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Reflecting on a Difficult Past Does Not Influence Pro-Environmental Attitudes or Behaviours

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Abstract
Successfully addressing the environmental crisis requires current generations to change behaviours for the benefit of future generations. Perceptions of responsibility towards future generations have been found to increase pro-environmental attitudes and behaviours. Therefore, methods which enhance feelings of responsibility, or intergenerational reciprocity, are central to tackling the environmental crisis. Research shows intergenerational reciprocity can be increased through the process of reflecting on the heroic actions and sacrifices of past generations. However, the impact of reflecting on a negatively framed 'difficult' past remains unknown. Via an online, quasi-experimental questionnaire, this study utilised the context of the ethno-nationalist conflict in Northern Ireland, known as 'The Troubles', to explore how reflecting on a difficult past influences pro-environmental attitudes and behaviours. The results suggest that reflecting on The Troubles has no effect on pro-environmental attitudes or behaviour. The salience of negative feelings about The Troubles may have supressed the generation of intergenerational reciprocity and environmental concern.

Keywords: Intergenerational reciprocity, Responsibility, Reflection, Pro-environmental attitudes, Pro-environmental behaviour, Negative framing.

1. Introduction

With human behaviour being a significant, if not sole, driver of the environmental crisis (Skuce et al., 2016), it is important to both understand and motivate pro-environmental attitudes and behaviours to minimise environmental damage (McIntyre and Milfont, 2016; Wynes and Nicholas, 2017). This is a complex undertaking, stemming, in part, from the intergenerational nature and temporal fragmentation of these environmental problems (Gardiner, 2006). Given that members of current generations are unlikely to experience the consequences of negative environmental behaviours, their motivation to engage in pro-environmental behaviour is often reduced. Previous research has conceptualised this problem as The Intergenerational Sustainability Dilemma (Shahrier et al., 2017) and the Tragedy of the Horizon (Hurlstone et al., 2017). The need to identify methods that reduce temporal fragmentation is increasingly recognised, but the area remains under researched.

Intergenerational reciprocity, defined as the moral norm (Gouldner, 1960) where members of a generation behave towards the next generation similarly to how previous generations behaved towards them by passing on either benefits or burdens (Wade-Benozi, 2002), has been identified as a potential influence in reducing temporal fragmentation (Syropoulos and Markowitz, 2021). For example, in experimental settings, individuals act altruistically

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towards future participants when good deeds had been done for them by previous participants (Wade-Benozi, 2002) or when they felt that past participants had been generous towards them (Bang et al., 2017).

This activation of positive intergenerational reciprocity may rely on a degree of framing regarding the behaviours of the previous generation. Past-focused messaging is more persuasive in enhancing pro-environmental attitudes (Baldwin and Lammers, 2016) though there may be no temporal effect here at all (Kim et al., 2020). Regarding the valence and polarity of this messaging, Watkins and Goodwin (2020) found that, by asking participants to reflect on the historical events of The Great Depression and World War II, where past generations were considered to have sacrificed, participants consequently experienced an increased sense of moral obligation to future generations, and in some cases demonstrated that a larger willingness to sacrifice for the good of the environment. This may be an uptake of in-group thinking (Kahn et al., 2017) or an activation of the legacy motive, a driver of individual behaviour based on a person's concern for the legacy that they will leave behind after their death (Fox et al., 2010, Hurlstone et al., 2020). While the link between reflection and pro-environmental attitudes was less clear than the effect on moral obligation in Watkins and Goodwin's (2020) study, more recent research has identified a robust relationship between perceived responsibility towards future generations and environmental concern (Syropoulos and Markowitz, 2021).

