The importance of group values in pro-environmental change

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Abstract

Climate change is one of the biggest challenges of our generation. We have to know what motivates people to act in a more pro-environmental way. Group values appear to play an important role in pro-environmental behaviour. In the current study we test the biospheric values of two groups and how they relate to their circular economy behaviour. We also test to see if the ingroup underestimates the outgroup. A questionnaire was conducted among students from the behavioural and social sciences faculty (BSS), and the faculty of economics and business (FEB). Including questions about personal biospheric values, perception of ingroup and outgroup biospheric values and engagement in circular economy behaviour. Our results indicated that there is a relationship between biospheric values and circular economy behaviour, but only in the BSS group where ingroup as well as outgroup values influenced the behaviour of the ingroup. Also, the BSS group seemed to underestimate the outgroup, but the FEB overestimated the outgroup and underestimated the ingroup. Our findings imply that there could definitely be a relationship between perceived group biospheric values and pro-environmental behaviour. However, this didn't count for both groups. Also, our findings didn't imply that the ingroup always underestimates the outgroup which has theoretical implications for future research.

The importance of group values in pro-environmental change

There are many societal problems that require people to work together. Take for example the COVID crisis where people had to work together to do social distancing, and of course keeping to all the hygienic rules. But also, the environmental crisis that is happening right now. People have to work together to consume less for example by recycling old clothes and not using as much warm water as they are used to. However, it is not yet happening well enough. Climate change is still very much a problem today. If people don't start to work together more, it might never change. Therefore, it is crucial to understand what factors could promote people to change their behaviour all over the world.

The main factor we think is important to look into in this study is the importance of group values. But what are group values? Group values indicate what members of a certain group typically do, or find important (Thijs & Wiemers, 2023). For example, members of the socialist's party would find things like collectively working towards a common goal very important opposed to a liberal party who are more likely to find a more individualistic approach important. For this study we are going to focus more on biospheric group values.

Biospheric values can be identified as the importance people attach to caring about nature and the environment (Wang et al., 2021). They also create goals to care for nature and environment (Bouman & Steg, 2020). Thus, a stronger endorsement of biospheric values is related to more engagement in pro-environmental behaviour. Like purchasing second hand clothes or using a reusable cup for example. However, perceived group values could also influence pro-environmental change. Wang et al., (2021) found in their study that there is a possible predictive relationship between group values and pro-environmental behaviour. This is something we would like to explore further.

Throughout the history of psychology many have argued that the act of perceiving another person's behaviour creates a tendency to behave similarly (Chartrand & Bargh, 1999).

People are social beings. We all want to belong to a group and most of the time want to be liked by a certain group. This could be anything, family, friends, other students, and so on. This is in line with social identity theory and with social norms. In the next two paragraphs we will explore these two explanations.

So, what is it that makes people want to work together? A social and personal benefit could be feeling like belonging to a certain group by collaborating with that group. This is in line with social identity theory. For example, if you are part of a group that cares a lot for the environment and thus has a high level of biospheric group values, you would probably already have a lot of personal biospheric values yourself. But because you perceive even more biospheric values in the group you are in, you start to act more pro-environmental then you already were. Once you conform to the group values of a certain group, you then feel accepted by that group which in this case not only will benefit you personally but it will also benefit the environment.

Another explanation could be found in social norms. The motivation to achieving a common goal could be dependent on situational factors. For example, if you would find yourself in a room filled with litter you would be more likely to also throw your litter on the floor (Howe et al., 2021). This would also work vice versa, so if you are in room that is very tidy you wouldn't throw your litter on the floor. This is an example about social norms. According to Carr & Walton (2014) a social cue that signals an opportunity to work with others can inspire intrinsic motivation, leading people to work hard on difficult tasks for their inherent satisfactions. Thus, working with other people can cause major social and personal benefits even without a greater common goal to achieve.

But how does one perceive group values? According to Carver et al. (1983) individuals use interpretive schemas for perceiving and interpreting behaviours. Interpretive schemas could also be defined as scripts or knowledge structures that are activated when we

process information. It is a way to attribute information to something you are already familiar with. This could be the same for interpreting values. Perhaps it could be that the values we experience during our university time influence the way we perceive other people's values. So, for example if you are a student of the behavioural and social sciences faculty (BSS) and you see your fellow students really value the environment by bringing reusable cups to school. You start doing the same and interpret these behaviours as pro-environmental. Years later you would still easily perceive these values in other people as well because of your interpretive schema.

