**Title:**

Solution focussed stories are more effective than catastrophic stories in motivating pro-environmental intentions

**Running title:** Solution v catastrophic focus

**Author:**   
Denise Baden

Professor of Sustainable Business  
Southampton Business School   
University of Southampton

Email: [D.A.Baden@soton.ac.uk](mailto:D.A.Baden@soton.ac.uk)

Tel: +44 (0)23 8059 8966

**Keywords:** Climate change communication; education-entertainment; edutainment; narrative transportation, storytelling; sustainability

**Abstract**

A key challenge for climate change communication is to find ways to engage the wider public in pro-environmental behaviours and support for climate change mitigation policies, without triggering avoidance or reactive responses. This study reports on the effectiveness of incorporating environmental and climate change themes in short stories. In particular, responses to short stories that have a solution focus were compared with stories that have a catastrophic focus. Readers’ reflections (N = 91) were analysed to determine emotional, cognitive and behavioural responses to the stories. Results indicate that stories with a solution focus were more effective in motivating pro-environmental intentions than catastrophic stories. Analysis of textual data indicated that being able to identify with a positive role model who provides examples of pro-environmental behaviours that are easily imitable was inspirational for most readers. Some readers were motivated by catastrophic stories to engage in climate change mitigation behaviours, but many reported feelings of futility and low self-efficacy and ‘switched off’ from catastrophic stories due to their negativity.

**Keywords:** Climate change communication; edutainment; solutions, storytelling; sustainability.

**Introduction**

There is a growing consensus among scholars that the content, affective valence and framing of information are key factors affecting what kinds of attitudes, emotions and behaviours climate change communications may trigger. This study reviews the literature on climate change communication with a particular focus on the relative effectiveness of communications that evoke either positive or negative emotions, or a solution focus or catastrophic focus. We then present a qualitative study that compares readers’ responses to environmental and climate change themes in short stories that either include a solution focus or catastrophic focus. The aim of the study is to determine how the framing of information relating to climate change and sustainable development (solution focus or catastrophic focus) affects motivations to engage in pro-environmental behaviours (PEBs). An associated aim is gain insights from readers’ reflections about underlying psychological mechanisms that mediate responses to variously framed climate change stories.

**Emotions and pro-environmental behaviours (PEBs)**

There is mixed evidence relating to whether positive or negative emotions are more effective in eliciting PEB. Many studies have reported positive associations between hope and increased PEBs (Feldman & Hart, 2016; Myers, Nisbet, Maibach, & Leiserowitz, 2012; Ojala, 2012; Smith & Leiserowitz, 2014; Stevenson & Peterson, 2016). Hope also relates to levels of cynicism about human nature such that positive views of humans were associated with hope and optimism whereas pessimistic views of human nature were associated with feelings of despair often accompanied by feelings of powerlessness which in turn is associated with lower action tendencies (Wang, Leviston, Hurlstone, Lawrence, & Walker, 2018).

O’Neill, Boykoff, Niemeyer, and Day (2013) explored associations made between iconic images of climate change and PEBs and found that images that showed the negative impacts of climate change, such as floods, promoted beliefs that climate change is an important issue, but also undermined self-efficacy i.e. a sense that they could make a difference through their behaviour. In contrast, images that showed solutions such as solar panels, wind farms, electric cars and green lifestyle choices promoted feelings of self-efficacy. O Neil et al. explain this by drawing on Whitmarsh et al’s (2011) concept of carbon capability, as the images prompt awareness of behaviours individuals can adopt to mitigate climate change. The authors conclude that the current predominantly catastrophic representations of climate change may be counterproductive, because although they raise the salience of the issue, fear is an ineffective tool to mobilise PEBs when self-efficacy is low.

On the other hand, Hornsey and Fielding (2016) report that hope and optimism led to complacency and reduced climate risk perception, which in turn was associated with lower PEBs, whereas more pessimistic communications raised climate change risk perceptions and PEB intentions. However, Smith and Leiserowitz (2014) found that worry was the strongest predictor of global warming policy support, whereas the stronger emotion of fear was not. Hastings, Stead, and Webb (2004), in a review of fear appeals in social marketing, claim that most studies that associated fear with PEBs occur in laboratory settings, whereas in more eco-valid settings, the positive correlations between fear and PEBs diminish or even give rise to unintended reactions such as excessive anxiety or habituation and desensitization. Lowe et al. (2006) further report that fear effects can be short lived. Leviston et al (2014) propose that distinguishing between high-arousal (approach) emotions such as anger and low-arousal (avoidant) emotions such as despair may clarify some of the conflicting findings relating to associations between negative affect and responses to climate change communications.