Given that international events such as The Great Depression and World War II are generally regarded as communally tragic but individually heroic, this leaves a clear gap in our understanding of the negatively framed behaviours of past generations, especially in specific national and historical contexts. National historical context is also found to be influential in environmental attitudes and behaviours (Franzen and Vogl, 2013; Mayerl and Best, 2019; Milfront et al., 2020), particularly if it is turbulent (Chaisty and Whitefield, 2015). Northern Ireland demonstrates such a historical context in the form of The Troubles, an ethno-nationalist, sectarian conflict that largely began in 1962 and formally concluded in 1998 with the signing of the Good Friday Agreement, though sporadic and isolated conflict continues to date (Lynch and Joyce, 2018). The period was characterised by the regular occurrence of traumatic events such as bombs, shootings, kidnapping and beatings (Lamb, 2013), resulting in over 3,500 deaths, tens of thousands of injuries (Cunningham and Gregory, 2014) and associated mental health difficulties, with Northern Ireland having one of the highest per capita rates of PTSD globally (Bunting et al., 2011). Despite the influence of national context on environmental tendencies, and the physical, psychological, and political impact of The Troubles, the relationship between The Troubles and pro-environmental attitudes and behaviours has never been studied.

Against this background, this research seeks to further explore the effect of reflecting on a difficult, negatively-framed past on pro-environmental attitudes and behaviours, in the specific context of a post-conflict Northern Ireland. The Troubles remains salient in the psyche of all who live in Northern Ireland, and continues to negatively impact health, education, and justice policy in the region. Its historical significance, ability to conjure strong emotions and consequences on policy make it a worthy representation of a difficult past. Understanding this relationship offers a unique perspective on the relationship between Northern Ireland's past and its future, specifically concerning pro-environmental attitudes and behaviours.

2. Methods

The research hypothesises that guided the study are:

- H0: Reflecting on The Troubles does not affect environmental attitudes and behaviours (NULL).
- H1: Reflecting on The Troubles has a positive effect on environmental attitudes and behaviours (ALTERNATE).
- H2: Reflecting on The Troubles has a negative effect on environmental attitudes and behaviours (ALTERNATE).

2.1 Participants

The target population defined by the study was individuals, of either gender, aged 18 or above, and born in Northern Ireland or a resident there for at least 10 years. Individuals who did not meet these criteria had their responses excluded during the analysis. The sample can be described as a volunteer, self-selection sample. Participants were recruited through e-mail notices sent to across the host university and promoted on a range of social media platforms. Snowballing was also employed, where participants were asked to encourage individuals they knew to complete the questionnaire (Bryman, 2016) without revealing the nature of the questioning. No incentives were offered in exchange for participation.

The required sample size was calculated at a minimum of 48 for a large effect size ($f^2 = 0.35$) at the 0.05 significance level. 109 participants took part. 104 cases were retained for analysis. The study can be considered appropriately powered with this sample size (power = 0.99).

The composition of the sample is shown in Table 1. Due to the process of random allocation by the experimental software, 56.2% of the sample were allocated to the control condition and 43.8% to the experimental condition. The sample favoured women (69.5%), with participants having been mostly educated to undergraduate (42.9%), and postgraduate degree level (31.4%). A significant majority of the sample identified as Catholic (76.2%) while the rest of the sample primarily identified as Protestant (21%). The mean age was 39.8 and the mean income was £38,851.

Table 1.
Variables of interest & sample characteristics.

Variable	Categories	%
Condition	Control	56.2
	Experimental	43.8
Gender	Woman	69.5
	Man	30.5
Education	GCSE's (or equivalent)	13.3
	A-Level (or equivalent)	12.4
	Undergraduate degree	42.9
	Postgraduate degree	31.4
Community Background	Catholic	76.2
	Protestant	21.0
	Both	1.0
	Neither	1.9
		Mean | SD
Age		39.8 | 15.0
Income		38, 851 | 31, 584
NEP		74.2 | 10.3
EBS		46.6 | 8.48

3. Procedure

Data collection sought to extend the approach taken by Watkins and Goodwin (2020). As such, an online quasi-experimental questionnaire was deployed in spring of 2021 using an online platform. While this method can have some questions of accuracy (Ward et al., 2017) and self-selection bias (Bethlehem, 2010), it offered a valid, low-cost method of rapidly obtaining a large sample (Evans and Mathur, 2018). Prior to commencing the study, ethical approval was obtained through the University's Proportionate Review process.