Studies have shown that perceived group values may influence group members' behaviour, including pro-environmental behaviour (Wang et al., 2021). So, as we discussed in the last paragraph, we perceive values by using our own interpretive schema-s. Bouman & Steg (2019) argue that the lack of pro-environmental actions can be found in people's perceptions of values of others. This would suggest that people's perceptions of values definitely influence their behaviour. So, even if you would just think that your group engages in a lot of pro-environmental behaviour it would already influence your own behaviour in a positive way. Wang et al. (2021) suggests that the more people think their group cares about the environment, and thus perceive more biospheric values of the group, the more likely they are to behave pro-environmental themselves.

As we've explained thus far people make perceptions about other people and their values a lot. However, the perceptions we make are not always right. In fact, a lot of the time we make misperceptions about people due to certain stereotypes we have about them. According to social identity theory individuals feel more comfortable with their in-group members than the out-group members (Brieger, 2018). Take for example people who vote for a conservative party compared to people voting for a progressive party in government elections. According to Panno et al. (2018) there are definitely positive as well as negative

stereotypes about political preference. People who prefer a more conservative government could see people that vote progressive as environmental weirdos who tie themselves to trees in order to make a statement. This because according to social identity theory people are more likely to accurately perceive the ingroup values instead of the outgroup (Tajfel et al., 1971). Obviously not all people that vote progressive tie themselves to trees, or even voting progressive doesn't mean you behave pro-environmental.

The example that we just sketched explains the idea of an outgroup versus an ingroup. Sticking to that example from the point of view of a conservative, the people that vote for a conservative party would be considered ingroup people and the people who vote for a progressive party would be outgroup people. We would like to know how these misperceptions of the outgroup influence our actual behaviour. According to social identity theory individuals feel more comfortable with their in-group members than the out-group members (Brieger, 2018). This also makes that we are more likely to be influenced by the ingroup than the outgroup. So, for that reason it could be interesting to see if there is even any relationship between perception of ingroup and outgroup values and our own behaviour.

What is the link between misperceptions and our behaviour? According to Bouman & Steg (2019) individuals seem to structurally underestimate the endorsement of biospheric values by relevant others, including groups and society. So, people make misperceptions about other people's biospheric values and because of these misperceptions people are strongly demotivated for pro-environmental changes in their behaviour. Let's explore this idea a bit further. Say you would care a lot about the environment, you put up solar panels, you only buy second hand clothing, you always cycle to work et cetera. You do all these pro-environmental things but you feel like you are the only one in your social bubble who does so. This can lead to the feeling of having to justify your choices (Bouman & Steg, 2019), and thus demotivate to keep pursuing pro-environmental behaviour.

In the current study we would like to investigate the following things. First of all, are people accurate at estimating the biospheric values of others? And second, how does the perception of other people's biospheric values influence our own behaviour? For both of these we look at the ingroup and outgroup. We would like to do this in the field of pro-environmental change because this is a societal problem that needs attention (Bouman & Steg, 2019). We would like to test these things by measuring people's engagement in a few different behaviours related to circular economy. A few behaviours we would like to study are buying second-hand clothing, using reusable water bottles, buying local products, saving foods by for example to good to go, and so on. Other than looking into people's personal values we would also like to test people's perceptions of other people's values. We would like to test this by asking students how they perceive values of their peers. We've seen a lot of research suggesting people feel the need to conform to group values, so we would like to see how the perception of other's influence our own behaviour.

The main question in this paper is how group values and the perception of the values of other's influence our own behaviour regarding the environment. We would like to investigate this by testing two different hypotheses:

H1. People underestimate the values of the outgroup more than the ingroup.

H2. Stronger perceived ingroup values will be related to more value-relevant behaviour.

We would like to test these hypotheses by letting students from two different faculties fill in a questionnaire about their own values, a questionnaire about their perceptions of the values of the students from their own faculty, and last a questionnaire about their perceptions of the values of students from the other faculty. There will be questions relevant to the different types pro-environmental behaviours we described in the previous paragraph, and there will also be checks to see why people engage in a certain behaviour

Method

In the current study we tested the relationship between the values of people and their behaviours towards circular economy. We also tested people's perception of the values of others, and if this is in line with what these people said their values were. We included this to see if people are correct in their perceptions of others.

