



Universiteit
Leiden
The Netherlands

Social value orientation and accountability: the effect on the volunteer's dilemma

Völker, Claire

Citation

Völker, C. (2022). *Social value orientation and accountability: the effect on the volunteer's dilemma*.

Version: Not Applicable (or Unknown)

License: [License to inclusion and publication of a Bachelor or Master thesis in the Leiden University Student Repository](#)

Downloaded from: <https://hdl.handle.net/1887/3303364>

Note: To cite this publication please use the final published version (if applicable).



Social value orientation and accountability: the effect on the volunteer's dilemma

Claire Völker

Master thesis Psychology, specialization Social and Organisational Psychology

Institute of Psychology

Faculty of Social and Behavioral Sciences – Leiden University

Date: 31 March 2021

Student number: S1796925

First examiner of the university: Erik de Kwaadsteniet

Second examiner of the university: Welmer Molenmaker

Abstract

This experimental study examines the effects of social value orientation and accountability on the choices made in a volunteer's dilemma. This is a dilemma in which at least one person must sacrifice their time and effort for everyone to have the benefits. In the experiment I used 156 participants (N = 156). 88 of them were men. The participants in this study were divided in groups of three before being presented with the volunteer's dilemma. A logistic regression analysis showed that being prosocial did not have a significant influence on participants' choice to volunteer and that being held accountable for this choice did not either. This outcome is different from what would be expected based on existing literature. At the end of this thesis, theoretical and practical implications are discussed and suggestions for follow-up research are considered.

Key words: volunteer's dilemma, social dilemma, social value orientation,
accountability

Social value orientation and accountability: the effect on the volunteer's dilemma

In our daily lives we come across a lot of volunteer's dilemmas. I, for example, live in a student house, so when the trash can is full or the dishwasher is finished, someone needs to volunteer to take the trash out or clean out the dishwasher. Another example from daily life is when you see an accident happen in the street. Someone has to go over there to help, but if everybody goes, most people would be redundant and the street overcrowded. So, who is the person that volunteers and offers his/her time to step up and help? A volunteer's dilemma is a type of social dilemma. In a social dilemma, people are interdependent of each other. The choices everyone makes (to cooperate or to not cooperate) result in wins or losses for all of the individuals involved. Many people would assume someone else will step up so they themselves can continue going on with their day. This topic has already been researched thoroughly. Balliet, Parks and Joireman (2009) have done research on the relationship between personality and cooperation in social dilemmas. They concluded that personality affects people's cooperation in this type of dilemma. The research by Prezepiorka, Bouwman and De Kwaadsteniet (2020) investigated the influence that personality has on outcomes in a repeated volunteer's dilemma. De Kwaadsteniet et al. (2007) conducted research on the effect of "justification pressures" in social dilemmas. Justification pressures are when the people in a social dilemma have to justify their choice in the dilemma. This happens when the choices are not made anonymously. The difference between the previously done research and this thesis is about the effects of personality and justification pressures in another type of social dilemma, a volunteer's dilemma. This thesis is distinguished from prior research on social dilemmas because it analyzes the effects of personality and justification pressures in another context: a volunteer's dilemma.

This thesis considers what drives people to offer to help in a volunteer's dilemma. I investigated what characteristics are of influence, proself and prosocial, and whether

individuals behave differently if they have to justify their choices. To do this, participants were recruited and filled out an online questionnaire and performed a real effort task. It is important to know what drives people to volunteer because knowing the reason why could, for example, prevent the same person having to empty the dishwasher every day.

I will first discuss a real effort task and why I think it is important to use a real effort task for this experiment, then the volunteer's dilemma, then social value orientation and lastly accountability and the existing literature on these topics. After this, the method, results and discussion will follow.

Real effort task

A real effort task is a task in which the participant really must perform the task to be able to finish the experiment, instead of only hypothetically having to do the task. It is important to do research using this type of task because it represents a more realistic situation than a chosen effort task. A chosen effort task is an experiment where monetary terms are used to express effort. The advantage of a real effort task is its similarity to situations outside of the laboratory, which we are ultimately interested in. A real effort task contributes to the mundane realism of the experiment (Carpenter & Huet-Vaughn, 2019). Furthermore, a real effort task has greater external validity than a chosen effort task (Gill & Prowse, 2018). It increases the likelihood of carrying over the motivations from outside the experiment to the experiment.

By choosing to use a real effort task in this experiment I can use the results of the tests to say something about real-life situations, as the external validity of the experiment is increased.

