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# The effects of constructive television news reporting on prosocial intentions and behavior in children: The role of negative emotions and self-efficacy

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**Abstract:** To reduce negative emotional responses and to stimulate prosociality, constructive journalism promotes the inclusion of positive emotions and solutions in news. This study experimentally tested whether including those elements indeed increased prosocial intentions and behavior among children, and whether negative emotions and self-efficacy are mediators in this regard. To this end, children (N = 468; 9 to 13 years old) were exposed to an emotion-based, solution-based, or non-constructive news video. Results showed that emotion-based and solution-based news reduced children's negative emotions compared to non-constructive news. No direct effects for prosocial intentions were found, but solution-based news led to less prosocial behavior (i.e., money donated) than emotion-based and non-constructive news. Moreover, negative emotions served as a mediator, self-efficacy did not. The more negative emotions were elicited by a news story, the higher the prosocial intentions and behavior. In conclusion, a constructive style of reporting helps to reduce children's negative emotional responses but subsequently hinders prosociality.

**Keywords:** constructive journalism, prosocial behavior, self-efficacy, emotions, children, news

## 1 Introduction

A core function of journalism is to disseminate important and credible information that helps people cope with their environment. This implies, among other

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things, that news should warn people about potential threats (e.g., Entman, 2005; Gyldensted, 2015). Therefore, reporting about negative events is inevitable. However, content analyses indicate that news is biased towards the negative because it is dominated by stories about sensationalist events in society – such as criminality, disasters, and violence – whereas other topics that are important with respect to the democratic function of news – such as politics and economics – are less present (e.g., Arbaoui, De Swert, and Van Der Brug, 2020; Hendriks Vettehen, Nuijten, and Beentjes, 2005). Haagerup (2014) argues that larger and larger numbers of audiences are turning their backs on traditional news reporting because of this negativity bias in news. This has worrisome consequences for the extent to which citizens are informed, and prevents the changes and progress that are needed for society to benefit (Haagerup, 2014). Thus, journalists need to find alternative ways to report on negative news events.

Not only is it important to better serve adults as news consumers but also children, who are increasingly seen as a target group for news (cf. Kleemans, De Leeuw, Gerritsen, and Buijzen, 2017; Walma van der Molen and De Vries, 2003). Following the news can increase children's political and issue awareness (Van Deth, Abendschön, and Vollmar, 2011) as well as their prosocial intentions and behaviors (De Leeuw, Kleemans, Rozendaal, Anschütz, and Buijzen, 2015). A problem, however, is that children do not always react well to the negative nature of news (Alon-Tirosh and Lemish, 2014). Exposing children to negative news can elicit negative emotions and anxiety-related behaviors (e.g., Buijzen, Walma van der Molen, and Sondij, 2007; Cantor and Nathanson, 1996), which, in turn, can hinder their willingness to follow the news (Alon-Tirosh and Lemish, 2014). Moreover, negative news may trigger 'downward spirals' of negative emotions, which may cause feelings of powerlessness, discouraging children to act in a prosocial manner (cf. Garland et al., 2010).

A few studies have investigated how children's negative emotional responses to news can be reduced by adapting news reporting to the needs of children (e.g., Kleemans, De Leeuw et al., 2017; Kleemans, Schlindwein, and Dohmen, 2017; Walma van der Molen and De Vries, 2003). However, how news can encourage children to contribute to society is less clear. There is thus a need to investigate ways of promoting children's prosocial behavior, defined as "voluntary actions undertaken to benefit others" (Caprara and Steca, 2005, p. 192), and their prosocial intentions – that is, their commitment to undertake prosocial behavior in the future – via news. This study will provide insight into this.

## Constructive journalism

A promising way of informing children about negative events while reducing negative effects on emotions and, at the same time, promoting prosociality, is through constructive journalism – a recently emerging form of news reporting based on positive psychology (Gyldensted, 2015; McIntyre, 2015). While adhering to journalism's core functions, constructive journalism aims to include a positive perspective when reporting about negative events in order to energize people to contribute to society. Prominent elements of constructive journalism are the inclusion of possible solutions (solution-based approach) and positive emotions such as elevation and hope (emotion-based approach) in news items (McIntyre, 2015; McIntyre and Gyldensted, 2017). As will be explained in more detail later, those elements can, for example, broaden someone's thought-action repertoire and stimulate approach behavior (cf. Fredrickson, 2001) or provide useful examples of how people can act on their beliefs (cf. McIntyre, 2015). Both are expected to encourage, among other things, prosociality in the audience.

Kleemans, De Leeuw, et al. (2017) provide preliminary support for the beneficial effects of constructive news reporting on children. They found that children who read a constructive version of a news story (including a combination of emotion-based and solution-based information) experienced lower levels of negative emotions and more engagement with the story than children who read a non-constructive version. In another study, Kleemans, Schlindwein, and Dohmen (2017) found that children who watched constructive news (again including both emotion-based and solution-based elements) showed a smaller decrease in positive emotions and a smaller increase in negative emotions than children who watched non-constructive news. In addition, discussing constructive news (but not non-constructive news) with peers led to more prosocial intentions.