Participants

We recruited a sample of 183 participants. There was no payment or reward for filling in the questionnaire. We recruited the participants by showing the QR code during lectures, going to the behavioural and business faculty and asking people to fill in our questionnaire by scanning the QR code and by asking people in our own social network. Participants completed the questionnaire on their own devices. The study was in English. We had to exclude 41 participants for not finishing the questionnaire, 3 for not giving their informed consent to participate, 8 for not giving us consent to process their data, 12 for not fulfilling the requirement for faculty, and 16 for not even starting the questionnaire, leaving us with a sample of 103 participants consisting of 50 students from the faculty of economics and business, and 53 students of the behavioural and social sciences faculty. We did an a priori power analysis using G*Power stating that the minimum sample size we needed for a on sample t-test was 34 for each group, and the minimum sample size for a correlation was 64. Thus, the sample size of 103 is adequate to test the study hypotheses.

Design and procedure

The university ethics board approved the study design. All participants gave their informed consent, could withdraw at any time, and were fully debriefed. Our study was part of a larger research which also included questions about altruistic values, this however is not something we will be covering in this paper. All participants filled in these questions but these are not applicable to our current study.

At the start of the survey, participants filled in a questionnaire about their own values. Next, they filled in a questionnaire about the values of an average behavioural and social sciences student. Then they filled in a questionnaire about the values of an average economics and business student. After this, they filled in the circular behaviours' questionnaire followed by a check why they did or did not engage in these behaviours. Finally, they also filled in some questions about blood donation.

Measures

Values

We measured the values of the participants by letting them fill in the E-PVQ questionnaire (Bouman et al., 2018). The E-PVQ consists of seventeen items that measure the four values related to environmental behaviours and beliefs, namely biospheric, altruistic, hedonic, and egoistic values. We only used the items about biospheric values. It measures this by using short verbal portraits in which the value is described. We took the mean of the four items to form a scale (M=4.94, SD= 1.06). The internal consistency of the scale was good with α=.82. For our study we only included the questions about altruistic and biospheric values. We stated all of the E-PVQ items as follows 'it is important to this person to, for example, protect the environment'. The participants are asked to rate all the items on a scale from 1 till 7. With 1 being 'not like me at all' and 7 being 'very much like me'.

After answering the questions about their own values, we asked them to fill in the E-PVQ about students from the behavioural and social sciences faculty. The question about the BSS faculty members were stated as follows. "Now we want to know what you think is important to "the average" student in behavioural and social sciences. The meaning of the scores is as follows: 1 means that the person is totally not like an average student in behavioural and social sciences, 7 means that the person is totally like an average student in behavioural and social sciences. The higher the score, the more the person is like the average

student in behavioural and social sciences. Please try to distinguish as much as possible in your answering by using different scores. The person that is the most like a student in behavioural and social sciences, the highest. And the person that is the least like a student in behavioural and social sciences, the lowest. We took the mean of the items about BSS students (M=5.17, SD=0.94), and made them into a scale. The scale had a good internal consistency with a Cronbach's alpha of α=.0.87.

Then we asked the same questions but about a person from the faculty of economics and business. So, the questions were stated as follows. "Now we want to know what you think is important to "the average" student in the faculty of economics and business. The meaning of the scores is as follows: 1 means that the person is totally not like an average student in the faculty of economics and business, 7 means that the person is totally like an average student in the faculty of economics and business. The higher the score, the more the person is like the average student in the faculty of economics and business. Please try to distinguish as much as possible in your answering by using different scores. The person that is the most like a student in the faculty of economics and business, the highest. And the person that is the least like a student in the faculty of economics and business, the lowest. We took the mean of the items (M=3.82, SD=1.03) and made them into a scale. The scale had a good internal consistency with a Cronbach's alpha of α=.88.

Circular economy behaviour

We measured circular economy behaviour by making our own questionnaire based upon the paper from Kirchherr et al. (2017). The questionnaire consisted of a matrix of questions like 'in the past 3 months how often did you engage in … behaviour' and then the answering options were 1 never, 2 very rarely, 3 rarely, 4 about half the time, 5 often, 6 very often, and 7 always. All of the items from the questionnaire are stated in the table 4 below.

We took the mean of all the items and made it into a scale (M=4.477, SD=1.06). The items had a good internal consistency α=.707.

Table 1

Descriptive statistics circular economy behaviour questionnaire

	M	SD
Bought second-hand clothing, instead of shopping for new clothes	3.54	1.95
Used a reusable water bottle, instead of plastic/paper cups	5.79	1.29
Ate leftovers instead of throwing food away	5.60	1.32
Chose products that were made from recycled materials	3.71	1.49
Bought second-hand furniture, instead of buying new furniture	3.53	2.14
Repaired something (or had someone else repair it) instead of buying new	4.67	1.61
Scale	4.48	1.06

Check questions

After the matrix about circular economy behaviour, the participants were asked what their motivation was for engaging in the behaviours. The question was stated as followed. 'Think about the behaviours listed on the previous page. What is your main motivation for engaging in these behaviours?'. Then the participants had to fill in a matrix with three possible motivations namely financial reasons, environmental reasons, and other reasons. They had to rate these motivations on a scale from 1 strongly disagree with this motivation, till 7 strongly agree to this motivation.

