Does Volunteering Crowd Out Donations? Evidence from Online Experiments

(Authors' names blinded for peer review)

Problem definition: Conventional wisdom often cautions charities against providing volunteer opportunities to potential donors, based on the assumption that volunteering crowds out monetary donation. We challenge this assumption and aim to investigate the causal relationship between an individual's volunteering activities and their subsequent decisions to donate. **Methodology/results:** We conducted three consequential experiments where participants engaged in virtual assignments and were subsequently prompted to donate to an existing charity. In the first two experiments, participants were tasked with creating affectionate cards for the homeless. They were granted full autonomy in the design of these cards. In the third experiment, participants colored patterns of varying complexity. Our results indicated that volunteering, whether voluntary or mandatory, increased both the likelihood and the amount of participants' donations, pointing to a potential explanation rooted in *moral consistency*. However, as individuals' volunteering efforts intensified, their subsequent donations decreased reflecting the *mental budgeting* mechanism in these settings. **Managerial implications:** Our results suggest that (i) volunteer programs not only build up a charity's labor source, but may also increase their donation income; (ii) charities should consider developing virtual volunteering programs that increase their resources by connecting them with more volunteers; and (iii) to maximize donations, charities should carefully design *light* volunteer tasks.

Keywords: Charitable giving, volunteering, lab experiment, self-selection effect.

1. Introduction

Volunteering in the United States has had a rising contribution to economics in recent years. In 2017, 64.4M Americans (i.e., 25.1% of adults) provided a total of 8.8B hours of volunteer services to charities, corresponding to $195B worth of labor, as compared to 2008, when individuals provided an estimated 8B hours or $144.7B worth of labor (NCCS 2020). However, charities are cautioned against investing on their volunteering programs because volunteers are considered unreliable source of labor supply (Ata et al. 2019), and there is a commonly held belief that providing volunteering opportunities to potential donors may lead to a decrease in their subsequent monetary donations (Brown et al. 2019). Volunteering is assumed to crowd out monetary donation because, from the perspective of standard economic theory, time is considered a limited resource with an opportunity cost, and individuals expend their resources (i.e., time and money) to maximize their utility (Meier 2006). Since volunteering and donating contribute to the same set of utilities, one may expect less monetary donations from those who have already devoted their time to a charity (Reed et al. 2007). Despite significant research efforts to understand whether individuals prefer to donate time or money, the relationship between the two remains theoretically ambiguous (Andreoni 2006). Most of the existing studies focus on the correlation between the donation of time and money, demonstrating that, for instance, an increase in time donation is often correlated with a decrease in monetary

donation (Andreoni et al. 2004). However, the identification of a correlation does not necessarily imply a causal relationship. This ambiguity casts doubt on whether charitable organizations should offer volunteer opportunities.

The primary aim of this study is to elucidate the causal relationship between the time volunteered and money donated. Unraveling this relationship offers a window into the intricate landscape of human altruism and the patterns of collective behavior that shape our society (Olivola and Shafir 2013), and is essential for determining whether an individual's altruism budget is fixed across different forms of giving. Such understanding provides insights for developing effective workforce management policies in charitable settings. Despite its importance, this topic has not been extensively studied from an operations management perspective, prompting us to draw on existing literature from the fields of economics and psychology to establish our theoretical assumptions.

We address two research questions through a series of three consequential experiments. First, we investigate the causal relationship between volunteering and subsequent monetary donations. We do this in two different setups: one where participants are *randomized* into treatment arms, and another where *self-selection* is allowed. Our focus is on instances of sequential behavior, where an individual's decision is influenced by their recent actions. This involves situations where a choice is made in the context of a preceding relevant behavior. Relevant here implies that the action is domain-specific; the present choice mirrors one made earlier (i.e., donating to a charity). In such a sequence, the initial behavior, which comes first, serves as the independent variable.

To design a real and meaningful volunteer task, we collaborated with a local charity, the Society of St. Vincent de Paul Phoenix (SVdP; www.stvincentdepaul.net/), and ran the experiments online through the Prolific platform. Our results demonstrate that volunteering significantly increases both the likelihood and the amount of an individual's monetary donations by 23.5% and 26.2% respectively, if participants willingly choose to serve as volunteer, and by 15% and 21% respectively, in case of randomization. Our second question centers on the relationship between a volunteer's level of effort and their subsequent donation decisions. We define effort as a participant's conscious exertion of power (mental and/or physical activity) to accomplish a task (Eisenberger 1992). Our results indicate a decreasing trend between participants' level of volunteering effort and their subsequent donations suggesting that greater effort in volunteering may reduce volunteers' financial contributions.

This study is a *causal explanation* research that does not aim to discuss the mechanisms behind this relationship. We, however, find that the causal relationship between volunteering and donation cannot be explained by a single mechanism. We observe that as individuals' volunteering efforts increase from zero to some degree, their subsequent donations also increase. The magnitude of this increase is more pronounced for those who chose to volunteer (in our self-selection experiment)

compared to those who were randomly assigned (or "forced") to the volunteer group. participants who participated in our experiments typically use Prolific as a source of income. Interestingly, even these individuals, when randomly assigned to the volunteer group, exhibited a willingness to make monetary donations to a charity. This observation reinforces the idea that an initial prosocial behavior can indeed lead to consistent future behaviors, a phenomenon referred to as *moral consistency*. However, we found that individuals who put more effort into volunteering donated less money than those who put in less effort, although their donations were still equivalent to those in the control group. We believe this behavior can be explained by *mental budgeting.*

This paper makes several contributions to the theory and practice of philanthropic management. Conventional wisdom holds that the expense of volunteering programs may deter charities from creating or expanding them. A survey reveals that only 60% of nonprofits engage volunteers, and of those, 73% have fewer than ten volunteers (Huysentruyt et al. 2016). We show that offering volunteer opportunities increases both the likelihood and amount of a person's monetary donations. Given the significant rate of volunteering in the United States, our findings suggest that volunteering could help charities increase available resources, particularly when compared with fundraising events, which typically cost a charity 5-25% of its donation income (Andreoni and Payne 2003, 2011). Notably, this study underscores that even mandatory volunteering can deepen one's affinity for a charity's mission. Thus, charities might consider engaging *voluntolds* (individuals required to volunteer, often due to academic or legal obligations) and *corporate volunteers* who might participate in events due to peer pressure.[1]

Second, the nascent literature of workforce management in charitable settings centers merely on volunteers' labor value (see, Sampson (2006) and Ata et al. (2019)). None of these studies considers that volunteers will make a monetary donation, and so the optimal workload is limited to maximize volunteers' labor value. Results of this study suggest considering a new facet of volunteer–charity relationship while designing volunteer workforce management.

Third, while some studies demonstrate conditions under which an initial prosocial act leads to subsequent consistent behaviors (Gneezy et al. 2012), extensive research suggests that individuals are likely to follow an initial positive act with a less favorable one (Sachdeva et al. 2009; Leliveld and Risselada 2017). Our findings enrich the growing body of literature that examines the dynamics of prosocial behavior over time (Gneezy et al. 2014; An et al. 2023). In particular, we demonstrate that this causal relationship exists even in the absence of in-person experience. From a theoretical perspective, this finding challenges the notion of mechanisms such as personal connection (Chen and

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[1]Corporate volunteer programs provide opportunities to develop staff skills, build teams, and bolster their reputation within their local community. It is an opportunity for firms to address corporate social responsibility and improve employee morale.

Li 2009; Kessler and Milkman 2018) and social signaling (Ariely et al. 2009) as the main drivers of monetary donations among individuals. From a practical standpoint, our research supports the notion of virtual volunteering, where individuals can contribute their time, skills, and expertise to charitable or nonprofit organizations remotely, using internet-connected devices. This solution offers significant benefits in terms of scalability, for charities whose volunteering events are constrained by space and workforce.[2] Despite the growing interest among individuals in virtual volunteering, most charities hesitate to offer virtual volunteering opportunities due to the cost of developing virtual volunteering capacity, the staff time required to train employees in the online environment (Liu et al. 2016), and the assumption that virtual volunteering is ineffective in building emotional connections with individuals (Humbad 2021). For example, while due to the Covid-19 pandemic, in the fall of 2020, two-thirds of volunteers decreased or stopped contributing to charities (Njapa 2022), a survey shows that less than one-third of nonprofits considered virtual volunteering even during the pandemic (VolunteerMatch 2020). Yet, our results encourage charities to develop virtual volunteering programs, allowing them to connect with more volunteers and, consequently, potential donors.

Finally, most charities do not adhere to any guidelines when designing volunteer tasks, and often develop volunteer programs primarily to meet their labor demands (Johnson 2022; Federal Emergency Management Agency 2013). This approach may lead to volunteers becoming overwhelmed by an excessive workload and/or time pressure, potentially resulting in volunteer burnout. Burnout is commonly characterized as a prolonged state of stress that can result in feelings of fatigue and disconnection. It is also linked to a sense of inefficacy and a perceived failure to achieve meaningful results. In this regard, our study offers an important insight; it reveals a decreasing relationship between the actual effort exerted in volunteering and the value it generates for individuals. To our knowledge, with the exception of Olivola and Shafir (2013), there has been no investigation into how effort influences the willingness to sacrifice resources for the benefit of others. Most research in this area indicates that the process of earning resources tends to decrease prosocial contributions (Kameda et al. 2002). Olivola and Shafir (2013) demonstrate that the anticipation of future pain and effort can positively impact valuation, meaning that there is a heightened readiness to donate to charity *prior* to participating in a strenuous or painful task. In contrast, our study aims to explore whether a similar increase in willingness to donate persists *after* the completion of a task that

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[2]Due to advancements in technology and the increasing connectivity of individuals worldwide, virtual volunteering has gained popularity in recent years. For example, the United Nation Volunteers Programs recently started their virtual programs (https://www.unv.org/become-online-volunteer), offering a wide range of programs including research on certain topics, translations, and even skillful tasks such as technical assessment of carbon finance documentation. Some humanitarian agencies, like Habitat for Humanity, launched a special fundraising campaign called Habitat for Humanity Champions, which gives supporters the chance to become virtual volunteers by setting up personalized fundraising pages in honor of special events or in memory of a loved one.

involves significant effort. Our results indicate that excessive work might exhaust volunteers leading to a reduction in their future support. This finding can guide charities in designing manageable tasks that ensure a positive experience for volunteers and optimize the time and donations charities receive.

2. Theoretical Background

While time and money are somewhat interchangeable (DeVoe and Pfeffer 2007), they differ in value and nature (Okada and Hoch 2004; Liu and Aaker 2008), leading to different levels of utility (Reed et al. 2007). Consequently, there is a mounting research on the relationship between an individual's choice to volunteer and donate monetary gifts. For instance, Brown et al. (2019) argue that individuals generate greater warm-glow utility from volunteering than from making equivalent monetary donations, and so caution charities against offering volunteer opportunities to prospective donors, as volunteering crowds out monetary contributions. However, Lilley and Slonim (2014) show that pure altruism leads to substitution and crowd-out effects, but not warm-glow utility, which results in less substitution between volunteerism and donations. In exploring the causal impact of fundraising requests on volunteers, Yeomans and Al-Ubaydli (2018) find that the fundraising ask increased contributions from long-term volunteers and decreased engagement from new volunteers. This paper does not explore the choice between donating money and time. Instead, we focus on the causal link between volunteering and donations, as this aspect has received limited attention in previous studies.

