perceive this need for help as higher.

The findings of Potters et al. (2001) that social information effects were absent alongside information about the public good's quality, suggest that social information functions as a quality signal. Combining the findings across our empirical chapters, we found further (indirect) support for this reasoning. Social information effects were stronger in a context where participants were asked to give to an unknown project (Chapter 3), compared to when participants were asked to give to self-selected charities (Chapter 4 and 5). We argue that in Chapter 3 participants had even less knowledge of the quality of the project than if the project had been connected to an existing charity as with Chapter 4 and 5. As a result, social information had a stronger effect in Chapter 3.

*Examine when and why social information has no effect on the decision to donate.* In line with earlier studies (Goeschl, 2018; Klinowski, 2015; Murphy et al., 2015; Reingen, 1982), we found no effect on the decision to donate. Earlier studies provide no explanation for not finding such an effect. In Chapter 5 we argue among those who have already decided to reframe from giving, social information has no effect, however, this remains untested. We encourage researchers to examine why and when is the decision to donate is unaffected by social information. The expected null effect can be analyzed using Bayesian statistics. An understanding of social information effects on the decision to donate is important for practitioners, since the percentage of households in the Netherlands that gives is decreasing (Bekkers et al., 2017).

### *6.2.4 Ethical and responsible use of social information*

What is the best method to implement social information? This question should focus not just on finding the strongest positive effect, but also on

the ethical and responsible use of social information. The use of social information should raise ethical questions as, based on the nudging literature (Sunstein, 2019), concerns about social information point to welfare and self-government considerations. Social information in our case results in people losing money: its intended effect is that people give more than they would have done otherwise. As it could be argued that social information is a welfare-reducing nudge, researchers and practitioners alike should always bear this in mind when presenting people with social information.

Chapter 5 shows that donations induced by social information actually improve the mood of participants. The participants who completed the study with less money for themselves than they could have had, were at least happier than those who kept their endowment. From a collective point of view, social information is at the same time a stimulant for general welfare: social information in a charitable context aims to increase the success rate of campaigns focusing on the common good. In other words, social information in our case is used for the love of humankind. This is how the context and the intentions do matter.

Regarding self-government, people should not experience a total loss of control. A perception of decreasing control negatively affects donors' moods (Brehm & Brehm, 1981) as human well-being partially depends on feelings of autonomy (Weinstein & Ryan, 2010). We found no support for this as we found no proof of resistance towards social information: it did not decrease the number of donors. In addition, social information increased donors' moods.

*Disclosing realistic and truthful information.* The underlying motivations for using social information are essential, and from an ethical perspective, social information should be transparent and disclose truthful information. It is easy to mention a high donation amount if we take that of a single donor: simply pick the highest amount. If this method is applied, however, practitioners must be clear about the fact that this was one earlier donation (an outlier, in this case) instead of the average. From an ethical viewpoint, we would much prefer for practitioners to mention the average donation amount because this reflects a more realistic donation amount. In addition, social information should be based on true information: the actual average donation amount of previous donors. Therefore, practitioners should first collect data to calculate the average donation amount. In motivational terms, rather than increasing someone's private wealth to the detriment of

other people, the primary objective in using social information should be to improve the chances of success of a charitable campaign pursuing a common good.

*Manipulation*. Some might object to the implementation of social information, arguing that this tool manipulates people into giving (more). Social information is indeed intended to change people's behavior, but this alone is not enough to categorize it as manipulation (Sunstein, 2019). Social information should not disrespect people's capacity for reflective choice by, for instance, exploiting their weakness. It could be argued that social information builds on people encourage to conform to social norms. However, we found no evidence that social information operates as a social norm. In addition, an action can be considered manipulative if it aims to influence people in an unconscious manner (Sunstein, 2019). We found no evidence that suggests that social information operates as an unconscious stimulus because, as reported in Chapters 3 and 5, most participants (70%) could afterwards describe the amount mentioned. Most people, therefore, actively witnessed the information. Based on this, we conclude that people's decisions were not affected in a way that bypassed their own deliberate capacities. Finally, an action might be manipulative if it is not transparent. Convinced by Hertwig & Ortmann (2001), we advise practitioners to follow the concept of no deception, mentioning the actual average amount. This is important because, an earlier study found that misleading social information (fake Facebook Likes) had a negative effect on consumer decisions (Wessel, Thies & Benlian, 2016), which could also damage the relationship between donors and charities.

We believe that we applied social information in an ethically responsible manner throughout our studies and encourage other people (researchers and practitioners) to do so as well. Social information, like all nudges, can easily be used unethically. The information and knowledge shared in this dissertation are intended to be used while respecting the follow guidelines:

- The guiding principle should be to increase the welfare of the public and love of humankind; social information should be applied with the intention of adding to the common good.
- Autonomy should be respected; the information should not be presented in a coercive manner.
- The information should be transparent and truthful: the amount should be based on the actual donation amounts of previous donors and involve no deception.

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## Summary

How effective is sharing information with potential donors about previous donors' donation amounts (that is social information) in affecting the donation behavior? Social information informs individuals about the behavior of others which can be used to increase individual donation amounts. If social information increases donations, why is that? In which situations is the effect of social information stronger? Previous research shows that donors tend to mirror other donors' donation amounts. The idea that potential donors would adjust donation amounts based on information about the donation behavior of others is referred to as the social information hypothesis. Based on this hypothesis, showing potential donors that the average donation amount is for instance €15 would increase the likelihood that they give €15. Using social information to deliberately guide human decision-making about donations is increasingly popular. Practitioners implement social information hoping to increase donation behavior. Charities, for instance, depend on mechanisms that can stimulate donations. With practitioners depending on social information to stimulate donations, we need to have a clear understanding of how social information can increase the effectiveness of charitable stimulants.