A consistent finding is that for fear appeals to be effective, they need to be paired with solutions or communications that boost efficacy (O'Neill & Nicholson-Cole, 2009). Moser and Dilling (2004) explain this by arguing that if individuals fear that the ‘danger’ cannot be externally controlled (low efficacy) then a common response is to adopt internal control measures such as denial and avoidance. Lorenzoni, Nicholson-Cole, and Whitmarsh (2007) describe similar responses such as scepticism, externalising responsibility onto others, or apathetic fatalism and how these various internal control measures responses present a barrier to positive action. Hart (2013) similarly discusses how explicit messages to engage in pro-social or sustainable behaviours can backfire due to reactance or attempts to mitigate fear responses.

Responses also vary according to beliefs, such that those who don’t believe in climate change tend to ‘switch off’ when faced with climate change communications (Leviston & Walker, 2012; Whitmarsh, 2009). Leviston and Walker (2012) find that, for those that do believe in human induced climate change, feelings of fear and powerlessness can be disabling, and harnessing a sense of hope and opportunity constitutes the most promising strategy to overcome disabling negative emotions.

It is thus increasingly recognised that raising fears about the environment and climate change can be counter-productive, as it can engender feelings of helplessness, fear or guilt which can lead people to actively avoid thinking about the issues and less likely to take positive action (Blackmore, Underhill, McQuilkin, Leach, & Holmes, 2013; Carter, 2011). For example, despite guilt showing an association in several studies with PEBs or climate change mitigation behaviours (Ferguson & Branscombe, 2010; Mallett, Melchiori, & Strickroth, 2013; Rees, Klug, & Bamberg, 2015), it doesn’t follow that creating guilt will prompt green behaviours because a subset of people will engage in defensive responses such as psychological distancing (Wang, Hurlstone, Leviston, Walker, & Lawrence, 2019) or motivated reasoning (Kunda, 1990). Kunda (1990) posits that motivations to avoid unpleasant emotions such as fear or guilt can be stronger than motivations to know the ‘truth’ or accuracy. Thus if acknowledging climate change creates overwhelming anxiety, or if it leads to a sense of moral duty to change behaviour in ways we may not desire (such as avoiding air travel or going vegan) we may be motivated to deny the problem rather than dealing with the implications of our own behaviour or the unpleasant emotions it may elicit.

Chapman, Lickel, and Markowitz (2017) sum up the complexity of the problem by commenting that one can’t simply pull an emotional ‘lever’ and expect a specific response as people respond in such a variety of ways to the same stimuli.

**Role Models**

Carpenter (2019) proposes that motivated reasoning can be overcome by hiding messages within an engaging narrative - also known as education-entertainment or ‘edutainment’. Messages may be more easily accepted when the reader/viewer identifies with characters who live by their values (Slater, Rouner, & Long, 2006). Positive role models were found to be more effective than cautionary tales in motivating ethical behaviour in the context of education (Baden, 2014), with effects mediated by self-efficacy and descriptive norms. Similarly, examples of elevation i.e. positive role models’ heroic behaviours etc. can inspire others to emulate their example (Haidt, 2003). This was confirmed in research showing the benefits of exposure to positive role models in terms of developing more sustainable/ethical mind-sets and more creative thinking (Baden, 2013; Baden & Parkes, 2013). In the field of constructive journalism, it has also been found that news stories that were positively framed or had a solution focus gave rise to more pro-social and pro-environmental attitudes and intentions than those that were negatively framed or had a catastrophic focus (Baden, McIntyre, & Homberg, 2018) and that positivity of affect was strongly linked to positive motivation to take action.

In summary, there are many reasons to believe that climate change communications with a solution focus may be more effective than the typical catastrophic focus, especially for those who employ defensive reactions to climate change communications. While many studies have explored emotional correlates of PEBs or support for climate change policies, we have found no studies that directly compare solution-focus versus catastrophic-focus in narratives. The complexity and nuances of responses to communications relating to climate change make a case to adopt a more holistic qualitative approach that enable participants to reflect on their own emotional, cognitive and behavioural responses to contextually presented information. This study asks readers to reflect on and compare their responses to two short stories which incorporate a solution focus with two stories that have a catastrophic focus.

