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APPLYING A MODEL OF COLLECTIVE EFFICACY FOR UNDERSTANDING CONSUMER AND CIVIC PRO-ENVIRONMENTAL ACTIONS

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Abstract

Collective efficacy has been shown to be a significant predictor of people's ability to intervene effectively on social issues. We examine people's belief in their collective efficacy and ask if it is useful in understanding pro-environmental behaviour. A survey of 5030 Australians was undertaken in 2011 to understand how Australians across metropolitan, regional and rural Australia think about collective efficacy in relation to climate change and pro-environmental behaviour. Based on previous research, we hypothesised that a sense of collective efficacy on climate change would mediate the relationship between a set of independent variables and pro-environmental consumer and civic actions as follows: education and income might influence individual agency, political persuasion might influence individual inclination, trust in institutions and community involvement relate to social capital and hence scope for collective action. The final models predicted 31% of the variance in consumer actions and 28% of the variance in civic actions. In particular, trust in environmental organisations was found to have the most significant role in predicting both collective efficacy and pro-environmental behaviours.

Keywords: *pro-environmental action, collective efficacy, social capital, climate change*

1. INTRODUCTION

In this paper we examine people's belief in their collective efficacy to respond to anthropogenic climate change and ask if it is useful in understanding climate change related pro-environmental behaviour. In particular we tested the mediating effect of collective efficacy for understanding behavioural responses to climate change. Perceptions of collective efficacy have been shown to be a significant predictor of people's ability to intervene effectively on social issues (Bandura, 2000; Sampson, 2006, 2012; Stajkovic et al., 2009). In the context of criminal violence, collective efficacy has been shown to mediate the relationship between predictor variables such as poverty and instability, social ties and organisational infrastructure and the dependent variable (Sampson, 2006, 2012). Further, while there have been calls for the examination of collective efficacy as

a predictor or mediator of beliefs and actions around climate issues (Adger, 2009; Devine-Wright, 2009; Maibach, 2008), there has been little empirical research applying the concept to that domain.

To date, the bulk of social psychological inquiry into human responses to climate change has focused on individual-scale behaviour and attitudes toward climate change (Swim et al., 2011; Uzzell, 2008) which introduces the American Psychologist special issue on global climate change, follows from the report of the American Psychological Association Task Force on the Interface Between Psychology and Global Climate Change. In this article, we place psychological dimensions of climate change within the broader context of human dimensions of climate change by addressing (a. Behavioural research has typically focused on urban household mitigation options such as reduced energy usage, alternative transportation options, reduced water consumption, and barriers to adopting behavioural changes associated with these elements (Kollmuss and Agyeman, 2002). The effectiveness of social norms, prompts and educational material has also received wide attention, with evidence of at least short-term behaviour change in some conditions (e.g. Goldstein, et al., 2008; Parnell, 2005; Steg and Vlek, 2009). Further work investigating perceptions of alternative technologies, perceptions of risk, and willingness to pay for climate mitigation options has found that a range of factors contribute moderately to intended behaviours and support for mitigation options, including heightened perceptions of ensuing harm, liberal political preferences, institutional trust and access to financial resources (Gifford et al., 2011; Lee and Cameron, 2008; Leiserowitz et al., 2011; Leiserowitz, 2006; Viscusi and Zeckhauser, 2006).

Traditional behavioural research has shed useful light on a range of motivators and barriers towards attitudes and behaviours, but it has some limitations. A phenomenon that has long plagued social psychological research is the modest correlation between expressed attitudes and actual behaviour (Gifford et al., 2011; Sheeran, 2002). In research focusing on climate change, the relationships between knowledge and attitudes, attitudes and intentions, intentions and observed behaviour, and behaviour and environmental impact have all been criticised for their weakness (Gifford et al., 2011; Kollmuss and Agyeman, 2002; Whitmarsh, 2009). This disconnection calls into question the efficacy of research and change programs that target increased awareness or attitude change.

Given that professed knowledge, attitudes and intentions are often a poor predictor of subsequent behaviour, an investigation into the roots of how people connect with their physical environment, and how their values and beliefs are shaped, has been a growing area of exploration. Again though, research has typically been contained to those subsets of values directly relating to how they see, understand, and interact with the natural environment as an individual (e.g. the New Environmental Paradigm Scale). Receiving less attention is how these values are mobilised in society; that is, how environmental values are reflected in institutions and organisations developed to protect and further the aims and interests of the 'environmentalist'. If we assume that these organisations are the society-level embodiment of individual values, then it stands to reason that the

perceived elements of such agencies (e.g. their perceived trustworthiness, reliability, and effectiveness) will influence people's willingness to engage in pro-environmental behaviours to some extent, regardless of the individual's value-driven propensity to do so.

2. THE CLIMATE DEBATE IN AUSTRALIA

Australia is the hottest and driest continent in the world, and science suggests that the global climate change will affect Australia much more than most other countries (Garnaut, 2008, 2011). Australia has already experienced a series of significant natural disasters (floods, bushfire and droughts) in the last decade and it is likely that the frequency and intensity of these events will increase in the future (Milne et al., 2008). The climate is predicted to be even hotter and drier with lower rainfall and an additional five degrees in temperature by 2070 (Garnaut, 2008; CSIRO, 2009).