In a review of the literature, I argue that it is difficult to infer from the current literature on social information effects to what extent social information affects donation amounts. This is because this literature reports positive, null and negative effects. Based on this, I conclude that a coherent view of social information effects is currently missing. In addition, previous studies have provided insufficient explanations to account for the effects they found (or lack thereof). As the literature provides only an incomplete view of the effects of social information, characterized by inconsistent findings, practitioners cannot safely apply social information as a stimulant for donation behavior. With the studies in this dissertation, I therefore aim to shed light on when and why social information affects donation behavior.

In three empirical studies, I use the average donation amounts of earlier donors in an attempt to affect participants' donation behavior. If the donation amount is higher than the intended donation amount, the effect of social information is positive. By mentioning the average donation amount, I take advantage of the fact that giving is right-skewed; the average is often much higher than the median amount donated by previous donors.

Based on the empirical studies discussed in this dissertation, I conclude

that social information modestly increases donation amounts, but it does not increase the propensity to give. More specifically, I conclude that social information mostly has a positive effect: it results in higher donation amounts without decreasing the number of donors, while also decreasing the number of low donations. Thus, free riding did not occur; as this would have implied that some donors would have used the public good without contributing. That is, if free riding had occurred, social information would have reduced the number of donations. In addition, I found no evidence to support the crowding-out effect, in which one donor's donation amount results in the decrease of other donations. Pure altruism would stimulate people who learned about the average donation amount of €15 to reduce their own donation with €15.

Earlier studies suggest that social information effects are interpreted by potential donors as social norms (regarding how others behave or should behave). I found no support for a mediation by social norms based on observational data and mediation analyses. If social information would imply a social norm and therefore affect giving, social information would result in a conformity effect, in which people would donate as others do. Consider the example of the average of €15. If donors conform, they would copy the suggestion of €15. However, this was not the case: social information did not make the mentioned amount more popular, nor did it decrease the variation among the group presented with social information. Thus, social information did not stimulate conforming behavior. Instead, the results suggest that donors were more likely to donate amounts above the suggestion amount. We found no support for a mediation effect. While both perceived injunctive (how you ought to behave) and descriptive (how others are behaving) social norms influenced donation behavior, the manipulation of social information did not affect these norms. I conclude that social information effects are not mediated by perceived social norms.

My research encourages future studies to investigate whether and how quality signals and perceived awareness of need mediate relations between social information and donation behavior. Quality signals provide information about the degree of excellence of one charity compared with other charities. The perceived awareness of need refers to the perceived necessity for help, in this case a donation. First, I argue that social information could function as a quality signal, to determine if a charity or project provides good quality. I expect that people prefer to donate to projects and practitioners of higher quality, as low-quality projects are less likely to provide utility to people. If other donors contribute high amounts, donors may perceive the

donation as a signal that the charity provides good quality, and a higher donation is a good investment. Second, I argue that social information could increase awareness of need. Awareness of need is essential for giving and can be increased if beneficiaries clearly communicate this need to potential donors. I argue that if others contribute high amounts, donors may perceive the donation as a signal that there really is need for help and a higher donation is needed.

In addition, social information enhanced a donor's mood after donating. A common criticism of the use of nudges (subtle pushes towards desired behavior) such as social information is that it comes at a price: most people dislike being "nudged" because it reduces their freedom, and this could lead to an aversion to giving. However, my results of an online experiment conducted in the UK do not support this idea. The study demonstrated a positive, rather than a negative, effect of social information on donors' moods. The results suggest that social information does not lead to a perception of decreased control or freedom, because a positive perception of control is associated with a positive mood effect.

Furthermore, I examined the social information effect on donations in a crowdfunding context, where funding is assembled online. This is relevant, because the effect has not previously been systematically measured in such a setting. The empirical results of my thesis are relevant for practitioners in the crowdfunding business as they struggle to raise significant amounts of money. In crowdfunding projects, the empirical chapters of the dissertation suggest that social information affects giving in an online context: donors to a crowdfunding project donated higher amounts when presented with the average donation amount of previous donors. In addition, I found that the effect of social information depends on the fundraising stage. The results indicate that social information is most effective in increasing donation amounts at the beginning of a campaign: at this stage, social information increased donations by 20%, whereas social information had no effect at the end of a campaign.

## Samenvatting

Hoe effectief is het delen van informatie over het donatiebedrag van eerdere donateurs (dat wil zeggen sociale informatie) aan potentiële donateurs in het beïnvloeden van geefgedrag? Sociale informatie informeert mensen over het gedrag van anderen, wat gebruikt kan worden om donaties te verhogen. Waarom zou sociale informatie donaties verhogen? Onder welke omstandigheden is het effect van sociale informatie sterker? Eerder onderzoek toont aan dat donateurs hun donatiebedrag laten beïnvloeden door het donatiebedrag van anderen. Dit gedrag wordt beschreven in de sociale-informatiehypothese. Volgens de sociale-informatiehypothese zou het laten zien van het gemiddelde donatiebedrag van bijvoorbeeld € 15 ervoor zorgen dat mensen hun donatiebedrag aanpassen aan de hand van hun interpretatie van de € 15. Met opzet iemands gedrag beïnvloeden door een klein duwtje in de rug, zoals bij sociale informatie het geval is, wordt veelvoudig gebruikt. Fondsenwervers gebruiken sociale informatie in een poging om het geefgedrag te beïnvloeden. Goede doelen hebben een groot belang bij het effectief inzetten van mechanismes zoals sociale informatie, omdat goede doelen minder nieuwe donateurs bereiken en de mensen die wel doneren lagere bedragen doneren.