Upon confirmation that participants had read and understood the online information, participants were randomly assigned by the online platform to either the experimental or control condition, which were designed to prompt either a positive or negative reflective response in participants respectively. In the experimental condition, participants were shown the following prompt:

"We would like you to spend some time reflecting on The Troubles that occurred in Northern Ireland. Specifically, we would like you to think about the impact of the actions taken then on your own life and life in Northern Ireland now. Please write down whatever comes to mind. You can write as much or as little as you like, but please spend three minutes on this task."

Those assigned to the control condition were shown the following prompt:

"We would like you to spend some time reflecting on your favourite childhood meal. Specifically, we would like you to think about the experience of eating it then and how your favourite meal has changed from then to now. Please write down whatever comes to mind. You can write as much or as little as you like, but please spend three minutes on this task."

3.1 Materials & Measures

Following the completion of the writing tasks, participants were then asked to complete a series of validated scales and demographic questions. The first was the New Ecological Paradigm (NEP) (Dunlap et al., 2000), the mostly widely accepted measure of environmental attitudes (Hawcroft and Milfont, 2010). Participants were asked to indicate the extent to which they agreed with 15 statements (Table 2) using a seven-point Likert scale from strongly agree to strongly disagree). Statements 2,4,6,8,10,11 & 13 of the NEP were reverse coded and responses from the other NEP statements were added together to give a final score, with higher scores representing stronger environmental attitudes.

Participants then answered an adapted version of the Environmental Behaviour Scale (EBS) developed by Schultz et al. (2005). Participants were asked to rate the likelihood they would engage in 12 pro-environmental behaviours in the near future, with responses measured using a five-point Likert-type scale from "very likely" to "very unlikely". As the original scale provided a measure of past behaviour, the statements were adapted to enquire about future behaviours (Table 3). These responses were totalled, with a higher score representing more pro-environmental tendencies.

To conclude the study, participants provided demographic information on age, gender, income, and education. These factors were of interest as they have been found to influence pro-environmental attitudes and behaviours (Shen and Saijo, 2008; Boeve-de Pauw and van Petegem, 2010; Casalo and Escario, 2018). Given group identification can shape members social views and ingroup identification is particularly salient in Northern Irish society (Leonard et al., 2015), participants were also asked to indicate which Northern Irish community segment (Protestant, Catholic, both or neither) they identified as.

Table 2.

The 15 Item Revised NEP Scale

	Revised NEP
1	We are approaching the limit of the number of people the Earth can support.
2	Humans have the right to modify the natural environment to suit their needs.
3	When humans interfere with nature, it often produces disastrous consequences.
4	Human ingenuity will ensure that we do not make the Earth unliveable.
5	Humans are seriously abusing the environment.
6	The Earth has plenty of natural resources if we just learn how to develop them.
7	Plants and animals have as much right as humans to exist.
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9	Despite our special abilities, humans are still subject to the laws of nature.
10	The so-called "ecological crisis" facing humankind has been greatly exaggerated.
11	The Earth is like a spaceship with very limited room and resources.
12	Humans were meant to rule over the rest of nature.
13	The balance of nature is very delicate and easily upset.

14	Humans will eventually learn enough about how nature works to be able to control it.
15	If things continue on their present course, we will soon experience a major ecological catastrophe.

Table 3.