Despite the increasing strength of scientific evidence, the climate change debate in Australia, as in many other countries, has become highly politicised (Speck, 2010). The challenge is to make climate change policies environmentally sound, economically viable and politically palatable (Bryant, 2011). Given the volatile political climate, the attitudes of the Australian public are regularly canvassed. A review of recent research studies and opinion polls (Leviston et al., 2011) concluded that the vast majority of Australians believe the climate is changing, but a much slimmer majority attribute climate change to human activity. The only consistent demographic difference in people's opinions is that women are more likely to believe in anthropogenic climate change. However, beliefs about climate change are strongly related to political preferences and voting behaviours (Leiserowitz et al., 2011; Leviston and Walker, 2012; McCright and Dunlap, 2011). Those with left / liberal views and voting behaviour are much more likely to accept human-induced climate change; those with right / conservative views much less likely. This political link extends to pro-environmental behaviours, with those voting for parties with stronger, more proactive policy positions on climate change action (the Greens and Labor), engaging in more pro-environmental behaviours than other respondents (Leviston, 2013).

3. COLLECTIVE EFFICACY AND CLIMATE CHANGE

Recently, there have been calls for the examination of the concept of collective efficacy as a predictor or mediator of attitudes and actions on climate issues (Devine-Wright, 2009; Maibach, 2008). The concept of collective efficacy was introduced by Albert Bandura, who defines collective efficacy as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments" (Bandura, 1997:447). There are, however, a range of different definitions. Through a meta-analysis of 69 studies, Stajkovic et al. (2009) found that an important distinction is between those definitions which focus on collective efficacy about a specific issue and those that are more general, a generalised 'can do' attitude which

they labelled group potency. Whereas their analysis found that collective efficacy about specific issues was a significant predictor of group performance, group potency had no direct effect. This meta-analysis is significant partly because it establishes that slight variations in the definition of collective efficacy were not a problem as long as they referred to a specific area of activity rather than a generalised ability, and partly because it established that collective efficacy does have a significant effect on group outcomes. Thus while applying Bandura's definition of collective efficacy that it is people's belief in their collective ability to effect an outcome, we note that with a global phenomenon such as climate change the idea of group needs to be extended to include communities and whole societies, and we also note the importance of focusing specifically on collective efficacy on climate change.

A more social view of collective efficacy moves beyond the cognitions in the minds of group members to examine the social relationships, institutions and structures in which those cognitions occur. A major example is the twenty years of research by Robert J. Sampson in the poor areas of Chicago suffering from high crime rates (Sampson 2006, 2012; Sampson et al., 1997). Sampson identified a model to predict levels of violence in which collective efficacy had a mediating effect on three types of independent variables: low socio-economic status and crime indices, social networks, and social infrastructure such as services and facilities. Spatial proximity was also important as the collective efficacy tended to only have a localised effect.

This multi-level approach is of interest in the context of climate change. As Adger (2009) argue, collective action on climate change requires proper recognition of the interaction of scale and collective action. Understanding the underlying values and engaging in collective action is easier for decisions made at the micro-scale by well-defined agents than at the macro-scale by diffuse agents. Effective action on climate will require action from individual through to global scales, but increasing intervention by government and other institutions will be required for collective action at the more macro end of the spectrum.

To date, very little empirical research has been undertaken on the importance of collective efficacy for action on climate change. However, some experimental studies have had promising results. They found that a strong sense of collective efficacy mediated the negative effects of uncertainty about climate action (Morton et al., 2011) and increased individuals' intentions to undertake collective action (van Zomeren et al., 2010). Four experiments showed that manipulating collective efficacy increased pro-environmental intentions by increasing perceptions that one's group is capable of effecting change. This increase was mediated by simultaneous increases in self-efficacy beliefs (Jugert et al., 2016). Further, Roser-Renouf et al. (2014) found collective efficacy to be an important precursor to involvement and support for societal action on climate change. These results suggest that there is scope for more research on collective efficacy and climate change attitudes and actions, and as Adger (2009) proposes, it would be valuable to look beyond the individual or small group scale.

4. THE PRESENT RESEARCH

The aim of the present research was to test the mediating effect of collective efficacy on the relationship between social phenomena differing in social scale, from the individual level through the community level to the societal level, and pro-environmental behaviours. The first consideration was the conceptualisation of collective efficacy. Unlike the well-defined and often small groups used in psychological research, or the larger, but still well-defined, neighbourhoods that Sampson (2006) studied, climate change affects everyone in the world so it is a question of whether we either as Australians or people generally believe we can come together to effectively act on climate change. When considering pro-environmental behaviours, two important dimensions are consumer actions – which are personal actions such as turning off unnecessary lighting, and civic actions – which are actions in the public sphere, such as people's engagement in groups or public demonstrations of support for the environment. It might be expected that collective efficacy is more important for public activities, however, continuing to act in private on a daily basis might require people to firmly believe that they are contributing to a larger movement.

At the individual level, a range of demographic indicators might be considered but there have been very few strong consistent demographic trends for predicting pro-environmental behaviours (Leviston et al., 2011). However, political orientation is essential as it is the strongest social indicator of climate change beliefs for Australians (Leviston et al., 2011). Further, social-economic status might be important when mediated by collective efficacy even if its direct relationship to pro-environmental behaviours has not been found to be strong and consistent, because those with greater education and income might have a greater sense of climate change efficacy.