In een review van de literatuur  beargumenteer ik dat het moeilijk is om op basis van de huidige literatuur een voorspelling te doen over in hoeverre sociale informatie een effect heeft op geefgedrag. Eerdere studies rapporteren positieve en negatieve effecten, of helemaal geen effect. Ik concludeer hieruit dat het onderzoekers tot nu toe niet is gelukt een goed overzicht te geven van verklaringen voor het (afwezige) effect. Doordat de literatuur een incompleet beeld schetst, kunnen fondsenwervers sociale informatie niet met zekerheid inzetten om donaties te stimuleren. In drie empirische studies onderzocht ik daarom het effect van sociale informatie op geefgedrag. Het effect van sociale informatie is positief als het donatiebedrag hoger is dan het bedrag wat iemand had voorgenomen. In de empirische studies gebruik ik het gemiddelde donatiebedrag van andere donateurs om het donatiegedrag te beïnvloeden. Door het gemiddelde te hanteren, maak ik gebruik van het feit dat geefgedrag rechts verdeeld is; het gemiddelde is vaak veel hoger dan de mediaan. Op basis van de empirische studies concludeer ik dat sociale informatie een positief effect heeft op het bedrag dat donateurs doneren, maar niet op de kans dat ze doneren. Ik concludeer dat sociale informatie voornamelijk een positief effect heeft: het leidt tot meer

hoge donaties zonder het aantal donateurs te verlagen (geen afschrikeffect), terwijl het ook het aantal lage donaties vermindert. Dit betekent dat sociale informatie er niet voor zorgt dat mensen meeliften op de donaties van anderen (in het Engels 'free riding'): sociale informatie heeft het aantal donaties verminderd. In het geval van free riding maakt een deel van de groep gebruik van het publieke goed zonder daar zelf een bijdrage aan te leveren. In dat geval had sociale informatie het aantal donaties verlaagd. Daarnaast heb ik geen bewijs gevonden voor een 'verdrijvingseffect' (in het Engels 'crowding-out'), aangezien sociale informatie de donatiebedragen verhoogde. Puur altruïsme zou ervoor zorgen dat het laten zien van het gemiddelde van € 15 leidt tot een afname van € 15.

Eerdere studies suggereren dat sociale informatie wordt geïnterpreteerd als een sociale norm (dat wil zeggen dat het informatie geeft over hoe anderen zich gedragen of zich zouden moeten gedragen). Hiervoor heb ik geen bewijs gevonden, noch gebaseerd op het bestuderen van de donatiebedragen, noch op basis van de mediatie-analyses. Als sociale informatie geïnterpreteerd zou worden als een sociale norm, dan zou sociale informatie ervoor moeten zorgen dat mensen zich conformeren: donateurs doneren dan gelijkwaardige bedragen als anderen. Als we terugdenken aan het voorbeeld van € 15, dan zou dit betekenen dat mensen zo dicht mogelijk rond de € 15 doneren. Dit was echter niet het geval: sociale informatie zorgde er niet voor dat de variatie rondom het gemiddelde kleiner werd. De resultaten wijzen eerder uit dat donateurs voornamelijk bedragen net boven het suggestiebedrag doneren. Ik concludeer dat het effect van sociale informatie niet gemedieerd wordt door de perceptie van de sociale norm. Hoewel de interpretatie van injunctieve (wat je zou moeten doneren) en descriptieve normen (wat anderen doneren) het donatie gedrag beïnvloedde, kwam dit niet door onze manipulatie van sociale informatie.

Op basis van het onderzoek adviseer ik onderzoekers zich te focussen op hoe en waarom kwaliteitssignalen en 'bewustwording dat er hulp nodig is' de effecten van sociale informatie mediëren. Kwaliteitssignalen zorgen ervoor dat goede doelen zich kunnen onderscheiden van andere goede doelen. Bewustwording dat er hulp nodig is verwijst naar de mate waarin iemand inschat dat er hulp nodig is, in dit geval een donatie. Ten eerste beargumenteer ik dat sociale informatie als een kwaliteitssignaal kan functioneren, door aan te geven dat een goed doel of project van goede kwaliteit is. Ik verwacht dat mensen een voorkeur hebben om te doneren aan projecten en goede doelen die van een goede kwaliteit zijn. Dit aangezien kwalitatief

slecht scorende projecten en goede doelen waarschijnlijk minder goed in staat zijn een effectieve bijdrage te leveren. Als andere donateurs hogere bedragen doneren, interpreteren donateurs dit mogelijk als een signaal dat anderen het een kwalitatief goed project/goed doel vinden en een goede investering. Ten tweede verwacht ik dat sociale informatie kan worden geïnterpreteerd als een signaal dat hulp daadwerkelijk nodig is. De bewustwording dat hulp nodig is, is noodzakelijk om te willen doneren. Deze bewustwording kan worden vergroot als fondsenwervers de nadruk leggen op de noodzaak voor hulp. Ik ben van mening dat als anderen hoge bedragen doneren, donateurs dit mogelijk interpreteren als een signaal dat de nood hoog is en het belangrijk is om een hoger bedrag te doneren.

Verder heb ik gevonden dat sociale informatie ook van invloed is op hoe iemand zich voelt na het doneren. Vaak wordt gezegd dat sociale informatie en andere 'nudges' (subtiele duwtjes in de rug richting gewenst gedrag) niet alleen maar positieve effecten hebben: mensen kunnen het niet altijd waarderen wanneer ze in een bepaalde richting worden geduwd, omdat ze dit zien als een inbreuk op hun keuzevrijheid. Sociale informatie zou daarom een negatief effect kunnen hebben op het geefgedrag op langere termijn, bijvoorbeeld doordat iemand een negatief beeld krijgt over doneren, hetgeen resulteert in weerstand. Ik heb hiervoor geen ondersteuning gevonden. In plaats van het verwachte negatieve effect, is een positief effect gevonden van sociale informatie op iemands stemming. De resultaten suggereren dat sociale informatie de keuzevrijheid niet beperkt, aangezien het gevoel van keuzevrijheid geassocieerd wordt met een positief gevoel.