Although the two studies by Kleemans, De Leeuw, et al. (2017) and Kleemans, Schlindwein, and Dohmen (2017) indicate that constructive reporting can contribute to children's prosociality, it remains unclear how exactly this works. To be more specific, both studies did not compare the effects of solution-based and emotion-based constructive news but combined the two elements in one design. Therefore, the effects of each individual constructive element remained unclear. In adults, McIntyre (2015) has investigated the effects of solution-based and emotion-based constructive news separately. Results showed that both constructive elements led to more positive effects, but that only emotion-based news led to more prosocial intentions. However, because the stories in each condition were based on different events, the results cannot be compared directly. Thus, it remains unclear which effects the two approaches of con-

structive news reporting have when being applied separately and why. Insight into this is important to advance theory on constructive journalism. Moreover, it can inform news producers and journalists, thereby providing value for practical applications.

Given the undesirable negative effects of news on children and the need to encourage their prosociality, obtaining knowledge about the differential effects of the two types of constructive news reporting will be beneficial in designing more effective constructive news for children, which is tailored to the needs and requirements accompanying a specific news story. The first aim of this study, therefore, is to disentangle the separate effects of solution-based and emotion-based constructive journalism in television news on prosocial intentions and behavior in children, thereby providing practitioners with valuable insights. In addition, even though some studies found that exposure to constructive news is associated with increased prosocial intentions (Kleemans, De Leeuw, et al., 2017; Kleemans, Schlindwein, and Dohmen, 2017), it is unclear what the underlying mechanisms are. Hence, this study does not only aim to be relevant for the application of constructive news but also to contribute to the theoretical understanding of the emerging domain of constructive journalism. The second aim of this study, therefore, is to test two mediators that may play a role in this regard: negative emotions and self-efficacy.

In this study, we conduct an experiment among children (9 to 12 years old) in which they are exposed to either an emotion-based, a solution-based, or a non-constructive news video (control condition) that all report about the same event, namely a clothing factory collapse in Bangladesh.

## 2 Hypotheses and research questions

### Emotion-based news and prosociality

Fredrickson's broaden-and-build theory (Fredrickson, 1998, 2001) might explain why constructive news could promote prosocial intentions and behavior (Gyldensted, 2015), namely by emphasizing the important role of emotions in this regard. The broaden-and-build theory postulates that the experience of positive emotions broadens people's thought-action repertoires, leading to approach behavior, which in turn teaches people new skills. This broadened range of thoughts and actions might be expressed in terms of prosocial intentions and behavior. Negative emotions narrow people's thinking and actions, prompting survival-oriented behavior instead of prosocial behavior (cf. Fredrickson, 1998, 2001; Garland et al.,

2010). Importantly, the narrowing of people's thinking and actions through negative emotions was found for both approach-related emotions and avoidance-related emotions (Fredrickson and Branigan, 2005). Thus, experiencing more positive and fewer negative emotions may contribute to someone's prosociality. In line with this, Higgins, Shah, and Friedman (1997) describe hope as an emotion related to a promotion focus. According to regulatory focus theory, people can have a promotion focus or a prevention focus. People who have a promotion focus are primarily concerned with growth, development and seeking positive outcomes, thereby opposing people who have a prevention focus, and are primarily concerned with safety, security and avoiding negative outcomes (Brockner and Higgins, 2001; Higgins, 1996). A promotion focus, in turn, predicts one's interest in change (Liberman, Idson, Camacho, and Higgins, 1999).

People may experience specific positive or negative emotions when they are exposed to situations in which other people express emotions (e.g., seeing someone who is happy might also increase their own feelings of happiness). Thus, being exposed to people expressing positive emotions in predominantly negative news stories might reduce negative emotional responses and increase positive emotional responses in audiences (Kleemans, De Leeuw, et al., 2017; Kleemans, Schlindwein, and Dohmen, 2017; McIntyre, 2015). Importantly, this approach does not hide any negative aspects of the reported event. It rather aims to prevent viewers from getting the impression that the event being covered is solely negative and does not allow for any positive feelings such as hope. Following the broaden-and-build theory (Fredrickson, 1998, 2001), this, consequently, may encourage prosocial intentions and behaviors. Kleemans, De Leeuw, et al. (2017) have investigated this mediating effect of emotions in news stories on prosocial intentions among children but did not find support for this. However, because the stimulus materials in their study included not only positive emotions but also solutions, further insight is needed regarding the effect of news content which is solely emotion-based. We hypothesize:

H1: Exposure to emotion-based news leads to less negative emotions in children and, as a consequence, to more prosocial intentions and behavior than exposure to non-constructive news.