At the neighbourhood level, the most powerful evidence of the relationship between community engagement and sustainability comes from Portney and Berry (2010), who found that cities that are most committed to pursuing sustainability policies do tend to be more participatory places with respect to activities such as belonging to local reform groups or joining neighbourhood associations, even controlling for personal income and other factors.

At the societal level, a variety of social institutions can influence the public, most of whom are not climate scientists and lack the time and resources needed to arrive at conclusions on the basis of scientific and empirical data on their own. Therefore we should expect that notions of trust in broader institutions are fundamental to understanding perceptions of collective efficacy. Trust in public institutions has been identified as being an important indicator of social capital (Paxton, 1999; Putnam, 2000) and thus linked to sustainability (Edwards and Onyx, 2007; Portney and Berry, 2010). However, the relationship varies depending on the specific institution. Greater trust in environmental organisations and less trust in industry is associated with greater support for environmental action (Dietz et al., 2007) and belief that climate change is human induced (Leonard and Leviston, 2012).

The hypotheses to be tested are that collective efficacy will mediate the relationship between these three levels and people's engagement in each of the two types of pro-en-

vironmental action. Collective efficacy was tested as a mediating variable for all the independent variables because the issue of climate change requires a collective response and people cannot be expected to act without the belief that their actions will be effective. Thus collective efficacy was expected to have a positive relationship to both types of environmental actions. More specifically, it is hypothesised that relationships between the independent variables and collective efficacy will be positive except for trust in car and oil companies where it is expected that trusting those sources for information on climate change will reduce the sense of collective efficacy.

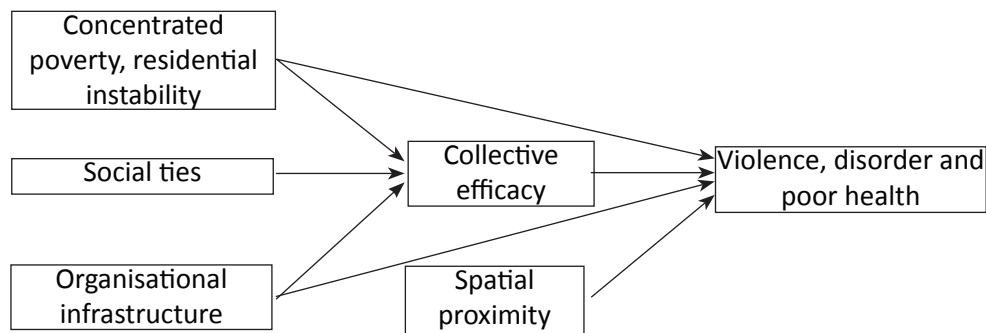


Figure 1. *Model of the mediating role of Collective Efficacy adapted for Pro-environmental Behaviour*

5. METHOD

The research draws on an existing data set, namely the CSIRO national survey of climate attitudes in Australia which collected data on a wide variety of beliefs, attitudes, and behaviours around climate change from a large representative sample of Australians. It is an online survey of 5,030 people that was conducted in July and August 2011. Respondents were drawn from a research-only panel of 300,000 individuals with the demographic profile of respondents corresponding closely with the population characteristics of Australians (ABS, 2010). Comparable levels of men (46.4%) and women (53.6%) completed the survey. Fifty-five percent described their location as capital city, 29% as regional town, and 14% as rural area. The age profile of respondents was: less than 24 years of age, 4.5%; 25-34, 12.7%; 35-44, 14.7%; 45-54, 22.6%; 55-64, 21.0%; 65-74, 19.1%; 75-84, 5.0%; 85 or more, 0.4%.

6. MEASURES

Socio-economic status. Socio-economic status was measured through two variables: education and income. Personal income was coded 1-13, with higher numbers indicating less money and 13 indicating 'no response'. Responses were reverse-coded and those selecting 'no response' were excluded. Education was measured using an ordinal scale, 1-10, with 1 indicating primary school only and 10 indicating postgraduate qualification.

Political views. Political views were assessed by asking respondents to move a cursor along a sliding scale to the point that best represented their political views, with the furthestmost left point labelled 'Left Wing' and the furthestmost right point labelled 'Right Wing' (Jost et al., 2003). Responses were measured on a discreet scale of '1-100'. It was reverse-coded so lower scores represented more right-wing orientations and higher scores represented more left-wing orientations.

Pro-environmental actions. To measure pro-environmental behaviours, a series of 16 items measuring individual and community-oriented behaviour were asked. For consumer actions the response options were to perform the action for environmental reasons, for other reasons or not to perform the action and only the first option was counted. An exploratory factor analysis using maximum likelihood extraction with oblimin rotation identified two strong factors: a consumer behaviour factor consisting of six items, and a civic environmental action scale consisting of five items as presented in Table 1. Confirmatory factor analyses were performed in MPlus (Muthén and Muthén, 2010). Reliable composite behavioural variables were created for the consumer behaviour and civic action variables loading each item by its factor score coefficient (Coefficient H scores were .91 and .75 respectively).