Results

In the results for Hypothesis 1 we found an unsignificant effect for how the BSS group estimated the values of the BSS group, so of the ingroup. t (52) = .71, p = .483, m=.09, 95% CIs of the mean difference [-.16,.34]. However, we did find a significant effect for the underestimation of the values of FEB students, so the outgroup. They underestimated the values of the FEB group. t (48) = -7.38, p = <.001, m= -1.23, 95% CIs of the mean difference [-1.56, -.89]. The effect was very large d =1.16. These results suggest that the BSS group underestimates the values of the FEB group, which is in line with Hypothesis 1.

If we look at the FEB group, they seem to underestimate the values of the ingroup. t (48) = -7.77, p = <.001, m= -.961, 95% CIs of the mean difference [-1.21, -.71]. The effect size is large d = .87. This suggests that FEB group thought that they would score lower on the values questionnaire than they actually did. What's interesting is that they actually overestimate the BSS group. t (48) = 2.370, p = .022, m= .40, 95% CIs of the mean difference [.0486, .5908]. The effect size is large d = .95. So, this means that the FEB group thought the BSS group would score higher than they actually did.

So, in support of Hypothesis 1 we did find that students of the BSS group underestimated the outgroup (FEB). However, we didn't find the same results for the FEB group about the outgroup (BSS). Because of this we can suggest that the hypothesis is partially supported but not entirely. The FEB group even underestimated the ingroup and overestimated the outgroup, which is the opposite of our hypothesis but definitely an interesting finding.

In the results for Hypothesis 2 we found a weak correlation in the FEB group between the perceived group values of FEB students and their past value relevant behaviour r (48) =.11 p = .477, 95% CIs [-.184, .378]. However, this result was not significant and therefore we can't say anything about this finding. In BSS students we found a slightly stronger

correlation between the perceived group values of BSS students and their past value relevant behaviour. r (51) =.31, p = .034, 95% CIs [.024, .543]. Suggesting that stronger perceived group values for BSS students have positive effect on their past value relevant behaviour. Interesting is that we did find a moderate correlation in the BSS group between the perceived values of FEB students and their past value relevant behaviour of BSS students. r (51) =.56, p = <.001, 95% CIs [.322, .725]. This would suggest that for BSS students, their perception of the biospheric values of FEB students has an effect on their past circular economy behaviour. This effect however was not replicated in the FEB group. Here the perceived values of BSS group didn't have a significant effect on the past value relevant behaviour of FEB students r (48) =.022 p = .882, 95% CIs [-.264, .304].

Discussion

The aim of this study was to see how group values and the perception of the values of other's influence our own behaviour regarding the environment. Specifically looking into biospheric values as a predictor for circular economy behaviour. We tested this by comparing values of students of the BSS faculty and the FEB faculty and also looking for a link with their engagement in circular economy behaviour.

For Hypothesis 1 we expected that the ingroup would underestimate the values of the outgroup. We did manage to find this in the BSS group. However, in the FEB group the ingroup didn't underestimate the outgroup. On the contrary they underestimated the ingroup and overestimated the outgroup. So, actually people overestimate the BSS group, and underestimate the FEB group. Could it be that instead of a question about ingroup and outgroup thinking, it is more a question about stereotypes? So could there maybe be a relationship between stereotypical thinking and behaviour? We will discuss this further in the paragraph for future research.

For Hypothesis 2 we expected that stronger perceived ingroup values would relate to more engagement in circular economy behaviour. However, this was actually only the case for the BSS group. The results that we found in the BSS group were in line with previous research (Bouman & Steg, 2019), but the results from the FEB group actually weren't. In the FEB group we didn't manage to find evidence for a relationship between stronger perceived biospheric values and engagement in circular economy behaviour. These differences could be related to the idea that BSS students maybe engage more in circular economy behaviour and therefore already have a higher level of biospheric values. The mean for biospheric values in FEB students was a little bit lower than the one for BSS students. However, we can't say for sure that lack of engagement in FEB students is why the scores differ. So, this suggests that

the results from Hypothesis 2 are in line with what we expected for the BSS group but are not generalizable to other groups. Therefore, our findings differ from past research findings.