The volunteer's dilemma

In the volunteer's dilemma, one person can save the day if he or she offers his or her time to help. If more come to help, it leads to inefficiency (Krueger, Heck & Wagner, 2018). A real-life example could be the one I wrote about earlier. If one person who notices the trashcan being full or the dishwasher having finished acts on it, it is sufficient. If all people in the household noticed it and wanted to start taking out the trash or cleaning out the dishwasher, it would be very inefficient, because one person doing it would be enough. More people helping with these tasks is unnecessary. This is what makes the volunteer's dilemma different from other social dilemmas, such as a standard public goods dilemma. A public goods dilemma exists when people are asked how much they want to contribute to the public good. The more people help and give their time in a public goods dilemma, the better (i.e., donating blood or voting) (Krueger, Heck & Wagner, 2018).

In this thesis I will investigate what drives people to invest into effort in a volunteer's dilemma. So, in this type of dilemma, the effort of only one person is needed for everyone in the group to get the gains (Prezeziorka, Bouwman & De Kwaadsteniet, 2020). This means that negative coordination is needed to get the best outcome (Krueger, Heck & Wagner, 2018). Negative coordination means that people should make the opposite decision from each other to get the best outcome. In a one-shot volunteer's dilemma, people need to make their decision based on only their expectations of what the others will do. So, another difference between the volunteer's dilemma and other social dilemmas is that the volunteer's dilemma involves more risk than the other ones. Other people's choices are more predictable in other social dilemmas than in a one-shot volunteer's dilemma. A one-shot volunteer's dilemma exists when the participants only have to make their choice on volunteering or not once. In a multiple-shot volunteer's dilemma, with more rounds in which this choice is made, other people's choices become more predictable, because naturally people begin taking turns

volunteering in the subsequent rounds to maximize everyone's outcome (Diekman & Przepiorka, 2016; Przepiorka, Bouman, De Kwaadsteniet, 2020).

People are generally better at making strategic decisions about who is going to volunteer when the group is small as opposed to when the group is big (Campos-Marcade, 2021; Goeree, Holt & Smith, 2017). The larger the group, the lower the likelihood of people rationally volunteering (Archetti, 2009; Diekmann, 1986). Therefore, if an accident happens in the street, the victim would be better off when only a small crowd was watching than when a big crowd was present. Because with only a few other people, people are more willing to step up and help, says also Campos-Marcade (2021) in his article. Diekmann (1986) came to the same conclusion. When people witness an accident happening and they feel sympathy towards the victim, they gain a psychological gain when the victim is helped by at least one person. Helping is costly, so most people would decline in this situation hoping somebody else volunteers to help.

People who do not step up to volunteer while someone else does can freeride, this means they get the benefit, without paying the cost of volunteering, since only one person in the group needs to volunteer for everyone to get the same benefit. In a social dilemma, such as a public goods dilemma, freeriding needs to be prevented. But in a volunteer's dilemma this is not harmful. The only problem is that the group needs to know who from the group performs the task at hand, otherwise no one gets the benefits.

In this thesis, I investigate what drives people to volunteer in a single shot volunteer's dilemma. This means that it is an experiment with only one round, so the participants only had one opportunity to offer to volunteer. I constructed a volunteering game in which the participants could not communicate with each other. Participants had to answer a question about whether they would volunteer to do a real effort task that benefits everyone in the

group. At the beginning of the experiment, I measured if the participants were proselfs or prosocials using social value orientation, as explained in the following section.

Social value orientation

According to Balliet, Parks and Joireman (2009) social value orientation is an individual difference variable introduced over 50 years ago by Messick and McClintock (1968). They state in their article that most people are prosocial, followed by people who are proself and, least commonly, some are competitive. Prosocial people are more concerned with others' outcomes than proselfs and competitors. Proselfs just want the highest outcome for themselves, and competitors want a high outcome relative to other people's outcomes. So, prosocials consider other people's outcome and equality in outcomes when being confronted with a social dilemma, whereas proselfs and competitors are mainly concerned with their own outcome, relative or irrelative to others. Because of this distinction I decided to use prosocial and proself as my two categories in this research and have included people with competitor-qualities to be proself.