**Methodology**

**Sample**

Respondents (N=91) were recruited via a Facebook advert and offered £10 to take part in the research. As it is of most use to engage those who are not already especially green, the advert targeted audiences with high-resource hobbies such as motor-racing and shopping, and did not mention that the stories had an environmental theme. The sample comprised 72 female respondents and 19 male respondents, with a fairly equal age spread ranging from 18 – 71, with the highest proportion (27%) in the 18-24 age range.

**Ethical information**

Ethical approval was obtained from the University Ethics Committee. The research protocol complied fully with the British Psychological Society Code of Ethics and Conduct. Informed consent was provided by respondents prior to taking part and no identifying information was collected.

**Procedure**

Respondents read four stories that included environmental themes as part of an online study, two with a solution focus and two with a catastrophic focus (order counterbalanced).

The stories were each about 400 words:

* *‘Blue Planet collection’* by Jane Roberts (solution focus): This story describes a boy who, inspired by the TV series ‘Blue Planet’ takes it upon himself to collect plastic.
* ‘*Warrior*’ by F.E. Clarke (solution focus): This is seemingly about an eco-terrorist, but the twist is that the protagonist is planting a flower seed bomb, not a real bomb.
* *‘Too Late’* by Ros Collins (catastrophic focus): this is about an old lady trapped in her flat by a flood, who is eventually rescued, but her canary in a cage drowns.
* *‘Sun’* by Wiebo Grobler (catastrophic focus): This is about the end of the world due to climate change.

After reading each story, respondents were asked to rate it on a 5 part Likert scale in terms of whether it had a catastrophic focus (1) or solution focus (5). Results confirmed that readers found that ‘*Blue Planet Collection’* (M = 4.12, SD = 1.10) and ‘*Warrior’* (M = 3.6, SD = 1.18) both had a solution focus, and ‘*Too Late’* (M = 1.50, SD = .69) and ‘*Sun’* (M= 1.18, SD = .50) both had a catastrophic focus.

Respondents were then asked how each story made them feel directly after reading it:

Please list any thoughts that you had while reading the story. How did it make you feel? Did it make you switch off or inspire you to action?

There was a timer to ensure that the readers spent enough time reading the story. Finally once respondents had read all four stories they were asked to explicitly reflect which types of story most motivated green behavioural intentions and attitudes:

*Our research is interested in how people respond to environmental or climate change messages in stories. Specifically how responses differ depending on whether the story has a catastrophic focus or solution focus. We are interested in your reflections on your emotional responses to the stories and which ones were most likely to inspire greener behaviour and attitudes or which may switch you off or have little effect. Which inspired positive emotions and how did these affect your behaviours and attitudes? Did any elicit negative emotions, and how did these affect your attitudes and behaviours and engagement?*

**Analysis**

Some respondents wrote just a few words, and others several paragraphs after each story, but the most typical response was one to two sentences for each story and two to three sentences for the final reflection. Two coders coded for themes with a focus on how the story made the reader feel. Coders were instructed to ignore quotes that just described or evaluated the story ‘the story was sad’, but include quotes revealing emotional responses e.g. ‘it made me feel sad’. The analysis was inductive, in that the coders were open to emerging insights, and the first themes emerged directly from the data (Table 1). Individual responses could incorporate several themes so the total number of themes is greater than the sample size. In a second coding process, coders identified comments that explicitly stated or implicitly implied the stories would affect future behaviour, and what emotion or aspect of the story appeared to mediate between the story and intention (Table 2). For both of the coding processes, there was strong consensus on the key themes, and differences mainly occurred when one quote incorporated several themes. Such differences were resolved in discussion.