2.1. Volunteering and subsequent donation

Given that time is considered a resource with associated opportunity costs and individuals allocate their resources (time and money) to maximize their utility, it is often assumed that volunteering displaces monetary donations (Meier 2006). Furthermore, researchers demonstrate that initiating a particular behavior can subsequently facilitate the display of the opposite behavior (Mullen and Monin 2016). The subconscious phenomenon that a positive initial behavior results in a target behavior that is less positive than a neutral baseline condition is called *moral licensing* (Mullen and Monin 2016). Stated differently, moral licensing refers to the situation that one who has done something good recently may feel *licensed* to act less morally later (Merritt et al. 2010; Sachdeva et al. 2009). This behavior has been reported in a range of settings including marketing (Huber et al. 2008), management (Klotz and Bolino 2013), and energy policy (Jacobsen et al. 2012). For instance, individuals who selected green products in an online store were later more prone to cheating on a subsequent task (Mazar and Zhong 2010), and those who have had the opportunity to disagree with racist statements (Monin and Miller 2001) or express a preference for voting for Obama (Effron et al. 2009) were subsequently more inclined to favor hiring a white person for a different job. For the phenomenon of moral licensing to take place, individuals must perceive the situation as granting

them permission to act selfishly (Joosten et al. 2014). This perception is likely to manifest if they have recently performed a good deed (e.g., volunteering for a charity), which they may interpret as earning them the right to be selfish or if the prospect of behavior that could enhance their reputation is prominently in their mind. Others show evidence for inter-temporal substitution, in which individuals substitute between their first and second donations to a charity (Cairns and Slonim 2011; Leliveld and Risselada 2017). From this perspective, individuals may feel licensed to shirk future monetary donations when they have already volunteered.

On the contrary, extensive research in the field of social psychology over the past decades affirms the idea that individuals possess a powerful inclination toward *consistency* (Burger 1999). For instance, prompting individuals to engage in a minor act of assistance, such as displaying a small sign in their window, can lead them to provide greater assistance later on, like exhibiting a large sign on their front lawn (Mullen and Monin 2016). From the standpoint of *prosocial behavior*, which refers to actions that benefit others, volunteering establishes an identity signaling effect on individuals; people act prosocially, at least partially, to signal to themselves and others that they are moral individuals (Bénabou and Tirole 2006). An individual's moral identity (e.g., moral values, goals, and concerns) is central to self-understanding (Blasi 1993), which motivates them to behave consistently with their moral notions (Bénabou and Tirole 2011; Jennings et al. 2015). Individuals who have behaved prosocially appear to maintain their *moral consistency* by making more charitable gifts, resulting in higher amounts of donations (Shang and Croson 2009; Heger and Slonim 2022).

Moreover, Bénabou and Tirole (2011) argued that people conform to their moral identity because deviating from it will cause negative utility. This pattern has been studied in different settings. For example, Shang and Croson (2009) found that those who experienced social pressure to give more in the past also gave more in the future. In a two-stage lab experiment, Heger and Slonim (2022) first used a default recommended donation amount as a nudging mechanism to increase participants' donation; those who were exposed to high default donations in the first stage donated more in both stages compared to those who were initially exposed to low default donations. Moreover, Gneezy et al. (2012) showed that people were more likely to hold to their moral identities when their recent prosocial behavior was costly. They argue that people interpret costly actions as a signal of their moral identity while costless actions produce weaker identity. This could be a reason why adding a new cause to support, such as disaster relief, did not cannibalize people's existing causes (Bergdoll et al. 2019; Deryugina and Marx 2021).

In addition, Liu and Aaker (2008) expanded this view and support the positive impact of volunteering on donation using the theory of construct activation and accessibility where money and time are social constructs that activate different goals: thinking about money activates goals of economic utility while thinking about time triggers goals of emotional well-being (Brendl et al. 2003). Moreover, volunteering reduces the psychological distance between the volunteer and the cause the charity

supports because spending time is essentially a personal action (Olivola and Liu 2009). Therefore, a time-ask (volunteering request) evokes emotions associated with helping others and brings the charity's mission closer to the individuals' sense of self. A money-ask, however, activates an individual's rational mindset, evoking a value-maximizing goal that diminishes the emotional implications to consider the economic utility of giving money to a charity. Examining the causal effect of volunteering and monetary donation, Liu and Aaker (2008) found that individuals were more likely to give money when asked to volunteer first. Consequently, they conclude that people are more generous when they are primed with a notion (e.g., volunteering) that personally engages them in a cause. We therefore propose the following:

HYPOTHESIS 1. *Experiencing volunteer work positively impacts an individual's subsequent monetary donations.*

2.2. Volunteering effort and subsequent donation

Effort refers to any mental or physical activity that mediates between how well one can potentially perform to meet some goal, such as completing a task, and how well they actually perform (Eisenberger 1992; Shenhav et al. 2017; Inzlicht et al. 2018). Several conflicting theories suggest that effort can either positively or negatively affect donations. From economics perspective, effort is costly; between equally rewarding options, individuals choose the one that requires less work or effort (Frederick 2005; Kool et al. 2010; Apps et al. 2015), because effort can cause feelings of fatigue, frustration, stress and anxiety (Inzlicht and Al-Khindi 2012; Saunders et al. 2015). Neoclassic economics theories propose that individuals tend to avoid effortful tasks (Frederick 2005), and value an object less if it demands more effort (Kaufman 1999). For instance, if a longer travel time is required for a consumer to receive a product, their utility decline, so they value the product less than they would if they could obtain it effortlessly.

On the other hand, researchers have challenged the idea that pain and pleasure govern humanity, questioning why individuals sometimes choose pursuits of pain and effort over simple pleasures (Olivola and Shafir 2013). This paradox is evident in the popularity of fundraising events such as marathons or walking barefoot on burning coals–activities that demand physical endurance and discomfort (Olivola and Shafir 2013, 2018). A growing body of research has shown that people often place greater value on hard-earned achievements over those obtained effortlessly, suggesting that the very act of overcoming pain and effort imbues achievements with added meaning and value (Kaufman 1999; Loewenstein 1987; Loewenstein and Issacharoff 1994; Aronson and Mills 1959; Festinger 1962; Van Boven and Gilovich 2003). For example, Norton et al. (2012) illustrated what they call the IKEA effect, where products that involved individuals' effort were preferred over identical products made by others. Olivola and Shafir (2013) introduced a novel concept that defies traditional theories of motivation and behavior, focusing on how the *anticipation* of pain and effort–when tied to a

charitable or collective goal–can actually enhance contributions toward that goal. This phenomenon, termed as the *martyrdom effect*, has been probed through a series of experiments that consistently uncover a preference for more taxing methods of contributing to a cause, particularly when evaluated against easier alternatives. These results undermine the conventional wisdom that pain and effort are merely obstacles, proposing instead that they confer symbolic importance to prosocial endeavors, rendering them more significant. The authors surmise that "making the contribution process painful and effortful will increase willingness to contribute prosocially, relative to an easy and enjoyable contribution process" (Olivola and Shafir 2013). However, Olivola and Shafir (2013) arrived at two critical conclusions regarding the martyrdom effect; (i) the mere presence of pain and effort matters more than their extent, and (ii) this effect is *prospective* in nature. In a similar vein, Inzlicht et al. (2018) reviewed several theories, such as self-perception theory, IKEA effect, sunk cost effect, earned income vs. windfall gains, martyrdom effect, and need for cognition, and support the concept that effort enhances the value of the product.

Contrary to this view, the moral licensing effect posits that individuals amass *moral credits*, which they may later use to justify or offset subsequent negative behavior (Jordan et al. 2011). Under this framework, volunteers who have exerted more effort, thereby accumulating more moral credits, might be expected to donate less in the future compared to those who have gathered fewer such credits. An et al. (2023) explored this phenomenon further, demonstrating that the effect of moral licensing is more pronounced among those who allocate their donations over time, particularly when approached for contributions to causes that align with their prior engagements. This behavior ties into the notion of *mental budgeting*, a cognitive accounting method where individuals track and control spending (Cheema and Soman 2006). Existing studies reveal that consumers create mental budgets, aligning financial resources with specific categories, and then spend against these allocations (Thaler 1999). Due to resource constraints, any spending within a category (e.g., groceries, entertainment, or charitable donations) may lead to reductions in future expenditures for related items (Heath and Soll 1996).

The concept of budgeting for philanthropy extends to encompass various forms of giving over an individual's lifetime, including donations of time, money, and reputation (Gee and Meer 2020). While it is unrealistic to track every altruistic act over a lifetime (therefore making an accurate examination of the nature of an altruism budget impossible), more specific inquiries can yield insightful results. For instance, researchers can examine how giving to one cause affects subsequent donations to others on the same online platform at a given time (Gee and Meer 2020). While some studies have discovered that giving more to one party reduces donations to others (Deck and Murphy 2019), others have found that it can increase total giving (Krieg and Samek 2017). Researchers often delineate mental accounts by temporal units, such as coding events on the same day in the same mental account,

while categorizing events on different days as separate (Heath and Soll 1996). Further investigations, such as a survey by LaBarge and Stinson (2014) supports the idea that donors consciously maintain and manage mental budgets for philanthropic activities. Evidence also suggests that an individual's increased observation of public goods provision may reduce their subsequent contributions, as their marginal utility from such contributions decreases (Bergstrom et al. 1986; Ottoni-Wilhelm et al. 2017). This perspective implies that devoting more effort to volunteering for a charity may create a negative spillover effect on future donations to the same charity within the same budget cycle.

In conclusion, it is reasonable to assume that effortful volunteering tasks can increase a person's valuation of a charity, and hence donations. However, it is unlikely that effort *monotonically* increases value, as the willingness to exert more effort decreases when more effort is applied (Inzlicht et al. 2014). Therefore, we concur with the conclusion of Olivola and Shafir (2013), and assume that making volunteering tasks even more challenging may not necessarily increase individuals' willingness to contribute more. We therefore hypothesize:

HYPOTHESIS 2. *The level of effort in volunteering tasks does not necessarily result in increased subsequent monetary donations from volunteers.*

3. Experiments 1 and 2: Volunteering and subsequent donation
3.1. Charity and task selection

We designed our experiment in collaboration with a local charity, the Society of Saint Vincent de Paul Phoenix (SVdP). SVdP is a large nonprofit organization headquartered in St. Louis, Missouri that assists homeless and low-income families with free services such as medical and dental clinics, meals, clothes, and housing. During the Covid-19 pandemic, SVdP developed several virtual volunteering tasks including a task to make a "sweet dreams" card. The goal of creating these cards was to show love and respect to the guests who stay overnight in SVdP's shelters. Each individual's pillow has a card and mint left on it for their overnight stay. We chose this task for our experiment because it provided volunteers an opportunity to connect with the community through a service that could feasibly be completed through an online platform that helps us measure the time participants spent to complete a task.