Gedurende het onderzoek heb ik gekeken naar het effect van sociale informatie in een online context, namelijk crowdfunding. Dit is een belangrijke toevoeging, aangezien het effect van sociale informatie nog onvoldoende is getest in een onlineomgeving, laat staan in een crowdfunding context. De empirische bevindingen resultaten uit mijn onderzoek zijn belangrijk voor fondsenwervers die gebruik willen maken van crowdfunding, aangezien crowdfunding tot nu toe onvoldoende effectief is in het binnenhalen van donaties. Mijn onderzoek toont aan dat sociale informatie een efficiënte toevoeging kan zijn om het online doneren te bevorderen. Donateurs van crowdfundingprojecten doneren hogere bedragen wanneer ze het gemiddelde donatiebedrag kunnen zien. Daarnaast heb ik gevonden dat het moment waarop fondsenwervers sociale informatie inzetten van belang is. De resultaten suggereren dat sociale informatie voornamelijk in het begin van een campagne effectief is (toename van 20%) en niet aan het einde van een campagne.

# Dankwoord

Het schrijven van mijn dankwoord; we zijn nu echt aan het einde van een belangrijke periode in mijn leven. Gedurende mijn promotietraject is er veel gebeurd; goede dingen, geweldige dingen (de geboorte van mijn dochter Hannah) en minder geweldige dingen. Ik ben ervan overtuigd (geraakt) dat werk enkel werk is en niet een levensdoel op zichzelf. Het is echter makkelijk om dit te vergeten tijdens je promotieonderzoek. Het belang van familie, vrienden en een goede werkomgeving is mij nu al te duidelijk. Ik wil de belangrijkste mensen voor het succesvol afronden van mijn proefschrift hierbij bedanken. Ik neem hier de tijd voor, ik heb veel om dankbaar voor te zijn: promoveren doe je niet alleen.

*"The purpose of life is to discover your gift"*

Allereerst bedank ik mijn ouders. Zonder jullie liefde en aandacht was dit nooit gelukt. Waarbij veel mensen veel willen weten, wil ik voornamelijk weten waarom iets is wat het is. Dit zorgt ervoor dat ik langzamer ben dan anderen. Jullie zijn de eersten geweest die dit begrepen. Ik wil jullie bedanken voor jullie steun en jullie geloof in mijn kunnen. Het is dankzij jullie dat ik op zoek durfde te gaan naar 'mijn doel'. Jullie hebben voor mij bergen verplaatst totdat ik het zelf kon. Toen de bergen voor onze familie hoger werden gingen we gezamenlijk aan de slag. Ik ga liever door de berg heen, maar helaas kan dat niet altijd. Soms kan je er niet over, door of omheen. De hechtheid van onze familie zorgt ervoor dat zo een berg dan wordt opgenomen in het landschap: *het leven is wat je gebeurt terwijl je andere plannen maakt* (John Lennon, 1980). Die uitspraak is maar al te waar. Daarnaast hebben jullie mij geleerd dat het voornamelijk om de weg naar een doel gaat en niet zozeer om het doel op zich: 'Als je maar je best doet, dan is het altijd goed'. Ik herhaal dit bijna dagelijks in mijn hoofd. De wetenschap is een zeer competitieve werkomgeving. De criteria voor 'goed genoeg' zijn vaak onduidelijk en goed is immers middelmatig. Echter, mijn ouders hebben mij ook geleerd jezelf te zijn en dat het gaat om de ontwikkeling en niet om winnen. Volgens de wijsheid van mijn vader: *'Als je een hele werkweek lang niks concreets hebt geproduceerd, maar wel iets hebt geleerd, dan is het een goede week geweest'*. Ik heb hieruit geleerd dat als het enkel gaat om het winnen en de eerste te zijn, je op de verkeerde manier wint. Kortom, jullie leerden mij om te kijken naar waar het echt om gaat.

Bro, ook jij komt in dit verhaal voor. Jouw steun zat hem vooral in het overleven van mijn 'ik weet alles beter' fase. Mijn excuses, het moet erg irritant zijn geweest. Gelukkig weet ik nu nog meer en is de kans dat ik een incorrecte suggestie geef een stuk kleiner dan toen.

*"The work of life is to develop it"*

Mats. Toen ons gezin zich uitbreidde werd ons leven complexer, ik twijfelde of mijn inzet wel genoeg zou zijn (en dat doe ik nog steeds). We hebben het hier vaak over gehad en ondanks dat je zelf nooit voor een academische carrière zou kiezen, bleef je mij steunen. Dromen, daar moet je niet over praten, die moet je waarmaken: een droom is iets wat je nog niet hebt bereikt. Klagen? Dat mag, maar daarna gaan we door. Problemen? Die lossen we op. We zijn twee tegenpolen die elkaar harmonieus aanvullen: waarbij ik in eeuwige twijfel ben, ben jij een snelle denker en probleemoplosser. Het is een dunne lijn tussen het streven naar perfectie en obsessie; jij houdt mij aan de juiste kant. Je bent een enorme steun geweest gedurende de afgelopen jaren, onmisbaar! Ik wil je bedanken voor al je geduld en liefde. Ik wil je voornamelijk bedanken dat mijn carrière de afgelopen jaren voorrang heeft gekregen en dat dit niet ten koste ging van ons gezin. Ik denk dat dit heel erg bijzonder is. Ik zou je eigenlijk bij al mijn stukken moeten benoemen als coauteur. Jouw 'probeer het gewoon' mentaliteit heeft ervoor gezorgd dat ik sowieso gesolliciteerd heb naar deze promotieplek. Technisch gezien is dit dus allemaal dankzij jou.

Hannah, mijn kleine monstertje. Ondanks dat je dit nog niet kunt lezen wil ik ook jou via deze weg bedanken. Je hebt mijn leven op een prachtige manier gereorganiseerd (zowel letterlijk als figuurlijk). Je bent zo vrolijk en nieuwsgierig dat het onmogelijk is om er niet om te moeten lachen. Jouw 'waarom' fase begon al vroeg (vooral in de auto), ik vind het prachtig. Verleer dit nooit, laat niemand je zeggen dat je moet veranderen en laat je verbazen. Wees je bewust van je fouten, maar laat je er niet door definiëren. Bewonder en leer van anderen, maar respecteer je eigen kunnen.