**Results**

**Solution-focused stories**

Table 2 shows that for the solution-focused stories there were numerous comments that linked aspects of the story to intentions to adopt more PEBs. In particular, many respondents commented that the character acted as an inspirational positive role model:

*The story about the woman taking direct action made me want to do the same, so was certainly the most effective perhaps because I too am a housewife and could cope with doing what she did*. *(Respondent #91)*

*I wanted to follow the example of the little boy. (Respondent # 61)*

For many, the key inspirational factor was that the stories gave specific examples of green behaviours that were achievable for readers:

*It has inspired me to be on the lookout for plastic that has been thrown away in nature and to buy products with the least plastic wrapping. (Respondent #65)*

*It gave me a simple option that I could take to do something positive for the environment. It made me think about spreading wildflower seeds myself. (Respondent #4)*

A related mediator was that the stories increased self-efficacy, making readers feel their actions could make a difference:

*It made me want to help. It made me feel happy as it shows everyone can make a difference. (Respondent #45)*

For many, the positive tone also played a part, seeming to link to feeling more action-oriented:

*Made me feel positive and active. (Respondent #19)*

*The twist at the end was really good and left me with a positive feeling and the desire to do more to help the environment. (Respondent #85)*

Another less common mediator was the normative influence of seeing others act, and also a sense of duty towards the younger generation:

*It makes older people feel responsible and that if a child can help then they should too. (Respondent #75*)

**Catastrophic focus stories**

In contrast, the catastrophic stories seemed less likely to explicitly motivate PEBs. Only three respondents explicitly made a link between the fear or anxiety that the stories provoked and intentions to adopt more PEBs:

*I feel a bit of anxiety to be reminded of the constant threat of climate change, and inspired to pick up the slack in my life e.g. recycle more, drive less, go back to cutting out animal products. (Respondent #36)*

Three also implicitly suggested that fear might be a motivator:

*Instead of showing people destroying the earth and what we have, it showed how nature can destroy it! This causes fear for me as it is something that is not within our control, unless we start acting now! (Respondent #13)*

A couple indicated that they were emotionally engaged by the catastrophic stories, but there was no explicit link to an intention to take action:

*The one about the earth drying up was the most affecting for me. (Respondent #67)*

The most prevalent response to the catastrophic stories was the comment that they raised awareness of the risks and consequences of climate change, but this awareness was mostly quite passive and did not appear to be explicitly linked to behaviour they plan to do as a result. Rather, awareness of the risks seemed to prompt a sense that something ‘should be done’ rather than explicitly saying ‘I now will do more’. For example:

*The issue of human driven climate change is something that has required strong action for some time, and we should be collectively ashamed of our lack of response to this situation. (Respondent #84)*

*It made me feel as though these dangers were imminent and that I should be worrying about them. (Respondent #90)*

Equally prevalent though were responses to catastrophic stories that indicated a *lack* of motivation to take action, and in most cases this was mediated by low self-efficacy:

*I felt a little helpless because I know this sort of thing will be more likely in the future, yet there is little action I can take this minute to prevent it. (Respondent #26)*

*I noticed for myself that this conjured a hopeless feeling and that there is no point in trying to slow global warming. (Respondent #90)*

Many also reacted against the more catastrophic stories with comments referring to a dislike of feeling manipulated:

*It was obvious that the story was an allegory for climate change and mentioning this specifically made me feel somewhat manipulated. It didn't inspire me to action. (Respondent #38).*

There were several indications of reactance against the story’s negativity:

*I found the first story felt like moaning, and that irritated me. (Respondent #16)*

This connection between the catastrophic stories and not being inspired to action were often mediated by the negative emotions such stories induced or a desire to avoid unpleasant feelings of fear:

*It made me feel bleak, a bit hopeless, it's very dark. Didn't leave me with good feelings or particularly inspired to change or do things differently. Just depressed! (Respondent #20)*

*This was very frightening and negative. It made me angry and I switched off. I felt a bit manipulated by the author using fear to make me care about climate change. (Respondent #25)*

**Comparison of solution- and catastrophic-focused stories**

The final question asked respondents to reflect upon which types of stories were most likely to inspire PEBs. The majority were clear that the solution-focused stories were most effective for them, most explaining their view by referencing the greater sense of self-efficacy enabled by solution-focused stories, in contrast to the fatalism often resulting from catastrophic stories:

*I’m much more inspired by stories with a positive tone/ solution focus. They inspire change, whereas sometimes the negative stories almost have you accepting that that is our fate. (Respondent #47)*

*I am most inspired by realistic people with emotions and good character development or at least something striking about their character that I can empathise with. The positive solution-focused tone inspires me the most as I can emulate the actions of those characters. (Respondent #85)*

Many also reported that catastrophic stories can be counter-productive as they lead to switching off:

*The little boy was heart-warming and endearing and relatable. Whereas with regards to some of the others, when too negative I think people tend to switch off because we've been desensitized by constant barrages of negative stories in the media, we’ve become immune to shock tactics. (Respondent #52)*