3.2. Design and implementation of Experiment 1: The case of randomization

We recruited participants through the Prolific platform. To ensure that participants had experience with performing online tasks and a good reputation on Prolific, we recruited only individuals who had successfully completed at least 100 submissions and had an approval rate of at least 95%. We also restricted the participants to those located in the U.S. who were at least 18 years old. The task was visible only to those who met the criteria. The description of this experiment was purposely generic to recruit participants; we stated only that it included a set of online tasks and survey

questions, indicated the expected time to finish (i.e., 15-20 minutes), and stated the amount of compensation for completing the task (i.e., $4.50). At the outset of the experiment, all participants were provided a short consent form that explained the general purpose of the study, the overall process and estimated duration of the experiment, and that they would receive $3 upon completing the task, and an additional $1.50 bonus at the end of the experiment. All participants were informed that they could leave at any time. Next, they read a short note about SVdP that included general information about its services, and the number of clients it serves. This stage controls for the salience and context effects.

This experiment follows a between-participant design with two treatment conditions. Participants were randomly assigned to one of the two groups: *Volunteer* and *Task*. Participants in the *Volunteer* group were directed to complete the sweet dreams card task for SVdP. Instructions and optional templates were provided. To assure participants make the card by themselves (instead of uploading other greeting cards they could find online without any inputs), we asked them to include the words "Saint Vincent de Paul" or "SVdP" on their cards. We also provided two optional blank templates with the SVdP logo in the bottom right corner. Although the participants received some optional templates, they were allowed to use any text or pictures they wanted. Since art-making can improve people's moods (Dalebroux et al. 2008) and thus encourage prosocial behaviors (Cavanaugh et al. 2015), we included a treatment group that received the same online drawing task but for a different purpose. Participants of the *Task* group were instructed to create a card for themselves and were notified that the purpose of this task was to assess the artistic quality of virtual painting. Upon completion, participants of the *Volunteer* and *Task* groups submitted their products by uploading their files (see Figure 1 as an example).

In the last stage, we collected demographic information (e.g., age, gender, education, and household income) through a two-page survey, where participants were also asked if they would like to donate part of their $1.5 bonus to SVdP if given the opportunity, and then how much they would contribute. Questions were presented in random order to avoid any order effects. Using a bonus as the source for donation decisions is common in experimental studies (Leliveld and Risselada 2017; Nook et al. 2016). Participants could choose to donate any amount, from 0 to $1.50, with a default of zero donation. We collected additional control information on the second page, asking e.g., if the participant was familiar with SVdP prior to this experiment. On the debrief page, participants received the completion code to enter in the Prolific platform to receive their compensation. Due to restrictions on our institution's grants, we are not allowed to make donations directly to other organizations. Therefore, regardless of the participants' choices, they were paid the full bonus, received a "thank you" note, and were notified that their donations could not be accepted due to the authors' institution's policy. (We provided participants with the option to donate online, thereby honoring their original intent. The details of the experiment are outlined in Appendix A, Figure 10.)
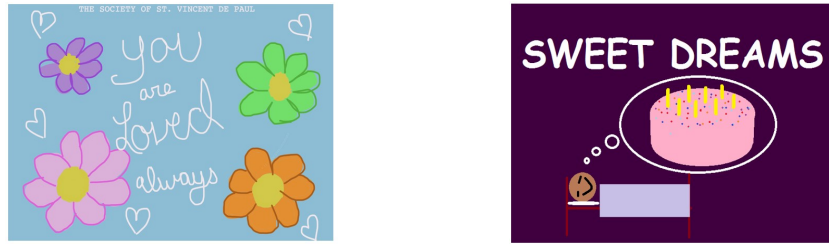
Figure 1   Examples of finished cards in Experiment 1. The card on the left was made by a participant from the Volunteer group, and the one on the right was created by a participant from the Task group.

3.3.   Results

In total, we received 866 responses, with 417 submissions for the *Task* group, and 449 submissions for the *Volunteer* group. Withdrawal of participants from research studies is a common challenge in online experiments that requires careful analysis to ensure that no confounding variables were introduced to the treatments. Otherwise, the causal inference assumptions, such as Stable Unit Treatment Value Assumption, will be violated. Table 6 (Appendix B) includes the breakdown of the withdrawals in each stage by group. About one third of the withdrawals occurred at the first stage where both groups received the same information, and so we did not further investigate the reasons why these participants withdrew from the study. However, during the painting stage, 97 and 103 participants withdrew from the experiment in the *Task* and *Volunteer* groups, respectively.

A possible explanation for the withdrawals is that participants withdrew because they felt underpaid for their time. However, we incentivized participants with a well above average payment (i.e., $13.5 per hour payment compared with Prolific $6 per hour payment requirement), and participants in each group are blind to other treatment conditions. Hence, regardless of the painting task, all participants were incentivized to complete the study. Therefore, we followed up with these 200 participants in a post-experiment survey, and asked why they withdrew from the study. Of 177 responses (88.5%), 37.9% of participants withdrew because they did not have enough time to complete the task at that moment, though they indicated that they were interested in finishing it later, and 57.6% indicated that they started the experiment with inappropriate device (e.g., tablet or smartphone) that did not allow them to draw. While Prolific allows participants to contribute to an experiment via mobile, tablet, or computer, our experiment required them to use computers (to complete the online painting task). A few indicated that they encountered with hardware issues although they were using a computer.[3] These participants, however, indicated that they would finish the drawing, should they have proper equipment. Last, 4.5% of participants withdrew the study for other reasons, some of whom withdrew the study for altruistic reasons; They believed that "the money should

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[3]For instance, a participant indicated that they were using "a different and older model laptop" at that time and "it was too difficult to make a decent drawing using my laptop's track-pad."

be going to the homeless people, not to people making cards for them." We did not re-invite the withdrawn participants to finish the study later because they had already received partial treatment before withdrawing from the study. Hence, inviting them for the repetitive study would create additional confounding factors.

Finally, we follow the instruction suggested by Dumville et al. (2006) to address the attrition concern; Table 7 (Appendix B) compares the distribution of participants characteristics among each treatment groups and those who withdrew the study. We do not find any statistically significant differences in any of the participants' characteristics. The uneven group size is also partially due to the simple randomization method (i.e., participants had equal chance of receiving one of the two treatments). Due to randomization, the total number of participants in the *Task* group is 570 and 611 in the *Volunteer* group.[4] Table 7 (Appendix B) also includes the balance of demographic information across three groups, descriptive statistics, and the proportion test across the three groups. Overall, there is no significant difference across all control variables (i.e., demographic variables). A typical concern in online experiments is that participants' main goal to complete a task is the compensation they will receive and so are less likely to respond to the treatment. For example, Goenka and Van Osselaer (2019) found that 38.5% of the participants do not allocate any bonus to donations. In the context of our study, this flooring effect (e.g., observations concentrated on zero donations) decreases the power, which makes it more challenging to detect any effect. Despite this limitation, our results are statistically significant.

On average, participants in the *Task* and *Volunteer* groups spent 13.4 (SE=0.447) and 14.5 (SE=0.506) minutes, respectively. Our analysis of the primary outcome of the donation decision revealed two main results. Figure 2 (left) shows the likelihood of donations across the two groups. About 68.15% of the *Volunteer* group donated (SE=0.022) as compared to 59.23% of the *Task* group (SE=0.024). This difference is statistically significant at $p = 0.008$. It is worth indicating that all p-values are obtained from proportion test for likelihood of donations and a two-sample Wilcoxon rank-sum (Mann-Whitney) test against the null hypothesis of equal means. Moreover, while 19.8% in the *Volunteer* group donated all their bonus, 14.6% of participants in the *Task* group donated all their bonus. We further compared the distributions with Kolmogorov-Smirnov Test. The difference between *Volunteer* and *Task* groups is statistically significant at $p = 0.024$. (Robustness tests are presented in Appendix B.) Second, on average, the *Volunteer* group donated \$0.587 (SE=0.027) while

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[4]Alternative randomization methods such as block or adaptive randomization can potentially "force" an even group size (Cook et al. 2002). However, these methods are either infeasible in our setting or could lead to additional confounding factors. For example, a randomized block design requires researchers to recruit the participants first and assign treatment with equal group size. On the Prolific platform, participants are completing studies for monetary incentives, and we cannot hold all participants until they start the experiment. Adaptive randomization adjusts the treatment assignment probability if the initial randomization does not produce the desired ratio in each condition (Rosenberger 1999). However, this may lead to additional bias: the *Task* or *Volunteer* groups will have more participants who started late. Therefore, we follow the instruction by Schulz and Grimes (2002) and use simple randomization in our study.
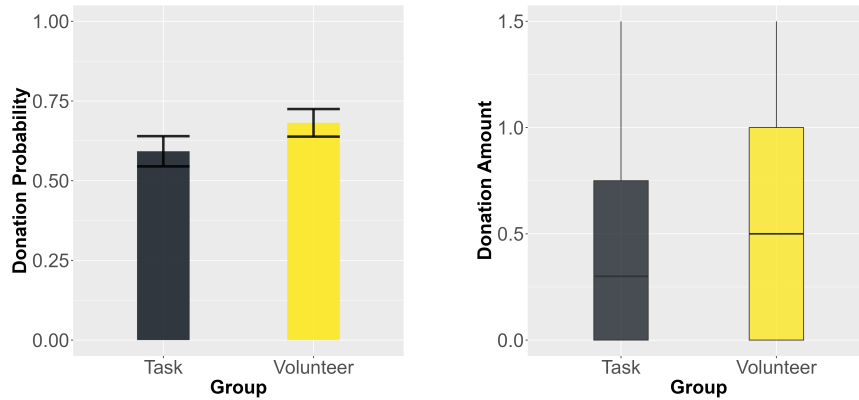
Figure 2 **Donation amount and probability across the two groups: The left plot displays the average donation probability with a 95% confidence interval, while the right plot compares the donation amounts between the two groups.**

the *Task* group donated \$0.485 (SE=0.026). The pairwise Wilcoxon comparisons between *Task* and *Volunteer* yielded statistically and economically relevant difference with 20.9% ($p = 0.007$) increase in average donations. We summarize our results as follows:

Result 1 *In the case of randomization, where participants were randomly assigned to groups, participants in the* Volunteer *group were more likely to donate, and on average, donated larger amounts, compared to those in the* Task *group.*

Focusing on the *Volunteer* group, we examined the effect of effort on donations, using task completion time as a measure of effort (Wise and Kong 2005; Wise and DeMars 2006). Table 1 shows that participants who spent more time on the task were more likely to donate and donated larger amounts. (Although we did not inquire about participants' feelings regarding their created cards, many anonymous feedbacks indicated enjoyment in the *Volunteer* group.)