Collective Efficacy. Thirteen items in the survey measured beliefs about the possibility of ameliorating climate change. An exploratory factor analysis using maximum likelihood extraction with oblimin rotation revealed that they were divided into two distinct factors: those that reflected the respondent's sense of personal efficacy and those that reflected a collective response. Collective Efficacy was measured by the following five items: "Doing something about climate change is an opportunity to be part of something bigger than ourselves"; "Individuals can make a difference to climate change"; "The challenge of climate change will provide people with a sense of purpose"; "Climate change will foster greater community spirit and connectedness"; and, "There's nothing Australia can do about climate change that will make a meaningful difference" (reverse coded). All responses were recorded on a 5-point Likert scale. After confirmatory factor analysis, a reliable composite Collective Efficacy variable was created loading each item by its factor score coefficient (Coefficient H = .89).

Community involvement. Community involvement was measured from four items of the Community involvement subscale of the Onyx and Bullen (2000) social capital scale. After confirmatory factor analysis, a reliable composite Community involvement variable was created loading each item by its factor score coefficient (Coefficient H = .85).

Trust in organisational infrastructure. Trust in organisational infrastructure was measured by responses to the statement "How much do you trust the following to provide you truthful information on climate change?" on a scale from '1 = distrust a lot' to '5 = trust a lot'. Eight types of organisations followed: *environmental organisations, university scientists, consumer organisations, doctors, government, local authorities, oil companies, car companies.*

Analysis. To examine the mediating effects of Collective Efficacy, path analysis in Mplus was used to test multiple relationships simultaneously and test how well the model as a whole fits the data (McCrea, 2014). Two models were developed to test the hypothesis

that Collective Efficacy mediates the relationship of the three groups of independent variables, (1) SES and political persuasion, as measured by income, education, and position on the political spectrum; (2) Trust in eight types of organisations as a measure of social infrastructure; and (3) Community involvement, to the dependent variables of consumer and civic pro-environmental actions. Starting with trying to fit a model with all the independent variables predicting Collective Efficacy and all the independent variables plus Collective Efficacy predicting the dependent variables, non-significant paths were removed iteratively to identify a parsimonious fitting model for each dependent variable.

7. RESULTS

Frequency of engagement in Consumer and Civic Actions

Table 1 shows the levels of engagement in each of the consumer and civic actions. There were at least moderate levels of engagement in consumer actions, with between a third and half of respondents involved in each of these actions for environmental reasons. There were relatively smaller levels of engagement reported for civic actions, however.

Table 1. *Frequency of engagement in Consumer and Civic Actions*

| Consumer Actions | Frequency (%) |
|---|---------------|
| I switch off lights around the house whenever possible | 38.0 (1913) |
| I have switched to products that are environmentally friendly | 51.1 (2568) |
| I will usually try to fix things rather than replace them | 26.2 (1318) |
| I have reduced the amount of water I use around the house and garden | 41.9 (2108) |
| Most of my cleaning products are environmentally friendly | 46.3 (2331) |
| I have reduced the amount of gas and electricity I use around the house | 31.4 (1580) |
| Civic Actions | |
| In the last five years have you:- | |
| taken part in a political campaign about an environmental issue | 7.8 (391) |
| been a member of an environmental group or movement | 5.7 (287) |
| contacted a government member about climate change | 7.1 (356) |
| taken part in a conservation activity | 12.5 (631) |
| voted in a government election on the basis of an environmental issue | 1.8 (1148) |

Level of trust in organisations as sources of information on climate change

Table 2 shows the ranking of each of the eight types of institutions as sources of information on climate change. Although university scientists were assigned the highest level of trust, only half the respondents reported trusting them or trusting them a lot. Environmental organisations were the next most trusted source; about a third trusted

environmental organisations or trusted them a lot, another third of respondents were undecided, and a third did not trust them at all. Oil companies and car companies were assigned the lowest levels of trust on this topic.

Table 2. *Percentage of respondents that reported 'Trust' or 'Trust a lot' for each institution as a source of information on climate change*

| Institution | Percent |
|-----------------------------|----------------|
| University scientists | 49% |
| Environmental organisations | 34% |
| Doctors | 20% |
| Consumer groups | 13% |
| Government | 12% |
| Local authorities | 11% |
| Oil companies | 2% |
| Car companies | 2% |

Bivariate relationships between the predictor variables and Collective Efficacy, Consumer and Civic Actions

The strongest correlations (Table 3) were associated with Collective Efficacy; in particular Trust in Environmental organisations, University scientists, Government, Local authorities, Consumer Actions and Civic Actions all have correlations with a Collective Efficacy of .4 or above. The strongest associations with Consumer Actions were Collective Efficacy, Trust in Environmental organisations, University scientists, and Government with correlations of over .3. The strongest associations with Civic Actions were Collective Efficacy, Trust in Environmental organisations and University scientists with correlations of over .3. As might be expected, the two dependent variables were well correlated. Trust in Oil companies and Car companies as sources of information on climate change were negatively related to Collective Efficacy, Consumer and Civic Actions.