*I believe that the less focus on a catastrophic event, the more likely I am to feel overwhelmed with guilt and actually do something about my feelings e.g. acting greener. However overwhelmed with catastrophism makes me feel guilty and stubborn and prevents me from being inspired to act again. (Respondent #53)*

For some, the positivity of the solution-focused stories helped to engage them:

*Positive solution-based stories make me feel more positive and wanting to do something. Negative, it's the end of the world, bad stuff happening stories make me panic and hide away from the issues. (Respondent #77)*

In contrast, very few thought catastrophic stories would be more effective, although four did say that a mix of both is optimal:

*I think the story with the small child, actively doing something inspired me most. It gave me a clear idea of what I could do to help, although I feel it skimped on why I should be helping. The most emotional story for me was ‘Sun’, and I think perhaps having a combination of a catastrophic event written as that, somehow combined with a solution focused element would have inspired me more to make a difference. (Respondent #28)*

Of the five that did say that the catastrophic stores were the most effective in motivating PEBs, the reasons seemed to be due to raising awareness and fear of the consequences of climate change:

*The solution story is nice as it shows that all is not lost and with young children seeing the problems older generations can follow suit. On the other hand the catastrophic focus is likely to scare people into taking action which I think would change behaviours in a more long term way (Respondent #17)*

One person also raised concerns that solution focus could lead to complacency:

*More of a solution focused story doesn't really state what may happen and that could more likely lead to apathy and complacency. (Respondent #2)*

**Discussion**

These reflections from readers exposed to variously framed stories relating to climate change allow a greater understanding of the psychological mechanisms employed when faced with environmental messages and themes. Results indicated that for the vast majority, solution-focused stories were deemed to be most effective in motivating PEBs. For most, these connections between the story and the intended behaviour were explicit and were often mediated by the character being seen as a role model. Role models were especially effective when they were relatable to and carrying out actions that the reader could easily imitate. Consistent with the literature (D. Baden, 2014; Leviston, Price, & Bishop, 2014; O'Neill & Nicholson-Cole, 2009), was that a key mediator was self-efficacy, as solution-focused stories made readers feel that they could make a difference. Similarly, 33 respondents believed that solution-stories were the most effective in motivating PEBs compared to five who thought catastrophic stories were most motivating and four who thought a mix of solution focus and catastrophic focus was optimum. Only one respondent thought that stories that elicited hope or solutions would give rise to complacency, which is contrast to the results reported by Hornsey and Fielding (2016).

Catastrophic stories gave rise to fewer comments that linked aspects of the story to motivations to act. Importantly, only three of these comments explicitly linked the story to intentions to adopt more PEBs. In most cases the connection was implicit, or referred to how it may make others act, or comments suggested that the stories raised awareness of the risks, but did not explicitly mention personal intentions to take action. The predominant sense from such comments was that the story made readers aware that something should be done. The tone was mostly passive, lacking the energy and explicit intentions characteristic of the solution-focused stories.

There was also strong evidence that catastrophic stories are more often counter-productive with more comments about switching off or lack of inspiration (n=39) as a result of the negativity of the stories than comments indicating being motivated by them (n=21). Leviston et al. (2014) raised the possibility that high-arousal negative emotions such as anger may lead to approach rather than avoidance. This contention was not supported by the results of this study, indeed, whenever the emotion of anger was mentioned by readers, it was linked to ‘switching off’. The literature reports mixed results with reference to whether PEBs can be elicited through fear, and this study found that more readers showed avoidant responses due to a desire to avoid fear and negative emotions than were inspired to act by fear. There were also numerous indications of reactance, often in the form of a reaction against being manipulated by fear or preached at, but also more subtly by ‘blaming the victim’ or being irritated by the negativity of the stories. The literature also reports mixed results relating to guilt, and of the few that mentioned guilt in this study, it appeared that a little goes a long way – minor guilt prompted by seeing others engage in PEBs giving rise to the sense one ‘ought’ to do the same seemed to be effective, whereas the feeling that one is being manipulated to feel guilt by catastrophising stories had the opposite effect.