Table 1 **Relationship between time and donation in Volunteer group.**

	Dependent variable:	
	Donation Amount (*OLS*)	Donation Probability (*probit*)
Duration_mins	0.009***	0.024***
	(0.002)	(0.007)
Constant	0.463***	0.135
	(0.044)	(0.110)
Observations	449	449
R^2	0.026	
Adjusted R^2	0.024	
Log Likelihood		-273.560
Akaike Inf. Crit.		551.120
Residual Std. Error	0.558 (df = 447)	
F Statistic	12.080*** (df = 1; 447)	

Note: *10%, **5% and ***1% statistical significance.

3.4.   Design and implementation of Experiment 2: The case of self-selection

In Experiment 1, participants were randomized into the *Task* and *Volunteer* groups. Yet, as indicated by reviewers, in real settings, individuals proactively sign up for volunteering activities, thereby self-selecting into volunteer roles. Although the results of Experiment 1 show promising positive effects of volunteering on subsequent donation behaviors, they do not assess the impact of self-selection into the volunteer role. Therefore, we replicated Experiment 1, and question whether consciously choosing to volunteer triggers stronger self-moral signals and potentially leads to a moral licensing effect? Viewed from a higher perspective, a common theme across these studies is the significance of establishing a link between one's actions (whether initial or target) and one's values and identity, influenced by contextual cues or existing identification (Mullen and Monin 2016). Indeed, individuals tend to act more in alignment with their overarching values or concerns related to identity (Effron et al. 2009). This experiment allows us to further explore the influence of self-selection. The design and implementation mirrored the first experiment, with the exception that participants were given the *option* to choose whether to complete the task for a higher education organization or volunteer for a charity, i.e., they were not forced into volunteering.

3.5.   Results

In total, we received 602 submissions, with 370 designated for the *Volunteer* group and 232 for the *Task* group. The number of withdrawals was similar across both groups, with 135 in the *Volunteer* group and 108 in the *Task* group. There was no statistically significant difference in the withdrawal rates between these two groups ($p = 0.132$). However, self-selection indeed led to differences in subgroup composition. In particular, the *Volunteer* group had significantly more female participants than the *Task* group (see Table 8 in Appendix B).

On average, participants in the *Volunteer* and *Task* groups spent 14.7 (SE = 0.483) and 14.4 (SE=0.591) minutes, respectively. In this experiment, 74.05% of the participants in the *Volunteer* group donated (SE=0.023), compared to 54.74% in the *Task* group (SE=0.032). The difference was significant at the $p < 0.001$ level. Furthermore, within the *Volunteer* group, 20.54% donated their entire bonus, while only 12.5% did so in the *Task* group. Similar results were observed in terms of donation amounts; participants in the *Volunteer* group contributed \$0.657 (SE = 0.029), while those in the *Task* group donated \$0.397 (SE = 0.033). This disparity was statistically significant at the $p < 0.001$ level. As anticipated, individuals who chose to work as volunteers for the charity were more likely to contribute financially to the cause. Yet, it is vital to recognize that these results are influenced by a self-selection process and inherently participant to self-selection bias.

Result 2 *In the scenario of self-selection, where participants consciously opt to serve as volunteers, both the likelihood and the magnitude of their subsequent donations increase, in comparison to those who elect not to engage in volunteer service.*

3.5.1.   Matching Experiments 1 and 2: To further evaluate the impact of self-selection on volunteering, we undertook a comparison between the findings of Experiments 1 and 2. Given that Experiment 2 was methodologically designed to build upon the results of Experiment 1 in a sequential fashion, a direct juxtaposition of donation behaviors across the two experiments was unattainable. Consequently, we utilized coarsened exact matching (CEM) (Iacus et al. 2012) to align observations based on social demographic attributes and task completion duration. While the covariate equilibrium between Experiments 1 and 2 was commendably satisfactory even without the matching, the utilization of matched data served to further enhance the balance across all covariates. (Refer to Tables 11 and 12 in Appendix B for details.)

Relying on the matched data, we compared donation behaviors between Experiment 1 (i.e., the scenario of randomization) and Experiment 2 (i.e., the scenario of self-selection). Indeed, Experiment 1 encompassed four distinct participant categories: those who favored *Volunteer* but were assigned the *Task* treatment; those who favored *Task* but were assigned the *Volunteer* treatment; those whose preference for *Volunteer* was fulfilled; and those whose preference for *Task* was fulfilled. In contrast, Experiment 2 solely incorporated the latter two participant types. By presuming that the proportion of participants who opted for *Volunteer* (and correspondingly, those who opted for *Task*) remained consistent across both Experiment 1 and Experiment 2 within the matched dataset, we were able to estimate the impact of *forcing* participants who preferred volunteering to undertake *Task* treatment, and the impact of forcing those who preferred *Task* to undertake *Volunteer* treatment.

Experiment 2 revealed that, on average, approximately 60.76% (i.e., $288/(288+186)$) of participants expressed a preference for volunteering. Utilizing this ratio, we can extrapolate the alteration in donation behaviors if self-selected volunteers were assigned the *Task* treatment instead. The donation probability would decrease from 74.31% (i.e., the donation probability in the *Volunteer* group at Experiment 2) to $P(V - T) = [P(Task$ in Experiment 1$) - (1 - 0.6076) \times P(Task$ in Experiment 2$)]/0.6076 = 61.71\%$ (i.e., the donation probability had the self-selected volunteers received the *Task* treatment). Similarly, the average donation amount would decline from \$0.636 (i.e., the donation amount of the *Volunteer* group in Experiment 2) to $\bar{D}(V - T) = [\bar{D}(Task$ in Experiment 1$) - (1 - 0.6076) \times \bar{D}(Task$ in Experiment 2$)]/0.6076 = \$0.557$ (i.e., the average donation amount had the self-selected volunteers received the *Task* treatment). These findings suggest that channeling individuals who desire to volunteer into the *Volunteer* group (rather than the *Task* group) can bolster both the probability and the average amount of donations. While these results furnish a comprehensive understanding of the impact of self-selection on volunteering, it is imperative to recognize that they are bereft of standard errors or statistical power tests, limiting the conclusiveness of the findings.

Table 2   Donation summary of matched data in Experiments 1 and 2

Experiment	Group	Observations	Donation Probability	Donation Amount
Self-selection	Task	186	101 (54.30%)	0.369 (0.035)
	Volunteer	288	214 (74.31%)	0.636 (0.031)
Randomization	Task	284	167 (58.80%)	0.483 (0.032)
	Volunteer	287	190 (66.20%)	0.558 (0.033)

In addition, we use the instrumental variable (IV) approach to estimate the effects. Letting an outcome variable (such as the decision to donate or not, as well as the donation amount) for recipient i be Y_i, we specify

$$Y_i = \beta_0 + \beta X_i + \gamma T_i + \epsilon_i \tag{1}$$

where X_i is a vector of control variables observed in the data, T_i is an indicator of treatment, and ϵ_i is an error term that captures the unobserved factors that can affect an individual's give and resend decisions. The parameter of interest is γ, which represents the treatment effect on Y_i. Since the self-selection into the volunteering role in Experiment 2 can be endogenous, we use the assignment to Experiments 1 and 2 as our IV. A valid instrument should meet both the inclusion restriction and exclusion restriction assumptions. The inclusion restriction assumption requires that the IV is correlated with the probability to receive the treatment. This assumption is met because the assignment to Experiments 1 and 2 directly determines the likelihood of receiving different treatments. The exclusion restriction assumption states that the assignment is uncorrelated with the error term in the outcome variables. Although the two experiments are sequential, we do not expect the participants to vary significantly between these two experiments other than the timing of the experiment, and we further used CEM to achieve a near-perfect balance between Experiments 1 and 2. Therefore, we assume both conditions are met.

We estimate the treatment effects of Volunteer Intention (i.e., T_i is seeking to volunteer, VI) based on individuals in Experiment 2 and the *Task* group from the matched data. The *Task* group serves as the "control" group, and the individuals in Experiment 2 are the "treated" group. In Equation 1, $T_i \equiv VI_i \equiv 1$ if the participant did volunteer (i.e., the participants of the *Volunteer* group in Experiment 2), and 0 otherwise (i.e., the participants of the *Task* groups in both experiments). We use the indicator of being assigned to Experiment 2 ($Z_i = 1$ if in Experiment 2 and 0 if in the *Task* group) as the instrument for VI_i. The first-stage regression gives us the predicted $\widehat{VI_i}$ for each individual (note that $\widehat{VI_i} = 0$ for the *Task* group). This step produces an unbiased estimate for γ and helps us identify the impact of volunteer intention on donation decisions.

Table 3 displays the regression results for both donation probability and donation amount. Note that $\widehat{VI_i}$ is both statistically and economically significant in elevating donation probability. The coefficient of $\widehat{VI_i}$ for donation amount also has a considerable effect size at $p = 0.105$. These results indicate that volunteering intention has a positive impact on subsequent donation behaviors. Therefore, providing volunteering opportunities to individuals who express a desire to volunteer, rather

Table 3   **Results of the IV estimation method (Equation** (1)**)**

	Fist-stage DV		Second-stage DV	
	VI		Donation Probability	Donation Amount
$\widehat{VI_i}$			0.129** (0.058)	0.103 (0.063)
Age L2		-0.064 (0.053)	-0.004 (0.042)	-0.008 (0.046)
Age L3		-0.054 (0.057)	0.052 (0.045)	0.096** (0.049)
Gender Male		-0.164*** (0.044)	-0.027 (0.036)	-0.071* (0.039)
Education L2		-0.016 (0.051)	-0.029 (0.039)	0.010 (0.043)
Education L3		-0.215*** (0.080)	0.148** (0.062)	0.246*** (0.067)
Income L2		-0.048 (0.051)	0.003 (0.040)	0.009 (0.043)
Income L3		-0.004 (0.072)	-0.0003 (0.054)	0.117** (0.059)
Familiarity		0.109* (0.059)	0.167*** (0.046)	0.229*** (0.050)
Constant	0.608*** (0.022)	0.750*** (0.045)	0.550*** (0.048)	0.393*** (0.052)
Observations	474	474	758	758
R^2	0.000	0.061	0.049	0.089
Adjusted R^2	0.000	0.045	0.037	0.078
Residual Std. Error	0.489	0.478	0.472	0.513
F Statistic		3.785***	4.248***	8.133***

Note: *$p<0.1$, **$p<0.05$, ***$p<0.01$, and numbers in parentheses represent standard deviations.

than asking them to perform the same work without volunteering, leads to higher donation probabilities and larger donation amounts.