Social value orientation influences cooperation in social dilemmas. Balliet, Parks and Joireman (2009) concluded in their article that people who are prosocial are more willing to cooperate in a social dilemma than people who are proself or competitive. Van Lange (1999) writes that prosocial people approach interdependent people in a prosocial way as long as others do the same. Once the interdependent people fail to also act this way, prosocial people quit acting in a prosocial way. Prosocial people are aware that they could easily be exploited in a social dilemma. This is why they will act less prosocial when others do not act in the same way (Bogaert, Boone & Declerq, 2010). Another instance when prosocials stop behaving prosocially happens when the social or the physical environment is not supportive (Brucks & Van Lange, 2007). Proselfs only act prosocially if there is a very clear reason for

them to do so (Van Lange, 1999). A reason to act prosocially would be when they are in a multiple round social dilemma. If a social dilemma has more than one round of interaction between the players and their choices are not anonymous, people's reputation becomes important. Proselfs know that they need to act prosocially in a multiple shot social dilemma in order for them to achieve a good outcome. Prosocial people start with cooperation, but proselfs do not.

Social value orientation is the dispositional value people give to the outcomes of others in interdependent situations (Pletzer et al., 2018). So, social value is about people's sense of fairness and equality in outcomes. Prosocial people, for example, give more money to good causes than proselfs, and are more environmentally friendly, say Pletzer et al. (2018). To get back to the examples of volunteer's dilemmas in the beginning of this thesis, I expect people that are prosocial to be more willing to empty the dishwasher, take out the trash or to help when they see an accident happening in the street, than people who are proself.

This brings me to the first hypothesis of this thesis:

Hypothesis 1: People who are pro self are less likely to volunteer in a one-shot volunteer's dilemma than people who are prosocial.

One of the conditions in the experiment is the accountability of the participants. In the next part of this thesis, I will explain why I used this condition and what accountability is.

Accountability

People experience reciprocity when being held responsible for their choices and behavior. They want others to think positively of them and to respect them. When people are being held accountable for their actions, this influences their reputation (Beu & Buckley,

2001). When someone makes an unacceptable decision, for example, to not take out the trash when noticing the trashcan is full, people around him or her will perceive this in a negative way, which will hurt his or her reputation. This is because not cooperating in this type of situation is perceived as unethical or misaligned with social norms. Accountability reduces egoism, leading to people being more concerned with the group outcome than their own outcome (De Kwaadsteniet et al., 2007). It causes people to make decisions taking others into consideration. This usually means that they will behave more cooperatively, as this is the norm in an interdependent situation.

People seek approval from others because they are social beings. Being respected by the people surrounding a person has a positive effect on his or her self-esteem (De Cremer, Sneyder & De Witte, 2001), which he or she feels is important. De Cremer, Sneyder and De Witte (2001) conclude in their article that people show more cooperation in a social dilemma when they experience accountability, which they experience when they are not able to make their choice anonymously. Not being anonymous makes people immediately accountable. When people are accountable for their actions, they make choices that are easy to explain - they choose to cooperate in a social dilemma, because it is expected by others. Accountability can only affect decisions when everyone in the group shares identical norms about the decision to cooperate or not.

In a social dilemma, it is often thought that decisions are made from an economic perspective, a perspective in which everyone maximizes his or her own outcome. When taking accountability into consideration, it turns out that people in a social dilemma are also motivated through a social perspective such as having a good reputation (De Cremer & Bakker, 2003). As described above, one can see that previous research about accountability has been done in social situations. In this thesis, I have researched accountability in the volunteer's dilemma. I chose to examine accountability as a condition because it can be found

in real life situations as well. When seeing an accident happen in the street or noticing the dishwasher being finished, one's choice to act on it is not anonymous because people will always be around to notice. By researching accountability, this study is more realistic than without doing so.

This brings me to the second hypothesis:

Hypothesis 2: When people know that they will have to justify their choice, meaning that they are being held accountable, they are more likely to volunteer in a volunteer's dilemma than if they know that they will not have to justify their choice.

Method

Participants

The participants in this research were recruited through the online platform Amazon Mechanical Turk. I recruited 156 participants. 88 Men participated in this research and 53 females. 15 Participants did not answer the personal questions, with the result that their age, jobs, hobbies, etc. are unknown. The mean age of the participants was 34.60 years ($SD = 14.75$). The oldest person to participate was 70 years old. Some of the hobbies they reported in the experiment were reading, singing and different kinds of sports.

Table 1. Crosstab of the gender of the participants in each condition

| | Accountable | Not accountable | Total |
|--------|-------------|-----------------|-------|
| Male | 39 | 49 | 88 |
| Female | 34 | 19 | 53 |
| Total | 73 | 68 | 141 |

Procedure

The participants for this research were recruited through an online platform, Amazon Mechanical Turk. After approval from the ethical committee at Leiden University, the participants were recruited. Then, the participants received the information about the research and an informed consent. After they consented to the experiment, they received a questionnaire and then, depending on their answers, the real effort task. When they finished the task, they were debriefed, paid and thanked for their participation.