Table 3. *Bivariate correlations between the predictor variables and Collective Efficacy, Consumer and Civic Actions*

| | Collective Efficacy | Consumer Actions | Civic Actions |
|----------------------------|---------------------|------------------|---------------|
| Consumer Actions | 0.52*** | | |
| Civic Actions | 0.40*** | 0.42*** | |
| Community involvement | 0.03* | 0.09*** | 0.23*** |
| Education | 0.09*** | 0.10*** | 0.21*** |
| Left political orientation | 0.31*** | 0.20*** | 0.28*** |
| Household income | 0.03 NS | 0.01 NS | 0.07*** |

| | | | |
|--------------------------------------|----------|----------|----------|
| Trust in Consumer organisations | 0.21*** | 0.09*** | 0.09*** |
| Trust in Environmental organisations | 0.64*** | 0.44*** | 0.38*** |
| Trust in University scientists | 0.53*** | 0.36*** | 0.33*** |
| Trust in Doctors | 0.22*** | 0.13*** | 0.08*** |
| Trust in Government | 0.49*** | 0.31*** | 0.23*** |
| Trust in Local authorities | 0.44*** | 0.26*** | 0.19*** |
| Trust in Oil companies | -0.06*** | -0.08*** | -0.13*** |
| Trust in Car companies | -0.05** | -0.08*** | -0.13*** |

* $p < .01$; ** $p < .005$; *** $p < .0005$

Testing the mediating role of Collective Efficacy on Pro-environmental Consumer Actions and Civic Actions

Path analysis was used to test the mediating role of Collective Efficacy, as hypothesised in Figure 1. Because specific indices can be influenced by particularities of the data, e.g. a large sample size or outliers, it is useful to present a variety of indices (Byrne, 2001; Hancock and Mueller, 2006; Holmes-Smith, 2011). Table 3 gives five indices and their fit criteria. All the indices for Models 1 and 2 (shown in Figures 2 and 3 respectively) indicate the models fit well, and are not significantly different to the hypothesised models. Figures 2 and 3 present the standardised coefficients which indicate the predictive strength of each predictor variable on the mediating variable and the dependent variables. Indirect, direct, and total effects of the independent variables on the dependent variables are presented in Table 5.

Table 4. *Fit indices and criteria for structural equation modelling*

| Fit indices and criteria | Model 1 Consumer Actions | Model 2 Civic Actions |
|---|-------------------------------------|-----------------------------------|
| Chi Square $p > .05$ | Chi Sq (5) = 8.8 $p = 0.112$ | Chi Sq (4) = 3.22, $p = 0.522$ |
| RMSEA – Root Mean-Square Error of Approximation $< .05$ | .013 | $< .0005$ |
| CFI – Comparative Fit Index $> .95$ | .999 | 1.00 |
| TLI – Tucker-Lewis Index $> .95$ | .997 | 1.00 |
| SRMR – Standardized Root Mean Square Residual $< .05$ | .003 | .002 |
| R square for models | .31 | .28 |
| R square for Collective Efficacy | .47 | .46 |