3.6.   Discussion

Results of Experiments 1 and 2 illustrate that participants who volunteered for a charity are more likely to donate and, on average, make a larger donation than those who do not volunteer. Our experiment was conducted in an online environment, so participants were less likely to establish a connection with the charity than volunteers in a traditional in-person event who actually visit the charity (Liu et al. 2016). However, volunteering itself might build a personal connection with the charity's mission, which is an essential psychological driver of giving (Chen and Li 2009; Kessler and Milkman 2018). As discussed in Olivola and Liu (2009), volunteering reduces the psychological distance between the volunteer and the charity as spending time is a personal action. Results of Experiment 1 align with this argument, and support the findings of Liu and Aaker (2008) that volunteering activates a social construct associated with emotional well-being that increases donations. The result of our first experiment provides compelling evidence that even when individuals are forced into a volunteering role, they are likely to further support the charity they have served. Those in the *Volunteer* group, having completed a demanding task, may have activated their prosocial identity. This in turn could have motivated them to make more donations, in alignment with this identity, thus affirming the concept of moral consistency (Gneezy et al. 2012).

The presence of moral consistency as the mechanism explaining this causality is further supported by our observation that participants who put more effort (i.e., spent more time) in volunteering donated more. However, the time spent in Experiment 1 was self-induced, so the relationship we observed between effort and donation is participant to the self-selection bias. For example, Exley and Terry (2019) designed an experiment to allow participants to self-select into work for charity or themselves, and found that those who chose to work for themselves decreased their effort as their

wage increased, while those working for charity did not. In our experiments, participants who spent more time making the card might be those whose intrinsic values led them to care more about the cause (and so donated more). This is further investigated in Experiment 3 where we used a variation of virtual volunteering task that randomized different levels of *required* effort among participants to see whether donation size would still correlate with time spent.

In the results of Experiment 2, we found that when individuals consciously choose to volunteer, they are also more likely to make donations, further underscoring the presence of moral consistency. Interestingly, those who willingly volunteered donated, on average, larger amounts compared to those who were assigned to volunteer. A plausible explanation for this disparity may lie in the personal ethics of the volunteers: individuals who view themselves as moral may feel an inner compulsion to continue acting ethically, as any deviation from this course could clash with their self-image and jeopardize their sense of integrity, or moral identity (Blasi 1980). This idea finds support in prior research, including studies by Gneezy et al. (2012) and Kristofferson et al. (2014), which suggest that when individuals recognize their initial behavior as reflecting a specific goal or value, they are more apt to exhibit consistent actions. Kristofferson et al. (2014), for example, found that the public or private nature of an initial behavior can also moderate its subsequent effects. In their experiments, individuals who privately signed a petition or took a lapel pin home were more likely to later donate or volunteer for the same cause, compared to a control group with no prior action. This suggests a consistency effect when the initial behavior was conducted in private. However, this effect was not observed when participants signed a petition in the presence of their peers or wore the pin visibly on their clothing, with no evidence of a balancing effect either. The researchers posited that private actions prompted individuals to reflect on their values, adopt the identity suggested by the initial behavior, and demonstrate consistent actions, an introspective process that public behaviors did not seem to stimulate (Kristofferson et al. 2014). Previous research suggests that situational cues, like moral primes, can enhance prosocial intentions and behaviors by increasing the accessibility of an individual's moral identity (Aquino et al. 2009). People with a strong self-concept as moral beings are more likely to exhibit prosocial behaviors compared to those with a less prominent moral self-concept (Aquino et al. 2009). A heightened sense of moral rectitude can encourage consistent moral actions, as individuals tend to avoid behaviors that contradict their positive self-image (Blasi 1980). In light of these findings, we find no grounds to reject Hypothesis 1.

4.   Experiment 3: Volunteering effort and subsequent donation

The goal of Experiment 3 was to explore the relationship between an individual's level of volunteering effort and subsequent donation. As in previous experiments, we recruited participants through Prolific using the same selection criteria. We implemented filters to ensure that no participant took part in more than one experiment.

Low Effort   High Effort
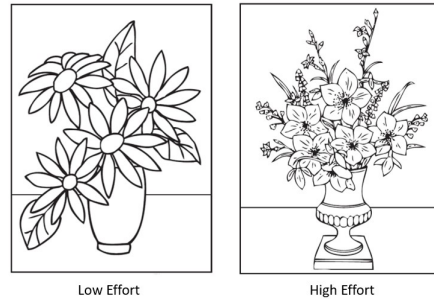
Figure 3   Coloring patterns used in each group

4.1.   Design and implementation

Experiment 3 followed the same procedure as Experiment 1. However, instead of allowing participants to draw their own picture, we followed Mertins and Walter (2021) example by providing participants with a template to color. Participants could choose any colors, and were able to add additional words and arts to the template. We varied the complexity of the pattern and randomly assigned participants into two groups. Participants in the Low Effort (LE) group were asked to color a simple pattern either for themselves (i.e., *LE Task*) or for SVdP (i.e., *LE Volunteer*), while participants in the High Effort (HE) group were asked to color a more complex pattern either for themselves (i.e., *HE Task*) or for SVdP (i.e., *HE Volunteer*) (see Figure 3). Before conducting the actual experiment, we ran a pilot test to ensure that the time difference between the two tasks is significant.

4.2.   Results and discussion

It is important to note that we initially conducted our experiment with only the two groups of *LE Volunteer* and *HE Volunteer*. In the revised version, we added the other two groups, *LE Task* and *HE Task*, which accounts for the difference in the number of participants between the task and volunteer groups. In two sequential experiments, we received 1,545 submission in total; we received 494 submissions for the *LE Volunteer*, 303 submissions for the *LE Task*, 453 submissions for the *HE Volunteer*, and 295 submissions for *HE Task* group. We found no significant difference in the control variables (i.e., social-demographic information and familiarity with the charity) or acceptance rates between the groups. Moreover, after our original experiment with the LE and HE volunteer groups, we sent a follow-up survey to the 192 participants who withdrew the study in the drawing stage, and received 164 responses (85.4%). Similar to Experiment 1, most participants (96.3%) withdrew because either they did not have enough time (36.6%) or access to proper equipment (59.8%) to complete the experiment. Tables 14 and 15 (Appendix C) compare the distribution of participants' characteristics and we do not find any statistical significant differences between the participants who completed vs. those who withdrew the study.

We measured effort in terms of the time spent to complete a task. Manipulation check showed that our treatment successfully influenced the two groups' time spent on the task. On average,

Figure 4   **Examples of finished cards in Experiment 3**

participants in the *LE Volunteer* group spent 18.07 (SE=0.489) minutes, in the *LE Task* group spent 18.6 (SE = 0.634) minutes, in the *HE Volunteer* group spent 22.37 (SE=0.574) minutes, and in the *HE Task* group spent 24.4 (SE=0.732) minutes to complete their work. A pairwise comparison was statistically significant at $p \leq 0.001$ level.

Our analysis of the primary outcome of the donation decision revealed two main results. First, focusing on the *Volunteer* groups, we found a statistically significant difference between the groups, with 59.2% of the *HE* group donating compared to 67.2% of the *LE* group ($p = 0.012$). Second, on average, the *LE* group donated greater amounts; *LE* participants donated an average of $0.579 (SE= 0.026), while *HE* participants donated $0.502 (SE= 0.027). The donation difference is statistically significant at $p = 0.018$. Moreover, 21.5% of participants in the *LE* group donated the entire bonus ($1.5) compared to 18.3% in the *HE* group. The proportion test does not result in a conventional significant p-value ($p = 0.261$). Yet, we further compare the distributions with Kolmogorov-Smirnov Test, which shows a significant difference at ($p = 0.059$). (Robustness tests are presented in Appendix C.) However, when considering the *Task* groups, we found that 59.7% of the *LE Task* group made a donation, compared to 60.0% in the *HE Task* group. Furthermore, the *LE Task* group donated an average of $0.467 (SE = 0.029), while the *HE Task* group donated an average of $0.440 (SE = 0.029). Neither the donation probability nor the amount varied significantly between these two groups.[5]

Result 3 *Participants in the* High-effort Volunteer *group are less likely to donate compared to the participants in the* Low-effort Volunteer *group.*

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[5]For a robustness test, we combined the two sequential experiments and employed the CEM method to match the data. The matching algorithm significantly improved balance across all covariates. This resulted in equivalent groups between our initial experiment, with two groups of volunteers, and the followup experiment, with the two control groups. This matching further confirms that the difference observed between the low and high effort groups in Experiment 3 was solely present in the volunteering setting. Referring to Table 4, there is a notable decrease in both donation probability and average amount between the LE and HE groups in the volunteering setting; however, this trend is not observed in the task setting. It is worth noting that we also explored the potential interaction effect given the 2×2 design in the matched data. Nonetheless, we did not observe a statistically significant result. Generally, detecting interaction effects can be challenging, particularly when the effect size is small or moderate, or when the interaction effect does not cross. In fact, it would require four times the sample size to estimate an interaction of the same magnitude as the main effect and 16 times the sample size for an interaction half as strong as the main effect (as discussed in section 16.4 of (Gelman et al. 2020)). Since this wasn't the primary focus of our study, we will leave this exploration for future research.

Table 4   **Donation summary of matched data for effort experiments – new table**

Group	Observations	Donation Probability	Donation Amount
LE-V	325	216 (66.46%)	0.562 (0.031)
HE-V	309	179 (57.93%)	0.480 (0.032)
LE-T	242	141 (58.26%)	0.436 (0.032)
HE-T	225	126 (56.00%)	0.425 (0.033)

Table 5   **Relationship between time and donation in the LE Volunteer and HE Volunteer groups**

	Dependent variable			
	Donation amount (LE)	Donation probability (LE)	Donation amount (HE)	Donation probability (HE)
Duration_mins	0.007*** (0.002)	0.016*** (0.006)	0.003 (0.002)	0.007 (0.005)
Constant	0.455*** (0.050)	0.164. (0.117)	0.430*** (0.055)	0.065 (0.125)
Observations	494	494	453	453
R^2	0.017		0.005	
Adjusted R^2	0.015		0.003	
Log Likelihood		−308.489		−305.197
Akaike Inf. Crit.		620.978		614.394
Residual Std. Error	0.570 (df = 492)		0.564 (df = 451)	
F Statistic	8.477*** (df = 1; 492)		2.204 (df = 1; 451)	

Note: *10%, **5% and ***1% statistical significance, and numbers in parentheses represent standard deviations.