Oma, ik had u er graag fysiek bij gehad tijdens mijn verdediging. We hebben het beiden geprobeerd, maar het mocht niet zo zijn. Het was te vroeg, het is een gemis, maar het is wat het is. In één van onze laatste gesprekken hadden we het over onze dromen en u zei: *'Ga ervoor, je moet er zelf wat van maken'*. Ik leer hieruit dat je ervoor moet zorgen dat je niet met spijt naar het

verleden kijkt, omdat je met angst naar de toekomst keek zonder er iets aan te doen. Met opa gaan de gesprekken verder, we hebben het vaak over het verleden. U zult niet vergeten worden.

Lisa, mijn beste vriendin en net zo zeer familie als de eerdergenoemde familieleden. Wie had ooit gedacht dat het meisje met de vlechtjes en het meisje met de krullen na 25 jaar (wat zijn we oud) nog steeds vriendinnen zouden zijn! Je hebt mij vaak geïnspireerd, ook al geloof je mij nooit als ik dat zeg. Jij geeft nooit op en dat heb ik vaak als voorbeeld gebruikt om dat zelf ook niet te doen.

Bernadette, ik vind het nog steeds geweldig dat je voor mij een stageplek wist te creëren als junior onderzoeker/student assistent bij de Haagse Hogeschool. Het was een inspirerende tijd. Het was op dat moment dat ik het laatste zetje kreeg richting een academisch carrière. Ik wil je bedanken voor je vrijgevigheid. Bedankt!

*The meaning of life is to give your gift away*

Tenslotte, mijn collega's. Het is dankzij jullie dat ik 'mijn doel' kan delen. Arjen, Barbara, Barry, Bianca, Florian, Maura, Pamala, Rosan, Theo, Tjeerd (op alfabetische volgorde om jaloezie te voorkomen), natuurlijk ook eerdere collega's (specifiek Irma en Marcel). Het is zo bijzonder om deel uit te mogen maken van een hecht team in zo een grote organisatie. Theo beschrijft het familiemodel van onze werkgroep als een duiventil: je vliegt misschien uit, maar je komt altijd weer terug (niet te verwarren met Hotel California van de Eagles). Uitgevlogen ben ik nog niet, maar ik zal deze tijd in ieder geval nooit vergeten.

René, ik wil jou in het bijzonder bedanken. Jouw uitspraak dat we niet op de schouders van reuzen moeten staan en dat wetenschap niet 'magisch' moet zijn maar helder en herhaalbaar vond ik zeer inspirerend. Dit is belangrijk in een wereld waar winnaars op een voetstuk worden gezet. Je houdt niet van complimenten, ik zal het daarom kort houden: bedankt dat je mijn potentie zag en geholpen hebt om deze verder te ontwikkelen. Bedankt voor de keuzevrijheid, extra tijd en de inspirerende gesprekken. Ik voel mij competent en ik denk dat dat (en niet de publicaties) het uiteindelijke doel is van promoveren. Dank!

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uit naar onze lunches en diners. We probeerden het schematisch aan te pakken, maar dat mislukte altijd. Het zijn daarom random diners geworden: wanneer we alle drie kunnen. Jullie zijn fantastisch, en ik ben dankbaar voor jullie vriendschap.

Ik concludeer met de gedachten dat promoveren echt een reis is. Het einde komt vanzelf, alles daartussenin is aan jou: maak ervan wat je voor ogen hebt!

# About the author

## *Biography*

Claire (1992) was born in Haarlem, the Netherlands. After receiving her Bachelor's degree in psychology in 2013, she decided to continue her studies at the Vrije Universiteit (VU) University. In 2014, she obtained a Master's degree in Organizational Psychology after conducting an internship as at the Hague University of Applied Sciences. After her graduation, Claire applied for a PhD position at the Department of Organization Sciences at the VU University. Claire was mostly fascinated by the philanthropic component of the project and after about two years she transferred to the Center of Philanthropic Studies (department of Sociology) at the VU University. Supervised by prof. dr. René Bekkers and prof dr. Bianca Beersma, she studied how online donation behavior (crowdfunding) is influenced by the behavior of others (that is social information). Claire focused on developing a theoretical framework that could assist the empirical accounts in order to help the field mature. She conducted several experiments to test the proposed framework. Her research resulted in two publications in international, peer-reviewed journals.

In 2018, she started her own company (Science Alliance NL), focused on workshops in online science communication for junior researchers. She wrote blogs for multiple online journals to share her insights with practitioners and scientists alike. Going towards the end of her PhD, she joined the Giving in the Netherlands Panel Studies (GINPS), which fitted perfectly with her interests. At GINPS she continued her research of charitable giving, working with panel data and alongside her dissertation supervisor René Bekkers. As a postdoctoral researcher she examined giving among Dutch households with a specific focus on generation effects on giving, which resulted in five book chapters. Claire aims to continue her studies on social information and indicated that as a next step she wants to focus on substitution effects.

# Publications in this dissertation

## *Peer-reviewed publications*

Van Teunenbroek, C., Bekkers, R., & Beersma, B. (2020). Look to others before you leap: A systematic literature review of social information effects on donation amounts. *Nonprofit and Voluntary Sector Quarterly*, *49*(1), 53-73.

Van Teunenbroek, C., & Bekkers, R. (2020). Follow the crowd: Social information and crowdfunding donations in a large field experiment. *Journal of Behavioral Public Administration*, 3(1).

## *Published conference proceedings*

Van Teunenbroek, P. S. C. (2016). Social Aspects and Successfully Funding a Crowd-Funding Project: The Impact of Social Information. *Science, Engineering and Technology, International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 10(6), 1765–1776.