Adapted Environmental Behaviour Scale

	Environmental Behaviour Scale
1	Look for ways to reuse things.
2	Recycle newspapers.
3	Recycle cans or bottles.
4	Encourage friends or family to recycle.
5	Purchase products in reusable containers.
6	Pick up litter that is not your own.
7	Compost food scraps.
8	Conserve fuel by walking or cycling.
9	Write a letter/status supporting an environmental issue.
10	Vote for a candidate who supports environmental issues.
11	Donate money to an environmental group.
12	Volunteer time to help an environmental group.

4. Results

The means of the dependent variables were compared across the control and experimental conditions (Table 4). The results show a small difference in favour of the control group on the mean NEP score between the experimental group (M=73.8, SD=9.85) and the control group (M=74.4, SD=10.8). The mean EBS score for the control group (M=46.6, SD=8.83) was equal to the mean EBS score for the experimental group (M=46.6, SD=8.11). A one-way multivariate analysis of covariance (MANCOVA) was then applied, following satisfaction of the relevant assumptions (Hahs Vaughn, 2017). There was no statistically significant difference between the control and experimental conditions on the combined dependent variables after controlling for age and income ($F(2, 99) = 0.0511$, $p = .950$, Wilks' $\Lambda = .999$). The multivariate results show age was statistically significant ($p = 0.032$) and the univariate results show this significant relationship was with EBS scores ($p=0.009$). Analysis of categorical age data shows the age bracket 65+ had the highest mean NEP scores (M=81.1) while EBS steadily increased as the age brackets progressed from 18-24 (M=44.7) to 65+ (M=54.5)

Table 4

Descriptive statistics for condition groups

	NEP		EBS	
	M	SD	M	SD
Control Condition (n=58)	74.4	10.8	46.6	8.83
Experimental Condition (n=46)	73.8	9.85	46.6	8.11

As a MANCOVA does not account for the relationship between covariates and dependent variables (Pituch & Stevens, 2016), and other variables were excluded from this model

because of their categorical nature, further analysis was carried out to better understand the relationship between the collected variables, NEP and EBS.

Table 5

Multivariate analysis of covariate results

			Multivariate results					Univariate results			
								NEP		EBS	
			value	F	df1	df2	p	F	p	F	p
Main Effect (Condition)		Wilks' Lambda	0.999	0.0511	2	99	0.950	0.081	0.777	$5.22x10^{-06}$	0.998
Covariates	Income	Wilks' Lambda	0.992	0.3928	2	99	0.676	0.7927	0.375	0.1955	0.659
	Age	Wilks' Lambda	0.933	3.5738	2	99	0.032	0.9983	0.320	7.1354	0.009

N = 104

Multiple linear regression was carried out to explore which variables significantly predicted NEP scores (Table 6). This was a statistically significant model ($F(10,92) = 2.49$, $p = 0.011$). The experimental condition was not a statistically significant predictor of NEP score ($\beta = 1.459$, $t = 0.711$, $p = 0.479$) whereas education was. As the level of education increased from GCSE to A-Level ($\beta = 11.040$, $t = 2.686$, $p = 0.009$), from GCSE to Undergraduate ($\beta = 6.570$, $t = 1.782$, $p = 0.078$) and from GCSE to Postgraduate ($\beta = 11.525$, $t = 3.342$, $p < 0.001$), the NEP score increased. The model also shows that gender was a statistically significant predictor of NEP scores ($\beta = -5.830$, $t = -2.671$, $p = 0.009$). The low explanatory power of the model ($R^2 = 0.213$) suggests that not all relevant factors that predict environmental attitudes have been captured here.