These subtleties give substance to Chapman et al. (2017) contention that one can’t simply pull an emotional lever and expect the desired emotional response. In particular, what emerges from these reflections that helps to explain the seemingly contradictory results in much the climate change communication literature, is that while those that that engage in PEBs may be motivated by worry or guilt, it doesn’t follow that eliciting fear or guilt will give rise to PEBs due to reactance against being manipulated and avoidant responses. The key factor, consistent with much of the literature is self-efficacy, which is especially effective when coupled with an inspirational role model.

**Limitations**

It is possible that there is some conflation between the tone of the stories (positive/negative) and whether the story had a solution or catastrophic focus. Whereas one solution-focused story had a dark tone, the other was very positive, but both of the catastrophic stories had a negative tone. Although the comments generally make it clear which aspect of the story (tone or focus) is being responded to, it is likely that some conflation occurred. Future research could usefully examine responses to stories that varied across two dimensions to further investigate how both tone and focus affects responses.

The study also did not consider the extent to which pre-existing beliefs relating to climate change may affect responses, which would another fruitful area to explore.

Another limitation is that some responses may occur at a sub-conscious level and not be available for reflection. Additionally this study explored immediate responses, and it would be interesting to explore which aspects of the story and responses to the story persist over time and which diminish over time.

**Implications for practice**

It is concluded from this study that stories that incorporate environmental themes in an engaging narrative have great potential for motivating PEBs, but care should be taken to limit the evocation of negative emotions such as fear, guilt or anxiety. Whereas catastrophic tales raise awareness of the risks and negative consequences of climate change, more respondents reported ‘switching off’ than reported being motivated to adopt more PEBs. In contrast, no-one reported switching off in response to stories with a solution-focus. This study found that the most effective stories for motivating PEBs, are stories that include characters who are attractive and easy to relate to who act as role models adopting PEBs that are easily imitable.

**Acknowledgements**

Thanks are due to the authors of the short stories and to the respondents who took the time to take part in the study.

**Author Disclosure Statement**

No competing financial interests exist.

**References**

Baden, D. (2013). No more ‘preaching to the converted’: embedding ESD in the Business School curriculum through a service-learning initiative. In R. Atfield, Kemp, P. (Ed.), *Enhancing education for sustainable development in business and management, hospitality, leisure, sport, tourism*. York: Higher Education Academy.

Baden, D. (2014). Look on the bright side: a comparison of positive and negative role models in business ethics education. *Academy of Management Learning & Education, 13*(2), 154-170. doi:10.5465/amle.2012.0251

Baden, D., McIntyre, K. E., & Homberg, F. (2018). The impact of constructive news on affective and behavioral responses. *Journalism Studies*, 1-20. doi:<https://doi.org/10.1080/1461670X.2018.1545599>

Baden, D., & Parkes, C. (2013). Experiential learning: Inspiring the leaders of tomorrow. *Journal of Management Development, 32*(3), 295-308. doi:<http://www.emeraldinsight.com/fwd.htm?id=aob&ini=aob&doi=10.1108/02621711311318283>

Blackmore, E., Underhill, R., McQuilkin, J., Leach, R., & Holmes, T. (2013). Common Cause for Nature: values and frames in conservation. In. UK: Public interest Research Centre.

Carpenter, C. J. (2019). Cognitive dissonance, ego-involvement, and motivated reasoning. *Annals of the International Communication Association, 43*(1), 1-23.

Carter, D. M. (2011). Recognizing the role of positive emotions in fostering environmentally responsible behaviors. *Ecopsychology, 3*(1), 65-69.

Chapman, D. A., Lickel, B., & Markowitz, E. M. (2017). Reassessing emotion in climate change communication. *Nature Climate Change, 7*(12), 850.

Feldman, L., & Hart, P. S. (2016). Using political efficacy messages to increase climate activism: The mediating role of emotions. *Science Communication, 38*(1), 99-127.

Ferguson, M. A., & Branscombe, N. R. (2010). Collective guilt mediates the effect of beliefs about global warming on willingness to engage in mitigation behavior. *Journal of Environmental Psychology, 30*(2), 135-142.

Haidt, J. (2003). Elevation and the positive psychology of morality. *Flourishing: Positive psychology and the life well-lived, 275*, 289.

Hart, P. S. (2013). 18 Boomerang effects in risk communication. *Effective Risk Communication*, 304.

Hastings, G., Stead, M., & Webb, J. (2004). Fear appeals in social marketing: Strategic and ethical reasons for concern. *Psychology & Marketing, 21*(11), 961-986.