Measuring instrument social value orientation

To measure a participants' social value orientation, I used the SVO Slider Measure (Murphy, Ackermann & Handgraaf, 2011). I used the six primary slider items in my experiment. In the experiment, the participant is required to allocate resources to himself or herself and to another person in a well-defined joint payoff. He or she chooses one out of nine possible distributions for himself or herself and the other person. This measuring instrument is tested to have a good reliability and validity (Murphy, Ackermann & Handgraaf, 2011). Out of the results, an angle is calculated which represents the social value orientation of the participants (prosocial or proself).

Manipulation

To manipulate accountability, the participant was simply told whether he must explain his decision to the other group members. In the data, this is a "Yes" or "No" option. To check if the manipulation worked, I did a manipulation check based on three questions about how accountable they felt for their choice.

Volunteer's dilemma task

To test the hypotheses, an experiment was conducted. The participants first received an explanation of the experiment followed by a few questions to ensure that they understood what was going to happen. They were divided in groups of three. Then, they had to answer some personal questions (hobbies, age, job, etc.) to make it feel like the experiment was less anonymous. After this, they were told if they had to explain their choice at the end of the experiment. So, they were told if they were being held accountable or not. After reading the answers to other participants' personal questions, each participant was asked if her or she would like to volunteer to perform the real effort task, without seeing what the other group members chose. If a participant chose to volunteer, he or she would get the slider task next and, once finished, he or she would be shown the result and everyone would get to see if he or she earned his or her dollar.

The slider task was first introduced by Gill & Prowse (2012). When the screen is first shown to the participant all the sliders are positioned at 0. The participant has to move the sliders with his or her mouse across the screen to the right number. The sliders start at 0 and the highest they can be moved to is 100. The number to which each slider has to be moved is shown above each one. Each slider can be moved and readjusted an unlimited number of times and the number on which the slider is put, is shown next to the slider. When all the sliders are put in the right position, the task is successfully completed.

Results

Manipulation check

To do a manipulation check, I first calculated the Cronbach's alpha of the three variables in the manipulation check. This analysis showed a good reliability ($\alpha = .84$). This

means that I could turn the three variables into one variable by calculating the mean score. Next, I did an independent samples t-test to check if the participants in the accountability group indeed felt like they were being held more accountable than participants in the no accountability group. The t-test showed an insignificant outcome for the accountability check ($F = 2.40$, $t = -.43$, $df = 154$, $p = .12$). This indicates that the accountability manipulation was not effective (see Table 3). The participants in the accountability group did not feel more accountable for their choices in the experiment than the participants in the other group.

Table 2. Means accountability check

| | Accountability | Mean | Std. Deviation |
|---------------------------|----------------|------|----------------|
| Accountability check (new | 0 | 4.98 | 1.75 |
| variable) | 1 | 5.09 | 1.43 |

Table 3. T-test manipulation check

| F | t | df | Sig. (2-tailed) | Mean difference |
|------|------|-----|-----------------|-----------------|
| 2.40 | -.43 | 154 | .12 | -.11 |

Logistic regression analysis

The first hypothesis in this research predicted that people who are prosocial are less likely to volunteer in a volunteer's dilemma than people who are prosocial. The second hypothesis predicted that when people know they are being held accountable for their choice to volunteer or not volunteer, they will be more willing to volunteer than when they know they are not being held accountable. The binary logistic regression analysis showed that being

proself or prosocial did not have a significant influence on the decision of people to volunteer or not ($B = .01$, $SE = .02$, $Wald = .05$, $p = .83$). The binary logistic regression also showed that being held accountable for one's choice on volunteering did not have a significant influence either ($B = -.46$, $SE = .51$, $Wald = .84$, $p = .36$). Both hypotheses in my thesis are disproved by these tests (see Table 3). This means that being held accountable for one's actions and the type of social value orientation someone has does not have a significant influence on choosing to volunteer in a volunteer's dilemma.