* $p < .01$; ** $p < .005$; *** $p < .0005$

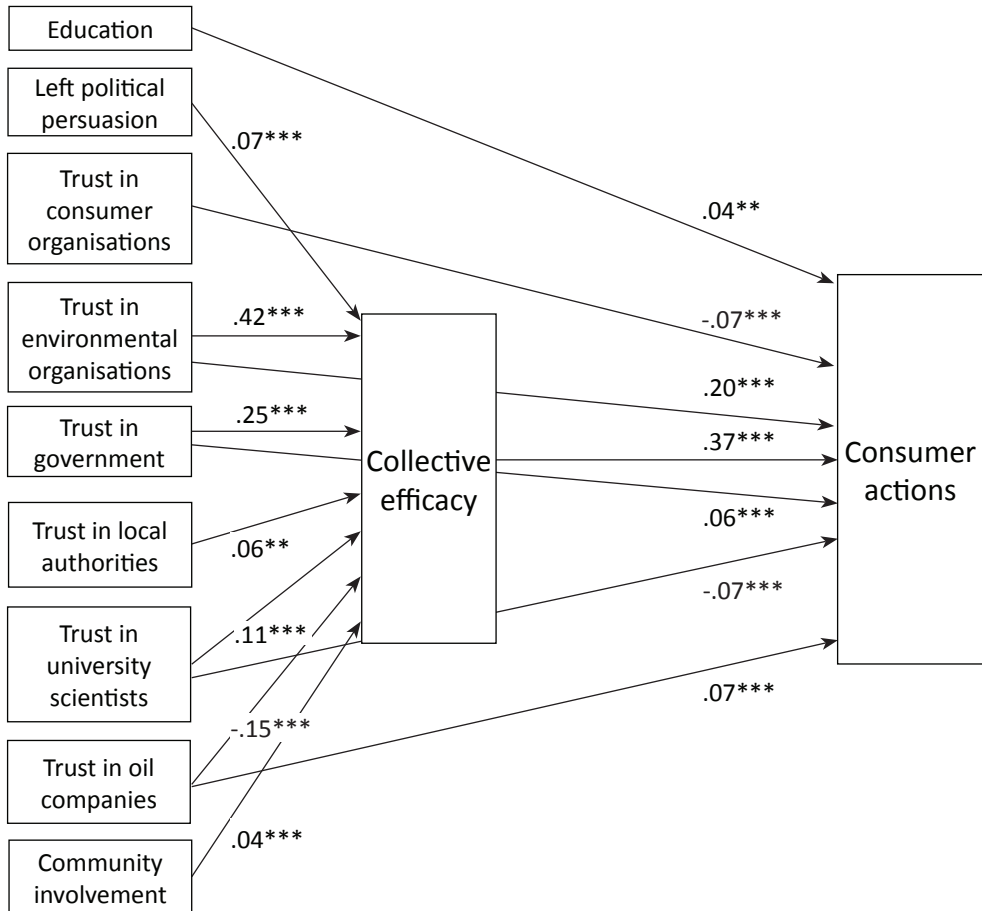
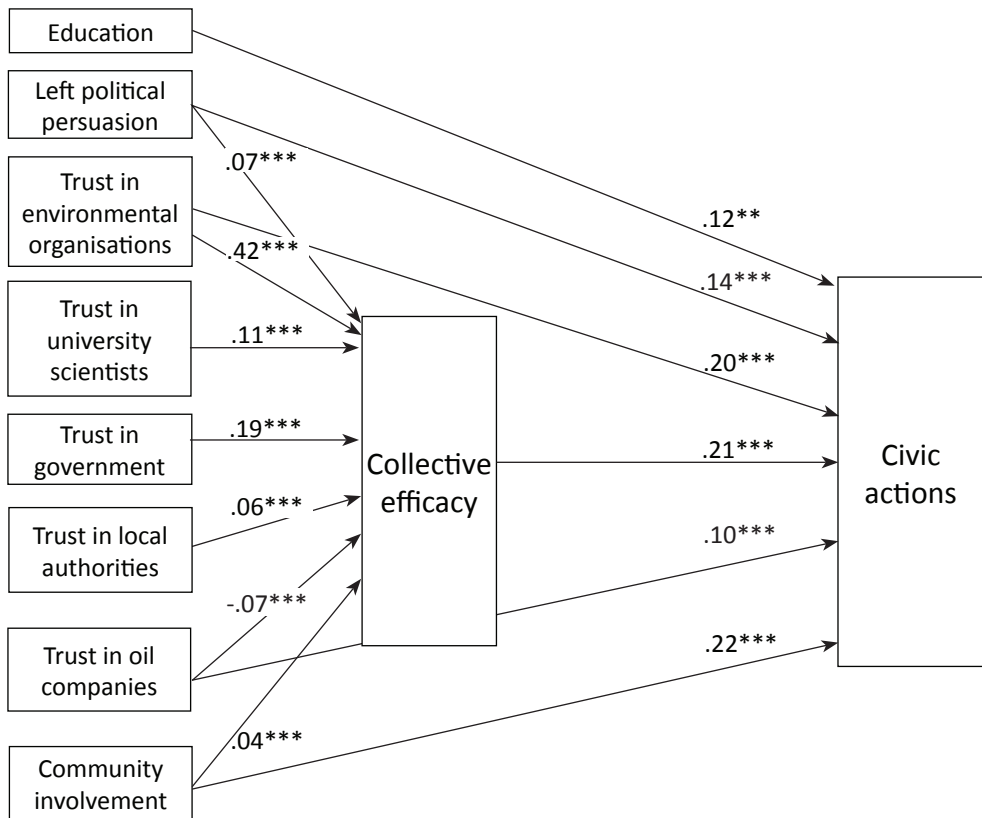


Figure 2. Model of the mediating role of Collective Efficacy on Pro-environmental Consumer Actions, with non-significant pathways removed

The final model presented in Figure 2 is moderately strong, with 31% of the variance in Consumer Actions explained. Collective Efficacy was by far the strongest predictor of Consumer Actions and had a mediating effect on most of the predictor variables. Political views, Trust in university scientists, and Trust in local authorities had significant paths to Collective Efficacy but not to Consumer Actions and thus are fully mediated by Collective Efficacy. Collective Efficacy partially mediated Trust in environmental organisations, Trust in government, Trust in oil companies, and Community involvement, but had no mediating effect on Education or Trust in consumer organisations. It is also worth noting that the strongest path in the model was between Trust in environmental organisations and Collective Efficacy, but Trust in environmental organisations had an additional direct effect on Consumer Actions, thus suggesting environmental organisations have a central role in promoting pro-environmental behaviour (Table 5).

Non-significant paths

Not all the hypothesised paths appeared in the final model. Income, Trust in doctors, and Trust in car companies were not significant contributors to Collective Efficacy or Consumer Actions in the model, possibly partly due to weak bivariate relationships (income was not significantly related to Collective Efficacy or Consumer Actions) and partly due to inter-correlations with other variables (e.g. for income and education $r=.28$; for car and oil companies $r=.96$). Contrary to the hypothesis and the bivariate correlations, Trust in consumer organisations was negatively related to Consumer Actions.



* $p < .01$; ** $p < .005$; *** $p < .0005$

Figure 3. Model of the mediating role of Collective Efficacy for Pro-environmental Civic Actions.

The final model for Civic Actions (Figure 3) was also moderately strong with 28% of the variance explained. Collective Efficacy had a mediating effect on a number of predictor variables. Trust in university scientists, Trust in government and Trust in local authorities had significant paths to Collective Efficacy but not to Civic Actions and thus are fully mediated by Collective Efficacy. Political persuasion, Community involvement,

and Trust in environmental organisations and oil companies were partially mediated by Collective Efficacy. Education had a direct effect on Civic Actions that was not mediated by Collective Efficacy. As hypothesised, Trust in oil companies was negatively associated with Civic Actions and this relationship was not mediated by Collective Efficacy.