(a)   (b)   (c)
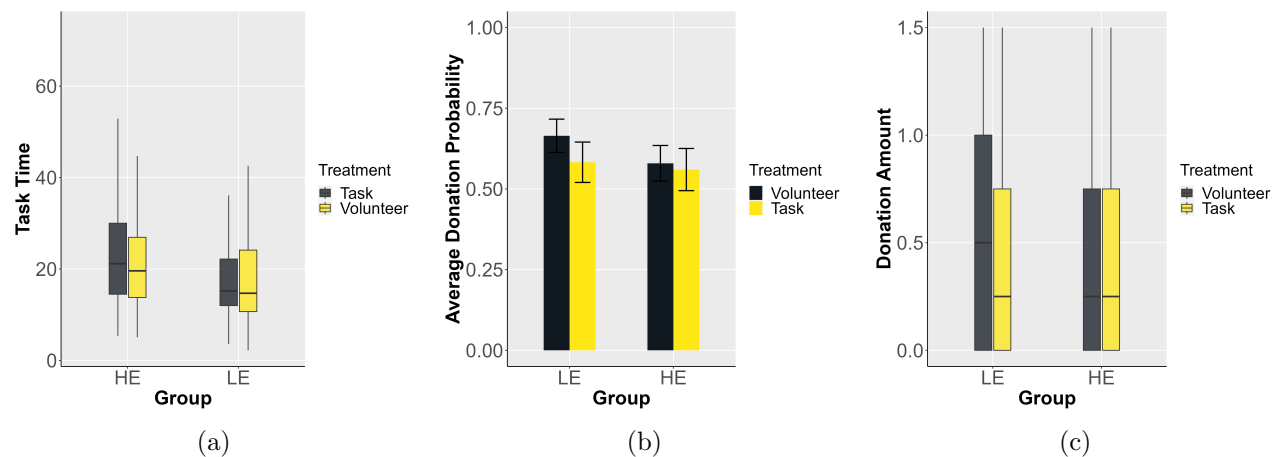
Figure 5   **Figure (a) shows time spent on the coloring task, figure (b) shows average donation probability with 95% confidence interval, and figure (c) shows donation amount**

4.3.   Discussion

As in Experiment 1, we estimated the relationship between time spent volunteering and subsequent donation decisions within each group (Table 5). In the *LE Volunteer* group, those who spent more time donated more. This observation is consistent with the results of Experiment 1, in which volunteers who spent more time made a larger donation. However, we did not find any significant relationship between the time spent on the task and donation decision in the *HE Volunteer* group.

Results from Experiment 3 suggest that varying levels of effort in volunteering influence donation decisions. Specifically, within the volunteer groups, we observed that as participants expended more effort, there was a corresponding decrease in donations. This trend indicates the presence of some degree of crowd-out effects in volunteering. However, when comparing donations made by partic-

ipants in the *HE Volunteer* group to those in the *HE Task* group, we did not find a statistically significant difference. A plausible explanation lies in the concept of mental budgeting: participants in the *HE Volunteer* group spent 23.8% more time on the volunteering task than the *LE Volunteer* group. As a result, they might have felt that they had already allocated a significant portion of their resources (in terms of effort) to charitable endeavors and, consequently, felt no need to expend additional resources (money) in the same category (Heath and Soll 1996; LaBarge and Stinson 2014). Stated differently, when the moral self-perception elicited by volunteering efforts exceeds the moral equilibrium (i.e., accumulates excessive moral credits), participants might experience a sense of moral imbalance. In response, they may choose to use their surplus moral credits by allocating more money for personal use. Moreover, volunteers who invest more effort may find that their input of time and effort surpasses their internal budget allocation. This process activates their moral self-identity, establishes a moral label for themselves, and offers a justification for engaging in less morally upright behavior in the future. This observation aligns with the findings of LaBarge and Stinson (2014), suggesting that a charitable category is likely a form of mental budget that donors create for themselves. It is presumed that donors base their giving decisions on the resources available within this budget. In essence, this budget dictates the donor's perceived capacity for philanthropic contributions during the budget cycle. Once the charitable budget is exhausted, no additional donations will be made, effectively establishing a ceiling on their giving.

The donation decline seems to contradict the findings in Experiment 1, where participants in the *Volunteer* group who spent more time tended to make larger donations, too. This inconsistency could be due to the existing selection bias; participants who chose to spend more time might have already been more altruistic and made more monetary donations. We further tested the relationship between time spent on volunteering and donations within each *LE Volunteer* and *HE Volunteer* groups. While the participants in the *LE Volunteer* group had the same pattern as the *Volunteer* group in Experiment 1, those in the *HE Volunteer* group did not show any considerable trend. This is an intriguing result because if the observation from Experiment 1 results from selection bias, then the selection effect caused by this bias should also occur within each group. One explanation is that our sample size was not large enough to observe the relationship. However, in both *Volunteer* (Experiment 1) and *LE Volunteer* (Experiment 3) groups (Tables 1 and 5), the time variable is significant at $p = 0.01$, which implies that this observation is unlikely due to statistical errors or lack of power. A more plausible explanation is that volunteering effort creates a moral consistency drive until individuals' efforts reach to a certain threshold, then the positive effect as participants exert more effort is cancelled out by crowd-out mechanisms, namely mental budgeting. Overall, we find no basis for rejecting Hypothesis 2.

5. General discussion, conclusion, and limitations

Understanding the relationship between volunteering and monetary donation is important given the notable size of the charitable market (List 2011), the decreasing trend of donations (Philanthropy Panel Study 2021), and the valuable role that charities play in modern life (Pautman 2000). In 2020, charitable giving in the United States exceeded $470 billion, 69% of which came from individuals (Giving USA 2021). While this is a large market, studies show that the percentage of American households that donated to a charity in a given year has significantly declined from 66.2% in 2000 to 49.6% in 2018 (Philanthropy Panel Study 2021), which escalates charities financial instability and risk of failure (West 2004; Calabrese 2013), a challenge that is magnified by an economic decline (Osili et al. 2019).

Several factors could explain the influence of volunteering on subsequent donations. Volunteering is thought to enhance individuals' trust and perceptions of a charity's mission and/or important social causes to support, both crucial factors in donation decisions (Feldman 2010; Parsa et al. 2022). Moreover, the social interactions during volunteering may increase happiness and thus donations (Harris and Thoresen 2005; Borgonovi 2008). Volunteers might also donate more after witnessing the social impact of helping those in need or observing others' generosity and wanting to conform to social norms (Martin and Randal 2008). These positive effects on donations have been attributed to personal connections (Chen and Li 2009; Kessler and Milkman 2018), social norms (Martin and Randal 2008), and social signaling (Ariely et al. 2009). However, we did not test these mechanisms in our study, as participants volunteered remotely. Despite the absence of these factors in our online setting–where volunteers do not see their effort's impact, interact with others, or receive social recognition–we still observed a positive spillover effect on donations. This suggests that virtual volunteering, free from social signaling or personal connection, offers a unique opportunity to explore the main drivers of donation decisions without the influence of in-person experiences.

Our results suggest two concurrent mechanisms that could determine the positive or negative relationship between volunteering and donation. First, the principle of moral consistency may explain why volunteers are more likely to donate to charity. Notably, Conway and Peetz (2012) argued that the level of abstraction in thinking about past moral behavior could moderate its influence on future actions, leading to either consistency or licensing effects. Concrete thinking about past actions may focus attention on the act itself, prompting a balancing effect, while abstract thinking highlights the underlying reasons for the behavior (values and higher-order goals), leading to consistency. This might explain why, in the experiments by Liu and Aaker (2008) and Olivola and Shafir (2013), volunteers who consider an abstract activity are more inclined to donate. In our study, we demonstrate that even when engaged in concrete volunteering activities, volunteers still exhibit a willingness to donate, perhaps underscoring the strength of moral consistency in guiding behavior. From a theoretical perspective, our findings diverge from those of Conway and Peetz (2012), who showed that

recalling *recent* behavior results in licensing, while recalling more distant behavior leads to consistency. Our results also contrast with Weibel et al. (2014), who found that recalling completed actions leads to licensing, while expressing intentions for future actions results in consistency.

Moral identity is a complex concept, encompassing a variety of traits such as fairness, honesty, altruism, and friendliness, and individuals may prioritize these traits differently in their moral identity (Aquino and Reed II 2002). In the self-selection experiment, it is possible that those who chose volunteering place greater importance on altruism within their moral identity compared to those who chose the Task treatment. Consequently, the experience of volunteering may have activated their moral identity, leading to a consistency effect in their subsequent donation behavior. In contrast, for individuals who prioritize altruism less in their moral identity (i.e., those who prefer the *Task* treatment), volunteering had more limited influence their donation decisions. Yet, the findings of Experiment 1 indicate that individuals are more likely to donate and, on average, contribute larger amounts when randomized into the "volunteer" condition as opposed to the "task" condition. This suggests that even when "forced" (or, in our case, randomly assigned) to volunteer for a charity, individuals are more inclined to give generously. These results have important practical implications. For example, many U.S. states either require high school students to complete mandatory volunteer hours for graduation or encourage them to use volunteer opportunities to earn graduation credits (Murphy 2023). Similarly, numerous companies offer their employees paid time off to volunteer. While existing literature has explored the benefits to student and corporate volunteers (Haski-Leventhal et al. 2020; Rodell 2013), our study highlights the positive effects on the charities that offer these volunteer opportunities: even obligatory volunteering can have a positive impact on subsequent charitable donations.

A natural question is whether additional effort leads to increased donations. Olivola and Shafir (2013) found no relationship between individuals' extra effort and their willingness to donate. Our results, however, suggest that individuals' contributions declines at higher level of effort, once volunteers perceive they have already allocated *enough* to the charitable category. This leads us to propose moral budgeting as the second mechanism explaining the relationship between volunteering and donations. In summary, combining the results of our experiments, we observe a concave effort-value relationship. Volunteers initially donated more as they moved from "no volunteering effort" to "some volunteering effort," but donations decreased as effort increased. In other words, effort beyond a certain point is devalued (Richter et al. 2016), consistent with existing literature indicating that willingness to exert effort typically declines as a function of the amount of effort already expended (Kool and Botvinick 2014). We demonstrate that this principle also applies in charitable contexts.

This research is novel in several regards. First, although charitable giving has attracted extensive research, few studies have used actual volunteering tasks (Mertins and Walter 2021). By assigning

an actual volunteering task, we were able to observe more realistic reactions. Second, our findings of a positive volunteering–donating relationship in a virtual volunteering setting provides new insights into means for charities to increase their volunteer labor and donation income. Virtual volunteering would allow charities to reach a large pool of volunteers and potential donors. This is especially important because, in general, running volunteering programs are less costly compared to fundraising campaigns. Moreover, virtual volunteering could prove especially useful to those charities that have limited space and infrastructure to run in-person volunteering events. Third, our results unveil the importance of volunteer management. The majority of volunteers visit a charity irregularly and on a short-term basis (Cnaan et al. 2022). Our results indicate that volunteering task design should be considered as a "two-way street," and charities should incorporate the dual identity of volunteers both as labor supply and as customers of volunteering experience. In particular, we suggest that charities assign volunteers a reasonable workload (instead of burning them out). This strategy is more likely to keep volunteers engaged and leads to increased donations. Overall, while the traditional paradigm has often emphasized long-term and committed volunteering, contemporary trends indicate a shift towards volunteers favoring shorter and less frequent engagements (Hustinx and Lammertyn 2003). This evolving landscape is often perceived by charities as a challenge to their established volunteer programs, many grappling with the associated costs of adapting their management practices to this new volunteer archetype (Handy and Srinivasan 2004). In this paper, however, we posit that the value of volunteers extends beyond mere labor contributions. We argue that charities stand to benefit from embracing this diversity in volunteer engagement patterns, rather than constraining the scope of their volunteer programs.