Hornsey, M. J., & Fielding, K. S. (2016). A cautionary note about messages of hope: Focusing on progress in reducing carbon emissions weakens mitigation motivation. *Global Environmental Change, 39*, 26-34.

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin, 108*(3), 480.

Leviston, Z., Price, J., & Bishop, B. (2014). Imagining climate change: The role of implicit associations and affective psychological distancing in climate change responses. *European Journal of Social Psychology, 44*(5), 441-454.

Leviston, Z., & Walker, I. (2012). Beliefs and denials about climate change: An Australian perspective. *Ecopsychology, 4*(4), 277-285.

Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. *Global Environmental Change, 17*(3-4), 445-459.

Lowe, T., Brown, K., Dessai, S., de França Doria, M., Haynes, K., & Vincent, K. (2006). Does tomorrow ever come? Disaster narrative and public perceptions of climate change. *Public Understanding of Science, 15*(4), 435-457.

Mallett, R. K., Melchiori, K. J., & Strickroth, T. (2013). Self-confrontation via a carbon footprint calculator increases guilt and support for a proenvironmental group. *Ecopsychology, 5*(1), 9-16.

Moser, S. C., & Dilling, L. (2004). Making climate hot. *Environment: Science and Policy for Sustainable Development, 46*(10), 32-46.

Myers, T. A., Nisbet, M. C., Maibach, E. W., & Leiserowitz, A. A. (2012). A public health frame arouses hopeful emotions about climate change. *Climatic Change, 113*(3-4), 1105-1112.

O'Neill, S., & Nicholson-Cole, S. (2009). “Fear won't do it” promoting positive engagement with climate change through visual and iconic representations. *Science Communication, 30*(3), 355-379.

O’Neill, S. J., Boykoff, M., Niemeyer, S., & Day, S. A. (2013). On the use of imagery for climate change engagement. *Global Environmental Change, 23*(2), 413-421.

Ojala, M. (2012). Hope and climate change: The importance of hope for environmental engagement among young people. *Environmental Education Research, 18*(5), 625-642.

Rees, J. H., Klug, S., & Bamberg, S. (2015). Guilty conscience: motivating pro-environmental behavior by inducing negative moral emotions. *Climatic Change, 130*(3), 439-452.

Slater, M. D., Rouner, D., & Long, M. (2006). Television dramas and support for controversial public policies: Effects and mechanisms. *Journal of Communication, 56*(2), 235-252.

Smith, N., & Leiserowitz, A. (2014). The role of emotion in global warming policy support and opposition. *Risk Analysis, 34*(5), 937-948.

Stevenson, K., & Peterson, N. (2016). Motivating action through fostering climate change hope and concern and avoiding despair among adolescents. *Sustainability, 8*(1), 6.

Wang, S., Hurlstone, M. J., Leviston, Z., Walker, I., & Lawrence, C. (2019). Climate change from a distance: An analysis of construal level and psychological distance from climate change. *Frontiers in Psychology, 10*.

Wang, S., Leviston, Z., Hurlstone, M., Lawrence, C., & Walker, I. (2018). Emotions predict policy support: Why it matters how people feel about climate change. *Global Environmental Change, 50*, 25-40.

Whitmarsh, L. (2009). Behavioural responses to climate change: Asymmetry of intentions and impacts. *Journal of Environmental Psychology, 29*(1), 13-23.

Whitmarsh, L., Seyfang, G., & O’Neill, S. (2011). Public engagement with carbon and climate change: to what extent is the public ‘carbon capable’? *Global Environmental Change, 21*(1), 56-65.

### Table 1. Table of themes with illustrative quotes

|  |  |  |
| --- | --- | --- |
| **Themes: solution-focused stories** | **Frequency count** | **Illustrative quote and Respondent number (#)** |
| **Positive emotions**  Hope/optimism  Amused/made me smile  Inspired/motivated  Felt happier  Positive  Heart-warming/uplifted  Interested  Feel good/pleased/joy  Active/energised/excited | 25  24  20  15  13  7  6  5  4 | *Hopeful about what kids could achieve if encouraged to use their energy sensibly. #91*  *Lovely twist. Made me feel positive and active. #20*  *This made me feel happy! It gives a hopeful tone as it is a little boy that is teaching his parents the importance of treating the environment well. #61* |
| **Attitudes/awareness**  Awareness of solutions/  thought provoking/  awareness of problem | 28 | *It did make me think of the actions we could all take to reduce waste and damage to sea life. #86*  *Easy way to make people aware that plastics are damaging our oceans & ocean wildlife. #39* |
| **Normative aspects**  Positive role model/inspirational character  Injunctive norm ‘should’ do more | 25  6 | *It was a very humorous story with an excellent message of childhood innocence and is very inspiring for others to follow David’s example. #73*  *It inspired me to do more, as a child is doing more, so I feel like I should be. #75* |
| **High self-efficacy**  Anyone can make a difference  Empowered | 16  4 | *Felt people can make a difference. #25*  *Inspired and empowered by positive action. #83* |
| **Misc. negative**  Cynical/fatalistic | 2 | *Wistful that in reality this sort of action achieves little. #91* |