Table 5. *Indirect and total effects for predictor variables in the final models*

| Independent variables | Civic Actions Indirect effects | Civic Actions Direct effects | Civic Actions Total direct and indirect effects | Consumer Actions Indirect effects | Consumer Actions Direct effects | Consumer Actions Total direct and indirect effects |
|----------------------------|-----------------------------------|---------------------------------|---|--------------------------------------|------------------------------------|--|
| Education | | .12 | .12 | | .04 | .04 |
| Left political persuasion | .014 | .14 | .154 | .026 | | .026 |
| Trust in consumer orgs | | | | | -.07 | -.07 |
| Trust in env orgs | .084 | .21 | .294 | .155 | .20 | .355 |
| Trust in unis | .022 | | .022 | .041 | | .041 |
| Trust in gov | .038 | | .038 | .093 | .06 | .153 |
| Trust in local authorities | .012 | | .072 | .022 | | .022 |
| Trust in oil companies | | -.10 | -.10 | | -.07 | -.07 |
| Community involvement | -.014 | .22 | .206 | .015 | .07 | .085 |

Non-significant paths

Not all the hypothesised paths appeared in the final model. Income, Trust in doctors, car companies and consumer organisations were not significant contributors to Collective Efficacy or Civic Actions. However, the path from Collective Efficacy to Civic Actions was not as strong as that from Collective Efficacy to Consumer Actions. Community involvement had a stronger path to Civic Actions than to Consumer Actions. Once again, considering the direct and indirect paths, there is a crucial role for environmental organisations in relation to pro-environmental behaviours.

8. DISCUSSION

The proposed models with collective efficacy as a mediating variable build on the small amount of previous, largely experimental, research which found a predictive of collective efficacy on environmental attitudes and intended behaviour (e.g. Morton et al., 2011; Roser-Renouf et al., 2014; Jugert et al., 2016) and by Sampson's (2006, 2012) substantial body of multimethod research which identified a central role for collective efficacy and demonstrated the importance of recognising multiple social levels of

influence. The models tested the mediating effect of collective efficacy on individual, community and societal level influences on consumer and civic actions. The final model fitted the data for both consumer civic actions and predicted about 31% of the variance in the former and 28% of the variance in the latter. This level of explained variance compares favourably with other attitudinal and pro-environmental behavioural modelling in general population research (e.g. Adrian et al., 2005; Corral-Verdugo, 2002). In this respect, the variables contained in the model constitute an important and substantive set of factors to consider when promoting pro-environmental behaviours in the climate change domain. Interestingly, the fit was stronger for the consumer actions than the civic actions both in terms of the overall R square and the strength of collective efficacy as a mediating variable. This might be due in part to the fact that civic behaviours of the kind measured here are generally difficult behaviours to perform, hence the low levels of engagement in these behaviours and subsequent difficulty in identifying the drivers of engagement. However, the key variables in these models relate to the public sphere, community involvement, and institutions. That the model was able to account for so much variance in more ordinary, everyday, private behaviours suggests that its components have some properties of universal application with regards to intrinsically motivated pro-environmental behaviour.

The models are interesting for their inclusion of multiple levels of influence. Organisational infrastructure includes international organisations such as environmental organisations and oil companies, and national organisations such as governments and universities. The local community level was measured by involvement in local community organisations, and individual level of SES indicators.

Attributes of individuals were represented by education and political persuasion but the hypothesised mediation of collective efficacy was less apparent for this level in that there was no mediation effect for education in either model. Political persuasion was fully mediated for consumer actions but only partially mediated for civic actions where the stronger path was the direct effect. The absence of income from the models appears to be explained by the moderate correlation between income and education at the bivariate level. The results thus support the importance of considering multiple levels of influence in promoting a sense of collective efficacy and pro-environmental behaviours.

The importance of the role of environmental organisations was highlighted by the strong correlation between collective efficacy regarding climate change response and trust in environmental organisations. The relationship between the climate change debate and trust in environmental organisations however may not be straightforward. Given the intrinsic complexity of the science and the deliberate attempts by sceptics to obfuscate the key issues, ordinary citizens are likely to be confused. One response, suggested by Langford (2002), is that increases in the technological complexity of information creates such confusion that it leads many people to devalue expert information altogether, reverting instead to a reliance on lay epidemiology and 'commonsense'. Such a response would lead to a decrease in trust in environmental NGOs (ENGOs), particularly if these organisations' values are judged as discordant with one's own set of values. An alter-