Table 4. Logistic regression analysis

| | B | S.E. | Wald | df | Sig. |
|--------------------------|------|------|-------|----|------|
| Social Value Orientation | .01 | .02 | .05 | 1 | .83 |
| Accountability | -.46 | .51 | .84 | 1 | .36 |
| Constant | 2.15 | .57 | 14.20 | 1 | .00 |

Table 5. Crosstab of the choices made in the accountability conditions

| | Accountable | Not accountable | Total |
|---------------|-------------|-----------------|-------|
| Volunteer | 66 | 71 | 137 |
| Not volunteer | 7 | 12 | 19 |
| Total | 73 | 83 | 156 |

Table 6. Crosstab of the choices made in the SVO groups

| | Prosocial | Proself | Total |
|---------------|-----------|---------|-------|
| Volunteer | 49 | 88 | 137 |
| Not volunteer | 7 | 12 | 19 |
| Total | 56 | 99 | 156 |

Note. This table is categorical, the test was done with the angle.

Discussion

This research tested whether people in my sample would be more willing to volunteer in a real effort task if they are prosocial instead of proself and if they would be more willing to volunteer if they were held accountable for their choice in this matter. I found that when testing the hypotheses, being proself or prosocial does not have a significant effect on choosing whether to volunteer or not. I also found that whether one is being held accountable in this experiment does not have a significant effect on his or her choice to volunteer or not. I expected the participants that were being held accountable to choose the volunteering option more often than the participants who were not held accountable and I expected that the participants who scored high on the social value orientation to volunteer more often than the people with a lower score. The findings are not in line with my expectations. What this means is that people who do not naturally think about others and their wellbeing chose to volunteer in the volunteer's dilemma.

A reason for why the tests are insignificant could be that people in general are more likely to cooperate in a social dilemma (Kanazawa & Fontaine, 2013). People expect others to reciprocate and they want to protect their reputation. But in the case of the experiment conducted in this thesis, it would be logical to choose to not cooperate as the situation is fairly anonymous (it is online, there is not a real chance of meeting the people from their 3-person

group after the experiment, no names are made public). Surprisingly, the data reveals that most of the participants chose to volunteer and perform the task irrespective of whether they are being held accountable and their score on the SVO.

Since the entire experiment was done online, the participants were extremely anonymous. This could have resulted in the participants having low trust in the others, which could lead most of the participants to cooperate. When trust is low, people become scared that others will not cooperate, resulting in a worse outcome than when participants cooperate.

Another reason why the outcome of this research is different from previous research outcomes may be the difference between the volunteer's dilemma and other social dilemmas. The choice that is made in a volunteer's dilemma involves more risk than the other social dilemmas, which could cause people to play it safe in a volunteer's dilemma by choosing to volunteer. In the other social dilemmas, the moves of the interdependent are somewhat predictable, thus choosing not to cooperate is less of a risk than it would be in a single shot volunteer's dilemma.

The small size of the groups in this study could be another factor influencing the outcome. Goeree, Holt & Smith (2017) state in their article that a small group size causes people to volunteer. In this study, the participants were divided into groups of three. Therefore, it would be interesting to repeat this study in larger groups to see whether this could change the results.

Limitations and suggestions for further research

A possible limitation in this research is that all the participants were recruited from Amazon Mechanical Turk. A consequence may be that the group of participants is not representative of the general population in the world. Buhrmester, Talaifar en Gosling (2018) researched this effect. They found that the sample of participants one gets from Amazon

Mechanical Turk tends to be more diverse than a group of participants that is recruited from an American university, for example. Buhrmester, Kwang and Gosling (2011) researched this topic as well. They found that participants on Amazon Mechanical Turk are demographically more diverse than a group of participants that is recruited with a standard sample on the internet.

Another potential limitation of this study is that the research was done completely online. I could not control the environment in which the participants did the experiment, so I do not know if they all completed the whole experiment on their own or had help from others to complete the task for example. If I were to have conducted it offline, I think the manipulation would have had a greater effect and the results of my research may have been different. Due to COVID, it was not possible to conduct my research in person.

This research contributed to measuring what influences on one's likelihood of volunteering in a volunteer's dilemma. For further research on this topic, I would suggest conducting experimental research in which the participants can meet each other. This could make a difference in whether the manipulation for accountability is effective or not. When doing online research, it is hard to make the participants feel as if they know each other and make them feel accountable.

I would also suggest examining more predictors for volunteering in a volunteer's dilemma. I studied SVO and accountability, which both turned out to be insignificant. Therefore, it is important to do research on other possible predictors and expand the research model. In further research, I would suggest also testing accountability as a predictor, manipulating this condition in another way to better elicit its effects on the propensity to volunteer. Also, other personality traits could be tested in future research.