|  |  |  |
| --- | --- | --- |
| **Themes catastrophic-focused stories** | **Frequency count** | **Illustrative quote** |
| **Positive emotions**  Hope  Happy | 2  2 | *It made me feel hopeful that the women would be OK. #78*  *It makes me feel happy as there are people who will risk their lives to help others. #45* |
| **Negative emotions**  Sad  Anxious/worried/distressed/upset/alarmed  Fear/scared/panicked  Anger  Depression  Concerned/disturbed  Dark/horror  Frustration  Guilty  Bleak  Apathetic | 48  23  15  18  9  6  5  3  2  2  2 | *No not positive or inspiring just bleak and depressing sadly both of them. #8*  *A bit panicked and anxious throughout the story...I would hate to be in a similar situation. Sad for the poor bird. #2*  *Upset that humans didn't respect the Earth sufficiently to stop these scenarios from happening. #84*  *Irritation, angry, sad #21* |
| **Attitudes/awareness**  Awareness of problem/ thought provoking/ | 5 | *This short story made me think about the dangers of global warming and climate change. #90* |
| **Normative aspects**  Norm of inaction | 4 | *These situations will be happening more and I genuinely think that we better get used to it because nothing or no one is doing anything about it. #33* |
| **Low self-efficacy**  Despair/futility/hopeless  Inevitability/fatalistic  Hopeless  Helpless | 10  12  7  4 | *I felt hopelessness. If the heavy rain was caused by climate change, what can we do about it? #41*  *I also felt a little helpless because I know this sort of thing will be more likely in the future, yet there is little action I can take this minute to prevent it. #26* |
| **Reactance/avoidance**  Avoidance/switch off  Felt manipulated  Propaganda/preachy/moralistic  Blame victim  Desensitised | 11  4  3  1  1 | *I felt a bit manipulated by the author using fear to make me care about climate change. #25*  *Completely made me switch off #82*  *The very negative one made me angry as I switched off as it was just difficult to process the fear the story created #19* |

**Table 2. Link between stories and pro-environmental intentions**

|  |  |  |
| --- | --- | --- |
| **Positive stories** | **Mediator** | **Number of respondents**  **mentioning theme** |
| Link between story and motivation to act | Character as role model | 17 |
| Shows what solutions are possible/solution-focus | 15 |
| Empowerment, self-efficacy | 10 |
| Positive tone linked to feeling active/creative | 11 |
| Inspiration/motivation to act – unclear mediator | 9 |
| Injunctive norm – if they can then I should | 4 |
| **Catastrophic stories** |  |  |
| Link between story and motivation to act | Anxiety/fear | 3 |
| Implicit link between story and action i.e. how it may affect others or relating to a mediator of action such as awareness | Injunctive norm (should be doing something) | 2 |
| Increases risk perception | 10 |
| Prompted by fear | 3 |
| Emotionally engaged | 2 |
| Link between story and lack of motivation or switching off from story | Low self-efficacy/fatalism | 10 |
| Felt manipulated/preached at | 9 |
| Negative emotions | 7 |
| Avoiding fear | 5 |
| Unclear mediator | 3 |
| Reactance | 5 |
| Reflective comparisons between solution-focussed and catastrophic focus | Solution-focus more effective due to higher self-efficacy | 15 |
| Solution focus better due to high self-efficacy. Catastrophic focus less effective due to switching off/reactance | 11 |
| Solution-focus better than catastrophic focus as more positive | 7 |
| Need a mix of both | 4 |
| Catastrophic focus more effective due raised awareness/fear of consequences to fear | 4 |
| Catastrophic more effective as solution focus leads to complacency | 1 |