Table 6

Multiple regression analysis of NEP and collected variable

Predictor	Estimate	S.E.	t	p
Intercept	71.887	9.9982	7.190	< .001
Log Income	0.080	0.379	0.210	0.834
Age	0.074	0.772	0.959	0.340
Education:				
A-Levels (ref = GCSEs)	11.033	4.110	2.686	0.009
Undergraduate (ref = GCSEs)	6.570	3.688	1.782	0.078
Postgraduate (ref = GCSEs)	11.523	3.449	3.342	< .001
Gender:				
Man – Woman	-5.831	2.183	-2.671	0.009
Community:				
Catholic (ref = Neither)	-8.089	7.340	-1.102	0.273
Protestant (ref = Neither)	-8.627	7.747	-1.114	0.268
Both (ref = Neither)	-5.240	12.034	-0.436	0.664
Experimental Condition (ref = Control)	1.459	2.053	0.711	0.479

Multiple linear regression was carried out to explore which variables significantly predicted EBS scores (Table 7). This was a statistically significant model ($F(10,92) = 2.58$, $p = 0.008$). The experimental condition was not a statistically significant predictor of EBS score ($\beta = 0.455$, $t = 0.269$, $p = 0.789$). Gender was the only statistically significant predictor of NEP scores ($\beta = -6.082$, $t = -3.380$, $p < 0.001$). The low explanatory power of the model ($R^2 = 0.219$) suggests that not all relevant factors that predict environmental behaviour have been captured here. Based on the cumulative results of these analyses, the study failed to reject the null hypothesis. Implications of these results are discussed in the following section.

Table 7
Multiple regression analysis of EBS and collected variable

Predictor	Estimate	S.E.	t	p
Intercept	50.754	8.244	6.158	<0.001
Log Income	-0.116	0.319	-0.371	0.712
Age	0.111	0.064	1.749	0.084
Education:				
A-Levels (ref = GCSEs)	-0.348	3.387	-0.103	0.918
Undergraduate (ref = GCSEs)	0.647	3.040	0.213	0.832
Postgraduate (ref = GCSEs)	0.254	2.842	0.0893	0.929
Gender:				
Man – Woman	-6.082	1.799	-3.380	<0.001
Community:				
Catholic (ref = Neither)	-5.616	6.050	-0.928	0.356
Protestant (ref = Neither)	-8.819	6.386	-1.381	0.171
Both (ref = Neither)	-2.657	9.918	-0.268	0.789
Experimental Condition (ref = Control)	0.455	1.692	0.2686	0.789

5. Discussion

This study aimed to explore how reflecting on The Troubles impacts pro-environmental attitudes and behaviour. There was no statistically significant difference in environmental attitudes or behaviour across experimental conditions, suggesting that reflecting on The Troubles (a negative experience) and reflecting on positive experiences have a similar effect on pro-environmental attitudes and behaviours. This is significant as it suggests the nature of the past being reflected on (difficult or positive) may have no effect on pro-environmental attitudes or behaviours.

Previous research found that reflecting on the past activates intergenerational reciprocity, increasing feelings of obligation towards future generations (Watkins and Goodwin, 2020) and consequently, environmental concern (Syropoulos and Markowitz, 2021). The lack of increased environmental concern observed upon reflecting on the past in this study may be explained by the negative framing of The Troubles. For example, despite World War II and The Great Depression representing historical tragedies, they are positively framed events given that they united populations against a common enemy or unfortune, and represent sacrifice (Watkins and Goodwin, 2020). In comparison, The Troubles remain highly contentious and salient for all in Northern Ireland. Indeed, a divided society is all many in NI know and reflecting on The Troubles may serve to reinforce feelings of division. Therefore, when the present generation of NI considers future generations,

anything other than a similarly divided society may be difficult to imagine. Thus, feelings of sacrifice, gratitude or obligation observed in other studies may have been supressed.

Previous research has highlighted the potential effect of negative framing on intergenerational reciprocity. Using laboratory games, Bang et al. (2017) found that while individuals behaved generously when they perceived others as passing benefits on to them, participants passed 'burdens' on to future participants if previous participants' actions were framed as selfish. In this case, reflecting on The Troubles may have reminded participants of the burdens created by actions of the past generation and supressed the tendency to behave generously towards future generations.