An interesting finding in the results for Hypothesis 2, was that there was a positive relationship in the BSS group between the perceived values of FEB students and the circular economy behaviour of BSS students. This was actually the strongest correlation we managed to find. Very interesting because this result could suggest that perception of outgroup values may have an influence on our own behaviour. This would be a completely different angle to look into, because what if the misperception we have of other people's values could have an effect on our behaviour towards circular economy? What if for example BSS students think FEB students don't really care for the environment as much, and because of that BSS students want to prove themselves even more and thereby act more pro-environmental. However, because this is a correlation, we can't really say that one predicts another. But for future research, this would definitely be interesting to look into. For example, maybe by conducting a more experimental study to test the effect of value perceptions on behaviour. For this type of study, you would test the engagement in circular economy behaviour before taking part in the experiment. Then let the group run in an experiment where they experience different outgroup values, and then test their engagement again afterwards.

For future research I think it would definitely be worth it to look into comparing different groups than we did. Preferably groups that are more generalizable. So, not just students but maybe citizens from one city opposed to citizens from another city. Maybe also look into finding a participant group without a strong stereotype to see what would be the effect of ingroup and outgroup thinking there. Think about comparing two cities as I mentioned before. Otherwise, it could be very interesting as well to look into the impact of perceiving stereotypes and what that means for pro-environmental behaviour. However, that would be a completely different study. This could be done by conducting a more experimental

study design. An experimental design would also be good to investigate if there is an actual causal relation between perceived values and circular economy behaviour. By conducting a more experimental design in an environment purely for the experiment you could minimize the effect of certain lurking variables that might play a role here. Thus, you could find a more causal relationship instead of a correlation.

Implications for Practitioners

What we can definitely conclude from our results is that the biospheric group values of FEB students appear to be relatively low. So, there is definitely something to do here. What could be a good idea is maybe for the university of Groningen to spread some pro-environmental posters across the FEB or making sure the campus is greener. By doing so there might be a raise of awareness across the faculty and it could improve the perceived biospheric group values. According to Fornara, et al. (2020) promotion of biospheric values increase the likelihood of developing biospheric values and thereby encouraging more pro-environmental behaviour. Another possibility for all faculties could be spreading messages about biospheric values from the perspective of the ingroup. So, for example on the BSS faculty show short videos on the screen about BSS students acting pro-environmental. Schmader and Major (1999) suggested that observation of ingroup values can affect the extent to which individual group members value for example biospheric values and regard this as personally important. So, spreading pro-environmental messages from the perspective of the ingroup could raise the perceived values of the ingroup and therefore result in higher biospheric values which could then lead to more pro-environmental behaviour.

A limitation of this study is that we used correlations to see if there was a relationship between perceived values and circular economy behaviour. Therefore, we can't say anything about if one actually causes the other. However, it is definitely a good start to investigate if there is even some sort of relationship. As I said before for future research it would be

interesting to look for a causal relation through a more experimental study design. The correlation could also be caused by other lurking variables that mediate between perceived values and circular economy behaviour. Think about gender for example. On average there appear to be more girls in BSS then in FEB. In a more experimental study design, you could check for this lurking variable by for example making sure both participant groups have just as many boys as girls. Then maybe showing them photos of both groups and letting them answer questions about perceived values and behaviours after seeing these photos. Maybe you could even put them in a room together and after they met ask them the questions.

Another limitation was the group that we chose to investigate. Because we chose students of two faculties that we thought were quite different from each other it makes is definitely difficult to generalize results from this research to the rest of the population. Both of the faculties consist of students in Groningen within a certain age range, which makes our research difficult to interpret for the rest of world or even the country. However, for the current study the sample did provide us with the information we were looking for. It was definitely a good start and would be interesting to explore further from here, by for example extending the group to students from the city of Groningen and students from Amsterdam. Or maybe young adults compared to middle aged people.

Conclusions

In conclusion, our results indicate that there could be a relationship between perceived values and pro-environmental behaviour. We found this specifically in the BSS group. However, these results were not replicated in the FEB group. We didn't actually manage to find support for our hypothesis where the ingroup would underestimate the outgroup. We even found the FEB ingroup to overestimate the outgroup and underestimate themselves. This made us think that maybe we aren't dealing with ingroup versus outgroup perception, but the perception of certain stereotypes. For future research we would suggest exploring that option

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further by conducting an experimental study about stereotype perception and the effect that

has on behaviour.

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Appendix A