A common concern regarding lab experiments is the external validity of the result. For example, Levitt and List (2007) argue that pro-social behavior can be inconsistent between lab and field settings. First, lab experiments are scrutinized to a higher degree and can cause a demand effect, which increases the likelihood of charitable behavior in the lab. However, participants work remotely in our setting, and all their data are non-identifiable. Second, the target population and context can differ between lab and field environments. In our experiment, although the participants may be slightly different from the general population as they are online workers, the treatment or the volunteering task is a real task that a charity uses. Third, individuals treat the money differently when they receive it with and without effort (Carlsson et al. 2013). Indeed, participants are more generous with windfall earnings than earned endowments in our experiment. Nevertheless, we observed a significant result even with this effect working against our finding. Studies also find that pro-social behaviors in the lab are strongly correlated with the behaviors in the field (Benz and Meier 2008; Franzen and Pointner 2013). In summary, our findings with online participants have strong external validity in practice and theory.

We also acknowledge several limitations in our study that point out future research opportunities. First, participants were not exposed to the traditional in-person volunteering experience. Therefore, we cannot observe the potential impact of social norms on their donation decisions. Second, as demonstrated in Pronin et al. (2008) and Huber et al. (2011), in addition to the social distance (self vs. other), the temporal distance (now vs. later) is a critical factor in individuals' desire to contribute to a prosocial cause. For example, Huber et al. (2011) argue that individuals respond more strongly to the most recent humanitarian crisis. The temporal element is ignored in our study, and perhaps can only be elaborated through a field experiment when a delay between volunteering and donation decision can be designed. Finally, experimental studies are usually designed for *causal description*, which is to describe the consequences attributable to purposefully varying a treatment, or for *causal explanation*, which is to clarify "the mechanisms through which and the conditions under which the causal relationship holds" (Cook et al. 2002, p.9). The goal of this study is to describe a causal relationship between a person's volunteering and subsequent donation. Although we used different theoretical views to justify this relationship, future studies may disclose the underlying mechanisms behind this relationship.

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Appendix A: Experimental Procedures

All experiments share a common introduction, as depicted in Figure 6, where participants read a brief overview of SVdP and received information about the virtual volunteering task. For Experiments 1 and 2, the contexts for the *Volunteer* and *Task* groups are outlined in Figure 7. There are three key differences between these treatments. First, in Experiment 1, the *Volunteer* group was instructed to engage in the virtual volunteering task, while the *Task* group focused on a virtual painting task. Second, the *Volunteer* group was informed that their card would welcome individuals staying in SVdP shelters. In contrast, the *Task* group was told their cards would help researchers understand the nuances of "virtual painting." This language was carefully chosen to prevent the *Task* group from feeling judged. The last distinction involved adding the name of either SVdP or the authors' research institute to the card. Experiment 2 followed the same procedures and task descriptions as the *Volunteer* group in Experiment 1, with the addition of detailed instructions on coloring patterns for both groups. As depicted in Figure 8, participants were offered the option to join either the *Volunteer* or *Task* group.

With 800,000 members in 153 countries across six continents, **The Society of Saint Vincent de Paul (SVdP)** is an international humanitarian organization serving more than 30 million people globally. Their services include feeding, clothing, housing, and healing individuals. SVdP has 4,400 communities in the United States that provided 12.6 million hours of volunteer services during 2017. The largest division in the U.S. locates in Phoenix, Arizona, where it serves homeless and low-income families with free medical and dental clinics, food warehouses, clothes, and housing. In 2019, SVdP delivered 181,000 food boxes, served 2.6 million meals, provided 16,500 medical visits and 46,700 sheltered nights for people in need.

Transitional housing is an important pillar to help people get back on their feet. In SVdP, 800-1,000 individuals (guests) use the shelter service every day. In addition to providing housing for people in need, SVdP wants to express love and respect for the guests who stay in the shelters. To do so, SVdP offers virtual volunteering opportunities which allow people to mail in their personalized greeting cards. Each card will be on a bed with a mint to welcome the guest. For example, the picture on the right shows a guest (her name is Louise) in a shelter who has kept every card she has received in an ID bag.
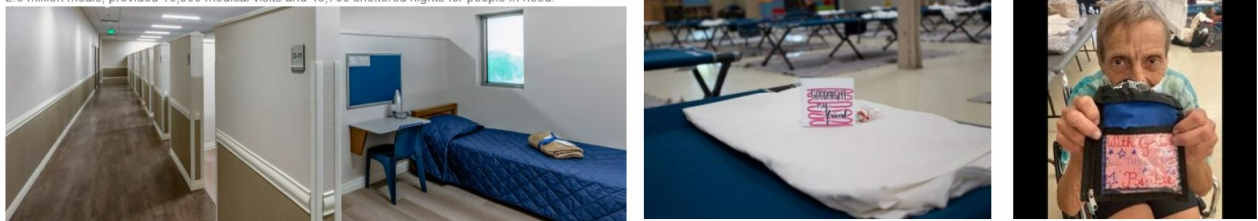
Figure 6   Stage 1 in all Experiments

In Experiment 3, we provided detailed instructions to streamline the drawing process. The task descriptions for the *Volunteer* and *Task* groups were identical, except for the stated purpose. Figure 9 illustrates the steps taken by participants in the *LE Volunteer* group. At the end of all experiments, we collected demographic information, donation decisions, and participants' prior familiarity with SVdP across two pages. Questions about demographics and donations appeared on the first page and were displayed in random order (see, e.g., Figure 10) while the question about familiarity with SVdP was presented on the second page (Figure 11).

Appendix B: Statistics related to Experiment 1

For robustness checks, we ran three probit regressions to control for different variables, including demographic and familiarity information. As for control variables, we have four levels for all demographic variables (*Gender*, *Age*, *Income*, and *Education*). *Income* is categorized into: L1 (those with household income below \$50,000), L2 (those with household income between \$50,000 to \$100,000), and L3 (those with income above \$100,000); *Age* is categorized into: L1 (those under 30) , L2 (between 30 to 40), and L3 (41 and older); *Education* L1 (those with up to an associate degree), L2 (bachelor's degree), and L3 (a master's degree or above). Last, *Prior* is a binary variable and equals to 1 if the participants already knew SVdP before the experiment.

Figure 7   Task description in Experiments 1 and 2

Figure 8   Self-selection question in Experiment 2

Table 9 shows the significance of covariates include *Gender*, *Age*, and *Income*. Column 1 replicates the results from the non-parametric tests. Column 2 shows the results after adding demographic variables (i.e., age, gender, income, and education), and Column 3 shows the results after controlling for additional variables related to a participant's previous knowledge about SVdP. Across three models, we observe a highly significant treatment difference at $p \leq 0.01$ level. Our findings are robust after including the control variables, and the effects are economically relevant. Specifically, consistent with the literature (Simmons and Emanuele 2007), female participants donated more. In addition, the population with household incomes more than $100,000$ donated more. Finally, *Prior* control is the post-treatment question on whether the participants were familiar with SVdP before this experiment. Due to salient effect, it is likely that those who were familiar with the charity would donate more. Table 9 includes the three probit regressions with the same set of control variables. In general, the same result holds for the *Volunteer* treatment, as the treatment effect is also significant at $p \leq 0.01$ level.

Table 6   Withdrawal break down by stage (Experiment 1)

	Stage 1 (Background)	Stage 2 (Drawing)
Task (153)	56	97
Volunteer (162)	59	103

Today, we ask you to engage in the virtual volunteering task– Making a "*Sweet Dream Card.*" We will guide you to make a personalized card with an online painting tool **in three steps**. You will download the provided template, color it with an online painting platform, and create your own words and art on the card. In the end, you can upload your finished product, and we will print out the card and use it to welcome those who stay in SVdP's shelters.

Instructions - 1/3:

In the first step, you will **download** and **save** the template we provide. First, click the following link in "templates download", and it will open up a new window in your browser. Second, **right-click** your mouse, and it will allow you to save the template to a local folder on your computer. Make sure to save it in a location where you can find it.
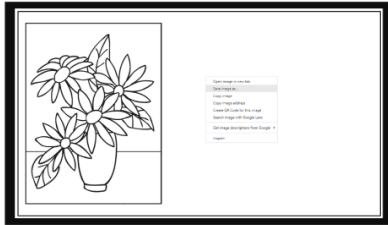
By default, it should be saved either in your *downloads* folder or a *recently downloaded* folder. Once saved, please check the question below, and we will move to the next step.

Templates Download:
card_template.PNG

*The coloring pattern is supported by ColorWithFuzzy.com.

Instructions - 2/3:

In this step, you will color the template and add any customized words and art.

Go to Kleki, a free online drawing tool. The landing page contains a blank canvas on the left and various painting tools on the right. First, go to the top right corner and click the folder icon, which indicates "import image." Then, find the file you just saved from step 1 and upload it "As image."
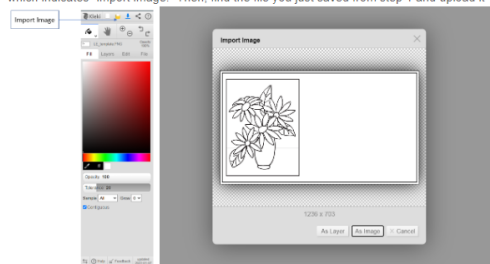
Second, you can start coloring. The primary tool you will use for painting is "**Paint Bucket**." With this tool and your choice of color, you can easily fill the shape with one click. Use any colors you like and make your own painting. Also, you can zoom in an area by clicking the plus button ("+") on top right. If you want to "**Undo**" any painting, the button is on the top right corner (or use "ctrl+z").
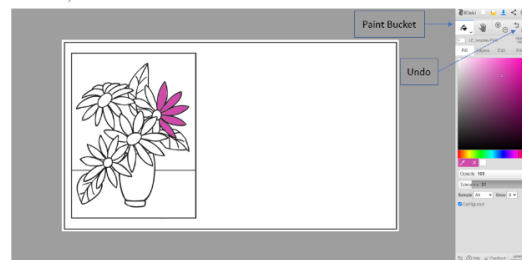
Once you finish coloring, please proceed to the last step. Please do not close Kleki.

Instructions - 3/3:

Now that you have finished coloring, feel free to add any words or other art on the blank part. For example, you can choose a customized **brush** with different colors, sizes, and formats. You can also add **Text** and **Shape** directly. However, once you add text or shape, it is not convenient to move it around. So it is *highly recommended* to determine the location of the text first. Also, remember that the "Undo" button is on the top right corner (or use "ctrl+z").
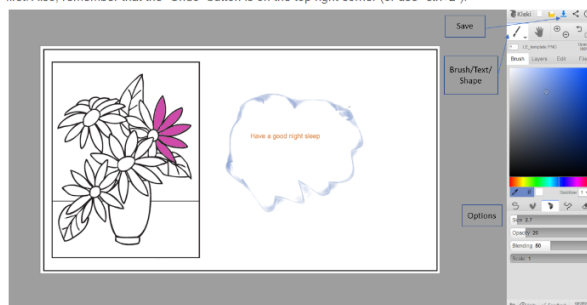
Do not close the page before you save your work! You can save your card by clicking the "Save Image" button on the top right corner. Same as before, save it in a local folder where you can find it.