The study instead observed that the demographic variables of education, gender and age had significant associations with pro-environmental attitudes and behaviours. Those educated above GCSE level held stronger pro-environmental attitudes, which is in line with previous research that has found a strong positive correlation between education and pro-environmental attitudes (Lee et al., 2015; Fisher et al., 2018). While education significantly predicted pro-environmental attitudes, it was insignificant in relation to EBS scores, implying those with higher educational attainment held stronger pro-environmental attitudes, but this did not translate into pro-environmental behaviour. In contrast, previous research has found education to be strongly correlated to both pro-environmental attitudes and behaviour (Meyer, 2016), possibly because educated people have greater formal knowledge of environmental issues (Higgins et al., 2020).

Women participants held stronger pro-environmental attitudes than men and were more likely to engage in pro-environmental behaviours than men. This finding concurs with the majority of extant research which suggests that women report higher levels of pro-environmental attitudes and behaviour (Zelenzy et al., 2000; Xiao and McCright, 2015), due to what appears to be core differences in personality (Desrochers et al., 2019). However, more mixed findings have also been produced (Vincente- Molina et al., 2018).

Age significantly influenced EBS scores, implying that being older increases pro-environmental behaviour, although this effect was not seen in the regression model. Possible age-related differences in environmental behaviour include a culture of frugality within older generational cohorts or alternatively due to older individuals being more educated (Gray et al., 2019). Further analysis is needed to determine the mediating impact of age on pro-environmental behaviour.

When drawing conclusions, it bears noting that the sample was not entirely representative of the Northern Irish population; therefore, generalizability may be impaired. In particular, women and those from a Roman Catholic background were overrepresented (Table 1) while the average income of the sample was 35% per cent higher than the Northern Ireland average (NISRA, 2020). The use of The Troubles as a representation of a difficult past means findings should be generalised to other post-conflict societies with caution. The final sample was split unequally between conditions (control = 56.2%, experimental = 43.8%), reducing validity somewhat (Lenth, 2001). The experimental prompt's sensitive nature may have caused more participants in the experimental condition to exit the survey early.

The limitations of this study offer a useful starting point for future research. Firstly, this study did not measure mediating variables which have been found to be influential in previous research such as gratitude (Markowitz, 2012; Barnett et al., 2021), regret

(Anderson et al., 2012), guilt (Harth et al., 2013), inspiration (Watkins and Goodwin, 2020) and pride (Bissing-Olson, 2016). Expanding research to include these could provide a more in-depth understanding of the factors at play when reflecting on negatively framed events. Secondly, whilst reflection is a realistic priming effect and has been used in previous research where change was observed (Kahn et al., 2017; Watkins and Goodwin, 2020), the use of recall-based reflection may not have been sufficient to influence attitudes and behaviours. Future studies should consider employing in vivo methods such as vivid presentations, which generate larger effect sizes compared to recall-based methods (Ma et al., 2017).

This study expands our understanding of how reflection and negatively framed behaviours of past generations affect intergenerational reciprocity and pro-environmental attitudes and behaviours. This exploratory research offers an answer to the novel question 'what does thinking about a difficult past mean for a sustainable future?'. Regardless of findings, research in this area is important to scholars and society (Schein, 2020). The answer provided by this research, in the context of Northern Ireland, is that reflecting on a difficult past does not influence pro-environmental attitudes or behaviours any more than reflecting on a positive past. Secondly, this research provides an insight into the pro-environmental attitudes and behaviours of the Northern Irish population. Finally, the importance of researching methods which reduce the temporal distance between current and future generations has been emphasised. The present study has practical relevance for environmental messaging in Northern Ireland, namely that appealing to key demographics of education, gender and age may be more effective than including the narrative of The Troubles' in promoting pro-environmental attitudes or behaviours in Northern Ireland. The question underpinning this study is how the present generation can be motivated to change for the good of future generations. In the backdrop of profound environmental crisis, research exploring the drivers of intergenerational reciprocity is needed more than ever.

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