Conclusion

To summarize, I tested two hypotheses in this thesis. The first one was that someone with a high score on social value orientation, a prosocial person, would be more likely to volunteer in a volunteer's dilemma than someone who has a lower score. The second hypothesis was that people who were being held accountable for their choice to volunteer or not would be more likely to volunteer in a volunteer's dilemma than someone who was not being held accountable for this choice. After testing the hypotheses, I have concluded that, during this experiment, people who were prosocial were not more likely to volunteer than people who were proself and that people who were being held accountable for their choice did not choose to volunteer more than people who were not. To draw a more definite conclusion about this topic, more research needs to be done.

References

Balliet, D., Parks, C., & Joireman, J. (2009). Social Value Orientation and Cooperation in Social Dilemmas: A Meta-Analysis. *Group Processes & Intergroup Relations*, 12(4), 533–547. <https://doi.org/10.1177/1368430209105040>

Brucks, W., & Van Lange, P. (2007). When Prosocials Act Like Proselfs in a Commons Dilemma. *Personality and Social Psychology Bulletin*, 33(5), 750–758.
<https://doi.org/10.1177/0146167206298569>

Buhrmester, M. D., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science*, 6(1), 3-5.

Buhrmester, M. D., Talaifar, S., & Gosling, S. D. (2018). An evaluation of Amazon's Mechanical Turk, its rapid rise, and its effective use. *Perspectives on Psychological Science*, 13(2), 149-154.

Campos-Mercade, P. (2021). The volunteer's dilemma explains the bystander effect. *Journal of Economic Behavior & Organization*, 186, 646–661.
<https://doi.org/10.1016/j.jebo.2020.11.012>

Carpenter, J. & Huet-Vaughn, E. (2019). Real-effort tasks. *Handbook of Research Methods and Applications in Experimental Economics*, 368–383. doi:10.4337/9781788110563.00030

De Cremer, D., & Bakker, M. (2003). Accountability and cooperation in social dilemmas: The influence of others' reputational concerns. *Current Psychology, 22*(2), 155–163.

<https://doi.org/10.1007/s12144-003-1006-6>

De Cremer, D., Snyder, M., & Dewitte, S. (2001). 'The less I trust, the less I contribute (or not)?' The effects of trust, accountability and self-monitoring in social dilemmas. *European Journal of Social Psychology, 31*(1), 93–107. <https://doi.org/10.1002/ejsp.34>

De Kwaadsteniet, E., van Dijk, E., Wit, A., De Cremer, D., & van Rooij, P. (2007). Justifying decisions in social dilemmas: Effects of accountability and resource size uncertainty. *Personality & Social Psychology Bulletin, 33*(12), 1648–1660.

Diekmann, A. (1986). Volunteer's Dilemma: A Social Trap without a Dominant Strategy and Some Empirical Results. *Paradoxical Effects of Social Behavior, 187-197*

Diekmann, A. & Przepiorka, W. (2016) “Take One for the Team!” *Individual Heterogeneity and the Emergence of Latent Norms in a Volunteer’s Dilemma*. *Social Forces, 94*(3), 1309-1333.

Gill, D., & Prowse, V. (2019). Measuring costly effort using the slider task. *Journal of Behavioral and Experimental Finance, 21*, 1–9. <https://doi.org/10.1016/j.jbef.2018.11.003>

Goeree, J., Holt, C., & Smith, A. (2017). An experimental examination of the volunteer's dilemma. *Games and Economic Behavior, 102*, 303–315.

<https://doi.org/10.1016/j.geb.2017.01.002>

Krueger, J., Heck, P., & Wagner, D. (2018). Egocentrism in the Volunteer's Dilemma. *The American Journal of Psychology*, 131(4), 403-415. doi:10.5406/amerjpsyc.131.4.0403

Murphy, R., Ackerman, K. & Handgraaf, M. (2011). Measuring Social Value Orientation. *Judgment and Decision Making*, 6(8), 771–781.

Przepiorka, W., Bouman, L., & De Kwaadsteniet, E. W. (2021). The emergence of conventions in the repeated volunteer's dilemma: the role of social value orientations, payoff asymmetries and focal points. *Social Science Research*. 93, 102488.
<https://doi.org/doi:10.1016/j.ssresearch.2020.102488>

Van Lange, P. (1999). The Pursuit of Joint Outcomes and Equality in Outcomes. *Journal of Personality and Social Psychology*, 77(2), 337–349. <https://doi.org/10.1037/0022-3514.77.2.337>