Figure 9   Instruction for Experiment 3

Figure 10   First page displaying demographic information and donation questions, with the order of questions randomized

Figure 11   Second page of the demographic information

In both regression models, prior awareness of SVdP significantly increases both the probability and amount of donation. Table 10 shows the results. The first three columns show the number (percentage) of participants

Table 7   Characteristics of participants in the Task, Volunteer, and Withdrawal groups (Experiment 1)

		Task (N = 417)	Volunteer (N = 449)	Withdrawal (Task) (N = 86)	Withdrawal (Volunteer) (N = 91)
Gender	Female	47.72 (199)	51.00 (229)	48.84 (42)	50.55 (46)
Age	18-30	37.89 (158)	40.53 (182)	38.37 (33)	38.46 (35)
	31-40	30.94 (129)	30.07 (135)	27.91 (24)	28.57 (26)
	41+	30.94 (129)	28.95 (130)	31.40 (27)	31.87 (29)
Income	<$50,000	35.01 (146)	39.20 (176)	36.05 (31)	37.36 (34)
	$50,001-$100,000	40.29 (168)	34.52 (155)	40.70 (35)	39.56 (36)
	>$100,001	22.78 (95)	24.94 (112)	22.09 (19)	21.98 (20)
Education	<= Associate	34.29 (143)	37.86 (170)	33.72 (29)	36.26 (33)
	Bachelor's	42.21 (176)	41.65 (187)	41.86 (36)	42.86 (39)
	>= Master	23.26 (97)	20.04 (90)	22.09 (19)	18.68 (17)
Familiarity	None	71.94 (300)	71.27 (320)	74.42 (64)	71.43 (65)

Note: (i) All values are percentages (numbers); (ii) Some columns may not add up to 100% because a few participants chose "Prefer not to choose."

Table 8   Characteristics of participants in the Task and Volunteer groups (Experiment 2).

		Task-S (N = 232)	Volunteer-S (N = 370)
Gender	Female	38.36 (89)	53.51 (198)
Age	18-30	43.97 (102)	48.92 (181)
	31-40	28.88 (67)	24.86 (92)
	41+	26.72 (62)	26.22 (97)
Income	<$50,000	40.52 (94)	46.76 (173)
	$50,001-$100,000	37.07 (86)	32.16 (119)
	>$100,001	19.83 (46)	17.03 (63)
Education	<= Associate	49.14 (114)	54.05 (200)
	Bachelor's	33.62 (78)	35.95 (133)
	>= Master	17.24 (40)	9.73 (36)
Familiarity	None	80.60 (187)	76.22 (282)

Note: (i) Values are percentages (numbers); (ii) Some columns may not add up to 100% because a few participants chose "Prefer not to choose."

donated, and the other three columns show the average (standard error) of donation amount in each group.

Table 9   Regression results for donation amount and probability (Experiment 1)

	Dependent Variables:					
	Donation Amount			Donation Amount		
	OLS			*probit*		
	(1)	(2)	(3)	(4)	(5)	(6)
Volunteer	0.101***	0.102***	0.101***	0.238***	0.237***	0.238***
	(0.038)	(0.038)	(0.037)	(0.087)	(0.089)	(0.089)
Age L2		−0.040	−0.044		−0.150	−0.159
		(0.046)	(0.046)		(0.108)	(0.108)
Age L3		0.074	0.050		0.064	0.018
		(0.046)	(0.047)		(0.110)	(0.112)
Age NA		−0.473	−0.488		−9.899	−9.528
		(0.432)	(0.429)		(288.645)	(182.434)
Gender Male		−0.089**	−0.076**		−0.142	−0.120
		(0.038)	(0.038)		(0.090)	(0.091)
Gender third gender		−0.008	−0.023		0.296	0.272
		(0.157)	(0.156)		(0.396)	(0.398)
Gender NA		0.130	0.131		4.700	4.591
		(0.433)	(0.430)		(229.383)	(144.579)
Income L2		0.030	0.035		−0.017	−0.006
		(0.045)	(0.045)		(0.106)	(0.106)
Income L3		0.106**	0.112**		0.114	0.130
		(0.053)	(0.052)		(0.125)	(0.125)
Income NA		0.027	0.074		−0.012	0.080
		(0.169)	(0.169)		(0.397)	(0.399)
Education L2		0.026	0.013		0.005	−0.019
		(0.044)	(0.044)		(0.104)	(0.104)
Education L3		0.050	0.035		0.058	0.029
		(0.055)	(0.055)		(0.129)	(0.130)
Education NA		−0.425	−0.477		−5.388	−5.206
		(0.381)	(0.379)		(194.996)	(123.950)
Prior			0.142***			0.274***
			(0.042)			(0.102)
Constant	0.485***	0.463***	0.430***	0.234***	0.303***	0.240**
	(0.027)	(0.050)	(0.050)	(0.062)	(0.117)	(0.119)
Observations	866	866	866	866	866	866
R^2	0.008	0.034	0.047			
Adjusted R^2	0.007	0.020	0.031			
Log Likelihood				−562.842	−552.482	−548.865
Akaike Inf. Crit.				1,129.684	1,132.963	1,127.730
Residual SE	0.552	0.549	0.545			
F Statistic	7.281***	2.331***	3.001***			

Note: *p<0.1; **p<0.05; ***p<0.01

Table 10   Conditional treatment effect comparison on familiarity with SVdP (Experiment 1)

Measurement	Donation Probability		Donation Amount	
Familiarity/Group	Task	Volunteer	Task	Volunteer
Familiar with SVdP	78 (66.7%)	98 (76.0%)	0.626 (0.054)	0.676 (0.051)
New to SVdP	169 (56.3%)	208 (65.0%)	0.430 (0.029)	0.551 (0.031)

Table 11   Summary of balance for all data in volunteering (Experiments 1 and 2)

	Means Exp 2	Means Exp 1	Std. Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max
Duration mins	14.4757	13.9165	0.0590	0.8247	0.0516	0.1091
Education L1	0.5187	0.3624	0.3186	.	0.1562	0.1562
Education L2	0.3535	0.4187	-0.1342	.	0.0652	0.0652
Education L3	0.1279	0.2189	-0.2422	.	0.0910	0.0910
Income L1	0.4565	0.3684	0.1796	.	0.0881	0.0881
Income L2	0.3552	0.3840	-0.0595	.	0.0287	0.0287
Income L3	0.1883	0.2476	-0.1441	.	0.0593	0.0593
Age L1	0.4565	0.3864	0.1424	.	0.0701	0.0701
Age L2	0.2735	0.3086	-0.0773	.	0.0351	0.0351
Age L3	0.2700	0.3050	-0.0775	.	0.0350	0.0350
Female	0.4920	0.5012	-0.0184	.	0.0092	0.0092
Male	0.5080	0.4988	0.0184	.	0.0092	0.0092
Prior	0.2202	0.2871	-0.1541	.	0.0668	0.0668

Table 12   Summary of balance for matched data in volunteering (Experiments 1 and 2)

	Means Exp 2	Means Exp 1	Std. Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max	Std. Pair Dist.
Duration mins	14.3302	14.2188	0.0117	1.0535	0.0098	0.029	0.3839
Education L1	0.4842	0.4842	0.0000	.	0.0000	0.000	0.0000
Education L2	0.4067	0.4067	0.0000	.	0.0000	0.000	0.0000
Education L3	0.1091	0.1091	0.0000	.	0.0000	0.000	0.0000
Income L1	0.4469	0.4469	-0.0000	.	0.0000	0.000	0.0000
Income L2	0.3971	0.3971	0.0000	.	0.0000	0.000	0.0000
Income L3	0.1560	0.1560	0.0000	.	0.0000	0.000	0.0000
Age L1	0.4622	0.4622	0.0000	.	0.0000	0.000	0.0000
Age L2	0.2938	0.2938	0.0000	.	0.0000	0.000	0.0000
Age L3	0.2440	0.2440	-0.0000	.	0.0000	0.000	0.0000
Female	0.4756	0.4756	0.0000	.	0.0000	0.000	0.0000
Male	0.5244	0.5244	0.0000	.	0.0000	0.000	0.0000
Prior	0.2010	0.2010	-0.0000	.	0.0000	0.000	0.0000

Appendix C: Statistics related to Experiment 3

Table 13   Withdrawal break down by stage (Experiment 3).

	Stage 1 (Background)	Stage 2 (Drawing)
LE (162)	60	102
HE (141)	51	90

Table 14   Characteristics of participants in the Low Effort Volunteer,

High Effort Volunteer, and returned groups (Experiment 3).

		LE (N = 494)	HE (N = 453)	Returned (LE) (N = 87)	Returned (HE) (N = 77)
Gender	Female	46.56 (230)	46.36 (210)	48.28 (42)	46.75 (36)
Age	18-30	40.89 (202)	44.37 (201)	41.38 (36)	41.56 (32)
	31-40	31.38 (155)	30.24 (137)	32.18 (28)	31.17 (24)
	41+	27.53 (136)	25.39 (115)	26.44 (23)	24.68 (19)
Income	<$50,000	41.09 (203)	45.92 (208)	45.98 (40)	44.16 (34)
	$50,001-$100,000	36.64 (181)	31.57 (143)	34.48 (30)	33.77 (26)
	>$100,001	20.04 (99)	20.31 (92)	19.54 (17)	20.78 (16)
Education	<= Associate	41.09 (203)	44.15 (200)	42.53 (37)	44.16 (34)
	Bachelor's	39.88 (197)	39.74 (180)	39.08 (34)	38.96 (30)
	>= Master	18.83 (93)	15.89 (72)	17.24 (15)	16.88 (13)
Familiarity	None	78.14 (386)	81.68 (370)	79.31 (69)	77.92 (60)

Note: some columns may not add up to 100% because a few participants chose "Prefer not to choose" option. Also, values are percentages (numbers).

Table 15   Characteristics of participants in

the LE Task and HE Task groups

(Experiment 3).

		LE-T (N = 303)	HE-T (N = 295)
Gender	Female	49.49 (146)	48.51 (147)
Age	18-30	33.66 (102)	36.61 (108)
	31-40	30.36 (92)	31.86 (94)
	41+	35.97 (109)	31.52 (93)
Income	<$50,000	47.52 (144)	42.03 (124)
	$50,001-$100,000	29.70 (90)	34.24 (101)
	>$100,001	21.12 (64)	20.68 (61)
Education	<= Associate	45.87 (139)	42.37 (125)
	Bachelor's	36.96 (112)	44.41 (131)
	>= Master	17.16 (52)	12.54 (37)
Familiarity	None	72.93 (221)	72.88 (215)

Note: some columns may not add up to 100% because a few participants chose "Prefer not to choose." And, values are percentages (numbers).