native response is to become *more* reliant on expert systems to convey and mitigate the risks associated with climate change. Such ‘mediated’ risk, Giddens argues, is a major source of temporary anxiety, partly because it relies on trust and reliance in institutions and organisations such as ENGOs tasked with risk mediation (Beck, 2007; Giddens, 1991). Supporting evidence for this position comes from Roser-Renouf and Nisbet (2008), who found that trust and deference to scientific organisations was linked to climate change beliefs and policy support. It is likely however that both responses exist in the population and there is the potential for polarisation of trust in environmental organisations as sources of information on climate change. Unfortunately, trust in environmental organisations in Australia appears to be declining (Leonard and Leviston, 2012). The major limitation of the research was the use of an existing data set which limited exploration of the concepts to the available questions. A data set specifically designed for testing the mediating effect of collective efficacy could have had more questions to fully explore the dimensions of the concept and included more variables to test multiple social levels. The role of trust in consumer organisations in reducing consumer and civic actions needs further investigation. It is necessary to identify if there were particular organisations which triggered a lack of trust by those who are active on the environment. This model of collective efficacy suggests powerful new ways to predict and potentially influence pro-environmental actions at both the individual consumer and civic levels. Rather than delving deeper into individual values and beliefs which are notoriously difficult to change, it focuses instead on the public and collective activities and institutions. The model is interesting for its inclusion of three levels: the institutional level, local community level of social networks, and individual level of SES indicators. Most important is the central role of collective efficacy. As climate change is a global issue, it is going to need a level of collective action greater than any achieved in the world to date. It certainly will not be achieved if people do not believe it is possible. Thus, understanding collective efficacy is essential and given the seemingly pivotal role played by environmental organisations, not just in promoting climate change issues, but in demonstrating the possibility of change, these entities may be key to increasing our faith that the threats posed by climate change can be overcome.

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PRIMJENA MODELA KOLEKTIVNE UČINKOVITOSTI U RAZUMIJEVANJU POTROŠAČKOG I GRAĐANSKOG PRO- EKOLOŠKOG PONAŠANJA

Rosemary Leonard i Zoe Leviston

Sažetak

Kolektivna učinkovitost pokazala se značajnim prediktorom učinkovitog uključenja ljudi u različita društvena pitanja. U ovom radu istražujemo koliko ljudi vjeruju u vlastitu kolektivnu učinkovitost te koliko je ona korisna za razumijevanje pro-ekološkog ponašanja. Provedeno je istraživanje 2011. na 5030 građana i građanki Australije, u metropolitanskom području, s obzirom na regionalne razlike te u ruralnoj Australiji, kojim su ispitana njihova mišljenja o kolektivnoj učinkovitosti u vezi s pitanjem klimatskih promjena i pro-ekološkim ponašanjem. Na temelju prethodnih istraživanja, postavljena je glavna hipoteza da će razvijenost osjećaja za kolektivnu učinkovitost vezano za pitanje klimatskih promjena utjecati na odnos između odabranog skupa nezavisnih varijabli te potrošačkog i građanskog pro-ekološkog ponašanja, i to na sljedeći način: obrazovanje i imovinski status bit će povezani s ponašanjem pojedinaca, politička orijentacija bit će povezana sa spremnošću pojedinaca na pro-ekološko ponašanje, dok će povjerenje u institucije i razina uključenosti zajednice biti povezani s društvenim kapitalom, odnosno imati utjecaja na kolektivno djelovanje. U konačnici, model je predvidio 31% varijance potrošačkog i 28% varijance građanskog ponašanja. Specifičnije, povjerenje u ekološke organizacije pokazalo se najznačajnijim u predviđanju i kolektivne učinkovitosti i pro-ekološkog ponašanja.

Ključne riječi: pro-ekološko ponašanje, kolektivna učinkovitost, društveni kapital, klimatske promjene

ANWENDUNG DES MODELLS DER KOLLEKTIVEN WIRKSAMKEIT BEIM VERSTÄNDNIS DES PRO-ÖKOLOGISCHEN VERHALTENS VON VERBRAUCHERN UND BÜRGERN

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Zusammenfassung

Die kollektive Wirksamkeit hat sich als ein bedeutsamer Prädiktor für eine effiziente Teilnahme von Menschen an verschiedenen Gesellschaftsfragen erwiesen. In dieser Arbeit untersuchen wir, in welchem Ausmaß Menschen an die eigene kollektive Wirksamkeit glauben und wie nützlich sie für das Verständnis des pro-ökologischen Verhaltens ist. Im Jahr 2011 wurde eine Forschung an 5030 Bürgern und Bürgerinnen aus Australien durchgeführt, im Bereich der Hauptstadt und im ländlichen Teil Australiens, hinsichtlich der regionalen Unterschiede, es wurden die Meinungen über die kollektive Wirksamkeit erfragt in puncto des Klimawandels und des pro-ökologischen Verhaltens. Auf Grund der vorherigen Forschung wurde die Haupthypothese gestellt, dass ein entwickeltes Gefühl für die kollektive Wirksamkeit im Bezug auf den Klimawandel die Beziehung zwischen einer gewählten Menge der unabhängigen Variablen und des pro-ökologischen Verhaltens von Verbrauchern und Bürgern beeinflussen wird, und zwar auf folgende Art und Weise: Bildung und Vermögensstand werden das Verhalten beeinflussen, politische Orientierung wird die Bereitschaft zum pro-ökologisches Verhalten beeinflussen, das Vertrauen in Institutionen und die Beteiligung daran werden mit dem Gesellschaftskapital verbunden sein, bzw. sie werden die kollektive Wirksamkeit beeinflussen. Schließlich hat das Modell 31% der Varianz des Verbraucher- und 28% der Varianz des Bürgerverhaltens vorgesehen. Genauer gesagt hat sich das Vertrauen in Umweltorganisationen als das bedeutendste Faktor bei Vorhersagen sowohl für die kollektive Wirksamkeit als auch für das pro-ökologische Verhalten gezeigt.

Schlüsselwörter: pro-ökologisches Verhalten, kollektive Wirksamkeit, Gesellschaftskapital, Klimawandel