Van Teunenbroek, C., Bekkers, R., & Beersma, B. (2020). Others are doing it too: Understanding social information effects on donor's behavior and mood. In: *9th International Conference of the European Research Network on Philanthropy,* Basel, Switzerland, (114-130), 4-5 July 2018. Retrieved from: https://ernop.eu/wp-content/uploads/2020/02/Teunenbroek-Bekkers-Beersma-conference-proceedings-correct2.pdf

# Other publications during candidature

## *Book chapters*

Bekkers, R. & van Teunenbroek, C. (2020). *Generatieverschillen in geefgedrag* in Bekkers, R., Schuyt, T. N. M., & Gouwenberg, B. M. (Ed.), in Geven in Nederland 2020: Huishoudens, nalatenschappen, fondsen, bedrijven, goede doelenloterijen en vrijwilligers. Lenthe Publishers.

Van Teunenbroek, C. & Bekkers, R. (2020). *Geven door huishoudens* in Bekkers, R., Schuyt, T. N. M., & Gouwenberg, B. M. (Ed.), in Geven in Nederland 2020: Huishoudens, nalatenschappen, fondsen, bedrijven, goede doelenloterijen en vrijwilligers. Lenthe Publishers.

De Gilder, D. & Van Teunenbroek, C. (2020). *Geven door bedrijven* in Bekkers, R., Schuyt, T. N. M., & Gouwenberg, B. M. (Ed.), in Geven in Nederland 2020: Huishoudens, nalatenschappen, fondsen, bedrijven, goede doelenloterijen en vrijwilligers. Lenthe Publishers.

Schuyt, T. N. M., Niekerk, N., Gouwenberg, B. M., Bekkers, R., de Gilder, D.,

van Teunenbroek, C. & Heijningen, F. (2020). *Nederland 2020 Deel B: Doelen waaraan gegeven wordt* in Bekkers, R., Schuyt, T. N. M., & Gouwenberg, B. M. (Ed.), in Geven in Nederland 2020: Huishoudens, nalatenschappen, fondsen, bedrijven, goede doelenloterijen en vrijwilligers. Lenthe Publishers.

Bekkers, R., Niekerk, R., de Wit, A., van Teunenbroek, C., Gouwenberg, B. M., de Gilder, D & Heijningen, F. (2020). *Methodologische verantwoording* in Bekkers, R., Schuyt, T. N. M., & Gouwenberg, B. M. (Ed.), in Geven in Nederland 2020: Huishoudens, nalatenschappen, fondsen, bedrijven, goede doelenloterijen en vrijwilligers. Lenthe Publishers.

## *Other professional publications*

Bekkers, R., Van Teunenbroek, P.S.C., Borst, I., Koren, G. & Keuper, M. (2015). Crowdfunding: een nieuwe bron van inkomsten voor de culturele sector*?* Pp. 40-43 in: *Boekman 103*. Amsterdam: Boekman.

Van Teunenbroek, C. (2018). Crowdfunding to fetch our T-rex: A lot of coins for a lot of old bones. *ISTR Conference Blog.* Retrieved from: https://istr-conference.wordpress.com/2018/02/12/crowdfunding-to-fetch-our-t-rex-a-lot-of-coins-for-a-lot-of-old-bones/

Van Teunenbroek, C. (2019). Stimulating giving with one small addition: Practical implications for the use of social information as a stimulant for donation behavior. *De Dikke Blauwe.* Retrieved from: https://www.dedikkeblauwe.nl/news/praktisch-rapport-hoe-sociale-informatie-geefgedrag-stimuleert.

Van Teunenbroek, C. (2019). Did the connection fail? The slow digital transformation of donations. *Alliance Magazine.* Retrieved from: https://www.alliancemagazine.org/blog/did-the-connection-fail-the-slow-digital-transformation-of-donations/

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Van Teunenbroek, C. (2019). Crowdfunding in the US and Europe. Pp 10 in 2019 Spenden Bericht. *Fundraising Verband Austria.* Retrieved from: https://www.slideshare.net/fundraisingverband/spendenbericht-2019

Van Teunenbroek, C. (2020). Fundraising during the COVID-19 crisis: Crowdfunding as an online solution? *De Dikke Blauwe Journaal, Week 17*. Retrieved from: https://www.dedikkeblauwe.nl/news/crowdfunding-online-oplossing-in-de-coronacrisis

# PhD Portfolio

| Conference visits and presentations | Location | Year | Type of activity |
|---|---|---|---|
| Helsinki-Gothenburg-Amsterdam PhD Progress Seminar (HEGAM) | Helsinki | 2015 | Presentation |
| Cultural dynamics and organizational change research seminar | Amsterdam | 2015 | Presentation |
| Association for Research on Nonprofit Organizations and Voluntary Action Conference (ARNOVA) | Chicago | 2015 | Presentation |
| International Conference on Personality Psychology and Economics (ICPPE) | Rome | 2016 | Presentation |
| Sociology research seminar | Amsterdam | 2016 | Presentation |
| WINK nudge conference | Utrecht | 2017 | Presentation |
| European Research Network on Philanthropy (ERNOP) | Copenhagen | 2017 | Presentation |
| ScientistWanted Winter course | Amsterdam | 2018 | Workshop |
| International Society for Third Sector Research (ISTR) | Amsterdam | 2018 | Presentation |
| Dutch Days at ISTR | Amsterdam | 2018 | Roundtable |
| Dag van de Sociologie | Rotterdam | 2018 | Presentation |
| NWO Bessensap 2018 | Amsterdam | 2018 | Workshop |
| Design, Organization and Strategy TU Delft | Delft | 2018 | Lecture |
| International Association for Research in Economic Psychology Conference (IAREP) | London | 2018 | Presentation |
| Science with Society seminar | Amsterdam | 2019 | Presentation |
| NWO Life Sciences Congress (LIFE2019) | Bunnik | 2019 | Workshop |
| Dag van de Sociologie | Amsterdam | 2019 | Presentation |
| European Research Network on Philanthropy (ERNOP) | Basel | 2019 | Presentation |
| Goede Doelen Nederland seminar | Amsterdam | 2019 | Presentation |
| Geven in Nederland 2020 | Online | 2020 | Presentation |

| Courses | Institution | Location | Year | ECTS |
|---|---|---|---|---|
| Research design in the social sciences | VU University | Amsterdam | 2015 | 4 |
| Proposal design and writing | VU University | Amsterdam | 2015 | 6 |
| Induction week | VU University | Amsterdam | 2015 | 2 |
| Research Integrity and Responsible Scholarship | VU University | Amsterdam | 2015 | 3 |
| When and how to design experiments | VU University | Amsterdam | 2015 | 3 |
| Interviewing individuals and groups | VU University | Amsterdam | 2015 | 3 |
| Advanced Theory design | VU University | Amsterdam | 2016 | 6 |
| Selected quantitative methods | VU University | Amsterdam | 2016 | 6 |
| Longitudinal Analysis Using Stata | VU University | Amsterdam | 2018 | 2 |
| Teaching practice and supervision | LEARN! Academy | Amsterdam | 2018 | 6 |

| Masterclasses and workshops | Institution/ company | Location | Year |
|---|---|---|---|
| Online research presentation | ScientistWanted | Amsterdam | 2017 |
| Nudging Ethics | WINK conference | Utrecht | 2017 |
| Kahneman Lecture – Elke Weber | IAREP conference | London | 2018 |
| Sociale Zaken en Werkgelegenheid (SZW) Wetenschapsdag | Ministerie SZW | The Hague | 2018 |
| Valorization and science | IXA | Amsterdam | 2019 |
| Media training for scientists | VU University | Amsterdam | 2019 |
| Scientific Project Management | ElroyCOM training | Online | 2020 |
| Conflict Management and Negotiation | ElroyCOM training | Online | 2020 |

| Masterclasses and workshops | Institution/ company | Location | Year |
|---|---|---|---|
| How to defend your PhD thesis | Hertz Trainingen | Online | 2020 |

| PhD seminars | Location | Year |
|---|---|---|
| Helsinki-Gothenburg-Amsterdam PhD Progress Seminar | Helsinki | 2015 |
| International Society for Third Sector Research | Amsterdam | 2017 |

| Conference and seminar organization | Location | Year(s) |
|---|---|---|
| International Society for Third Sector Research | Amsterdam | 2018<br>2018 - 2019 |
| Science with Society seminars | Amsterdam | 2018 |
| Dag van de Filantropie | Amsterdam | 2019<br>2020 |
| Dag van de Filantropie | Amsterdam | |
| Dag van de Filantropie | Online | |

| Teaching | Institution | Type of activity | Year |
|---|---|---|---|
| Department of Organization Sciences | VU University | Thesis (Master's) | 2016 |
| Department of Sociology | VU University | Thesis (Bachelor's) | 2018 |

| Peer-reviews for journals | | Year |
|---|---|---|
| Reviewer for | Information Systems Frontiers | 2018 |
| Reviewer for | Political Studies Review | 2020 |

| Media | Company | Link |
|---|---|---|
| Columnist | De Dikke Blauwe | https://www.dedikkeblauwe.nl/news/claire-van-teunenbroek |
| Newspaper article | Delta | https://www.delta.tudelft.nl/article/crowdfunden-voor-onderzoek-hoe-doe-je-dat |

| Media | Company | Link |
|---|---|---|
| Newspaper article | Volkskrant | https://www.volkskrant.nl/economie/sociaal-donatieplatform-gofundme-wil-nederland-veroveren~b31f6b53/ |
| Online article | De Dikke Blauwe | https://www.dedikkeblauwe.nl/news/gofundme-verwacht-flinke-doorgroei-nederlandse-crowdfunding-in-2020 |
| Newspaper article | Noordhollands Dagblad | https://www.noordhollandsdagblad.nl/cnt/dmf20200811_36566142/ |

# Appendix

Schematic overview of the articles (*n* = 38) reporting on the effects of social information (SI) on charitable giving. The studies are presented in descending order of year and author name. The independent variable (IV) is operationalized and depicted in the table below in four ways: (1) mentioning or showing one amount, such as 'a previous donor donated XX', represented by 'I', (2) mentioning or showing the average of previous donors, such as 'most donors donate XX', represented by 'A', (3) mentioning or showing several individual donation amounts, such as 'the last three donors donated XX, YY and ZZ', represented by 'S'. Alternatively (4) mentioning or showing the total amount raised by an earlier group or day, represented by 'T'. The dependent variable (DV) is operationalized in three ways: (1) individual donation amount, represented by 'I', (2) number of donors/conversion rate, represented by 'N', or (3) overall collected amount, represented by 'O'. This appendix also provides an overview of the benefits presented as the donation benefit in the different studies, for example a public radio campaign, an art gallery, the London marathon. Finally, it contains the sample country alongside other methodological characteristics of the studies.

| Study | Sample | Country setting | Study design | Actual donation | Source of donation | Benefit(s) | IV | Additional variables | DV | Effect |
|---|---|---|---|---|---|---|---|---|---|---|
| Van Teunenbroek, Bekkers & Beersma (2020) | Online participants | England | Lab | Yes | Windfall | Top 10 charities in the UK | A | Social norms, donor's mood | I, N, O | + |
| Van Teunenbroek & Bekkers (2020) | Online donors | The Netherlands | Field | Yes | Earnings | Crowdfunding projects | A | Social norms, funding stage | I, N, O | + |
| Sasaki (2019) | Online donors | Japan | Field | Yes | Earnings | Justgiving projects | S | Range of suggestion values | I | + |
| Goeschl et al. (2018) | Students | Germany | Lab | Yes | Earnings | Several | A | Social norm | I | + |
| Kawamura et al. (2018) | Online donors | Japan | Field | Yes | Earnings | Research institute via crowdfunding | A | Matching | I | + |
| Kubo et al. (2018) | Tourists | Japan | Field | Yes | Earnings | Daisetsuzan National Park | T | Government funds | I, N | +- |
| Jacob et al. (2017) | Customer bakery & household members | France | Field | Yes | Earnings | Several humanitarian projects | A | Gender | I, N | + |
| Agerström et al. (2016) | Students | Sweden | Field | Yes | Earnings | Golomolo | A | Shared identity | I, N | + |

| Study | Sample | Country setting | Study design | Actual donation | Source of donation | Benefit(s) | IV | Additional variables | DV | Effect |
|---|---|---|---|---|---|---|---|---|---|---|
| Meyer et al. (2016) | Students | United States | Survey | Yes | Earnings | Green Fee University | A | | I | - |
| Van Teunenbroek (2016) | Students | The Netherlands | Lab | No | Hypothetical | Pifworld crowdfunding | A | Reputation | I, N, O | + |
| Klinowski et al. (2015) | Students | United States | Lab | Yes | Windfall | Pittsburgh Cares | I | Reluctant giving | I, N, O | +- |
| Murphy et al. (2015) | Radio listeners | United States | Field | Yes | Earnings | Alaska Public Media | I | Prior donors | I | 0 |
| Raihani et al. 2015 | Online donors | United Kingdom | Field | Yes | Earnings | Justgiving projects | I | Gender | I | + |
| Smith et al. (2015) | Online donors | United Kingdom | Field | Yes | Earnings | Justgiving projects | I | Life information | I | + |
| Adena et al. (2014) | Opera visitors | Germany | Field | Yes | Earnings | Social youth project | A | Different amounts | I, N, O | + |
| Croson et al. (2013) | Radio listeners | United States | Field | Yes | Earnings | Station's on-air fund drive | I | Different amounts, prior donors | I | - |
| Hysenbelli et al. (2013) | Students | Italy | Lab, survey | No | Hypothetical | Child with brain damage | A | Shared identity, different amounts | I | + |

| Study | Sample | Country setting | Study design | Actual donation | Source of donation | Benefit(s) | IV | Additional variables | DV | Effect |
|---|---|---|---|---|---|---|---|---|---|---|
| Bekkers (2012) | Dutch population | The Netherlands | Field, survey | No | Windfall | Several charities | A | Social norm | I, N | + |
| Bøg et al. (2012) | Online donors | United Kingdom | Field | Yes | Earnings | Justgiving projects with 'cancer' in project title | I | | I | + |
| Croson et al. (2010) | Radio listeners and students | United States | Lab, survey | Yes/no | Earnings and windfall | Station's on-air fund drive | I | Gender matching | I | + |
| Bicchieri et al. (2009) | Students | United States | Lab | No | Hypothetical | Dictator game | A | Social norm | I | + |
| Croson et al. (2009) | Radio listeners, students | United States | Field | No | Hypothetical | Station's on-air fund drive | I | Social norm, long-term effect | I | + |
| Shang et al. (2009) | Radio listeners | United States | Field | Yes | Earnings | Station's on-air fund drive | I | Prior donors. | I | + |
| Alpizar et al. (2008a) | Tourists | Costa Rica | Field | Yes | Earnings | National park Costa Rica | I | Different amounts, anonymity | I, N, O | +- |

| Study | Sample | Country setting | Study design | Actual donation | Source of donation | Benefit(s) | IV | Additional variables | DV | Effect |
|---|---|---|---|---|---|---|---|---|---|---|
| Alpizar et al. (2008b) | Tourists | Costa Rica | Field | Yes/no | Earnings | National park Costa Rica | I | Different amounts Hypothetical versus actual donation | I, N, O | +- |
| Croson et al. (2008) | Radio listeners | United States | Field | Yes | Earnings | Station's on-air fund drive | I | Previous donation amount | I | + - |
| Martin et al. (2008) | Visitors art gallery | New Zealand | Field | Yes | Earnings | City gallery | A | | I, N, O | + |
| Shang et al. (2008) | Radio listeners | United States | Field | Yes | Earnings | Station's on-air fund drive | I | Gender matching | I | + |
| Jones et al. (2004) | Students | United States | Lab | No | Hypothetical | Group investment pool | A, I | | I, N | + |
| Shang et al. (2004) | Radio listeners | United States | Field | Yes | Earnings | Station's on-air fund drive | I | | I | + |
| Vesterlund (2003) | Students | United States | Lab | No | Hypothetical | Public good game | I | | I | + |
| Potters et al. (2001) | Students | United Kingdom | Lab | No | Hypothetical | Public good game | I | Quality signal | I, N, O | 0 |

| Study | Sample | Country setting | Study design | Actual donation | Source of donation | Benefit(s) | IV | Additional variables | DV | Effect |
|---|---|---|---|---|---|---|---|---|---|---|
| Sell et al. (1991) | Students | United States | Lab | Yes | Earnings | Group investment pool | A, I | Aggregated suggestion amount | I | + |
| Silverman et al. (1984) | Viewers telethon | United States | Field | Yes | Earnings | United Cerebral Palsy Telethon | A | | I, N | + |
| Reingen (1982) | Students | United States | Lab | No | Hypothetical | The Hearth Association | S | | I, N, O | +- |
| Catt et al. (1977) | Household members | United states | Field | Yes | Earnings | United Way annual fund-raising drive | A | | I | 0 |
| Cialdini et al. (1976) | Household members | United states | Field | Yes | Earnings | American Cancer Society | A | | N, O | +- |
| Blake et al. (1955) | Students | United States | Lab | Yes | Earnings | Secretary in their department | S | Range of suggestion values | I | + |

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Zvilichovsky, D., Danziger, S., & Steinhart, Y. (2018). aking-the-Product-Happen: A Driver of Crowdfunding Participation. *Journal of Interactive Marketing*, *41*, 81–93.

Practitioners depend on social information and researchers advise them to do so. In a review of the literature, I argue that it is difficult to infer from the current literature on social information effects to what extent social information affects donation amounts. How effective is sharing information with potential donors about previous donors' donation amounts in affecting the donation behavior? In three empirical studies, I use the average donation amounts of earlier donors in an attempt to affect participants' donation behavior. I conclude that social information modestly increases donation amounts, but it does not increase the propensity to give.