## **Solution-based news and prosociality**

As outlined before, constructive news can also be solution-based (Gyldensted, 2015; McIntyre, 2015). Solution-based news might be able to stimulate prosocial intentions and behavior via increased self-efficacy, that is, "people's beliefs

about their capabilities to produce effects" (Bandura, 1994, p. 71). Solutions, as included in solution-based news, contain 'mobilizing information', which is information that helps people to act on their beliefs (McIntyre, 2015; Stanfield and Lemert, 1987). For example, news that provides information about others engaging in an issue might encourage people to engage in this issue themselves because they see what can be done (cf. De Leeuw et al., 2015). Furthermore, solution-based news might also display others performing activities that contribute to a solution. Seeing others perform these types of behaviors can increase self-efficacy through vicarious learning (Bandura, 1977) and social modeling (Pajares, Prestin, Chen, and Nabi, 2009). Bandura (1994) postulated that people who are confident about their capabilities perceive difficulties as challenges that need to be mastered rather than threats that should be avoided. Indeed, research suggests a positive link between self-efficacy and prosocial behavior (Bandura, Caprara, Barbanelli, Gerbino, and Pastorelli, 2003; Caprara and Steca, 2005). We assume that the same mechanism occurs in constructive news reporting. Therefore, we predict:

H2: Exposure to solution-based news leads to a higher level of self-efficacy and, as a consequence, to more prosocial intentions and behavior than exposure to non-constructive news.

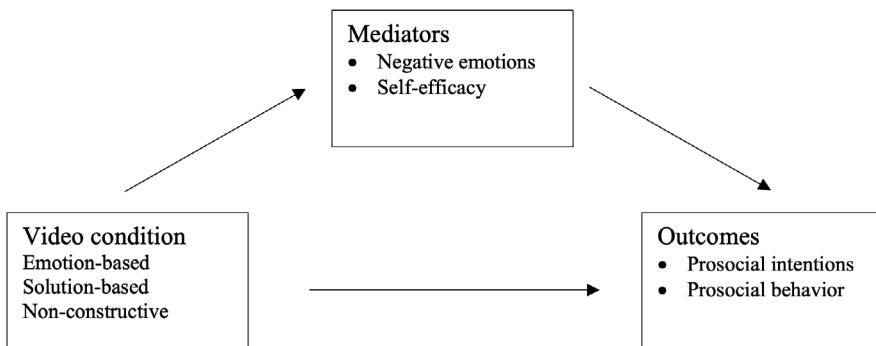
## Comparing emotion-based and solution-based news

Lastly, we aim to compare the differential mechanisms of emotion-based versus solution-based constructive news. This may further contribute to the understanding of whether and how constructive elements in news affect prosociality. To be more specific, we explore – in addition to H1 and H2 – whether self-efficacy serves as a mediator for emotion-based news, and whether negative emotions serve as a mediator for solution-based news. As this study is the first that compares the two elements of constructive journalism in one design, we cannot derive expectations in this regard. Therefore, we formulate two exploratory research questions:

RQ1: To what extent does self-efficacy function as a mediator in the relationship between exposure to emotion-based news and prosocial intentions and behavior among children?

RQ2: To what extent do negative emotions function as a mediator in the relationship between exposure to solution-based news and prosocial intentions and behavior among children?

To summarize, we test the model as presented in Figure 1.



**Figure 1:** The model tested.

### 3 Method

In our experiment we assigned classes of children to one of three conditions in which they watched either an emotion-based, solution-based, or non-constructive news video. Childrens' negative emotions were measured both before and after exposure to the video. Self-efficacy, prosocial intentions, and prosocial behavior were only measured after exposure. The line of research to which this study belongs was approved by the Ethics Committee of the Faculty of Social Sciences, Radboud University. The study was pre-registered on AsPredicted (see <https://aspredicted.org/z38pk.pdf>). The videos used as stimulus materials are available upon request.

### Participants and procedure

A power analysis conducted in G\*Power 3.1 (Faul, Erdfelder, Buchner, and Lang, 2009), with 80 % chance of detecting an effect of  $\eta_p^2 = .02$  and three groups, yielded a minimum sample size of 476 participants. Because the stimulus material included adapted fragments from a television news broadcast meant for children aged 9 to 12, only children from grade 4 to 6 were recruited. The actual sample included 468 children (grade 4:  $n = 86$ , grade 5:  $n = 193$ , grade 6:  $n = 189$ ; 54.3 % boys;  $M_{age} = 10.74$ ,  $SD_{age} = 0.92$ ) from six schools in the south(east) of the Netherlands. 458 children were born in this country, while 10 children were born

elsewhere. Active consent was obtained from schools and children, and passive consent was obtained from parents. Only one of the parents indicated that their child was not allowed to participate. In addition, six children indicated that they did not want to participate in the experiment.

Each class was pseudo-randomly assigned (checking for an equal distribution of participants per condition and class level per condition) to either the emotion-based ( $n = 183$ ), the solution-based ( $n = 150$ ), or the non-constructive condition ( $n = 135$ ). Visual analogue scales (VAS) were practiced plenary before the start of the experiment using the example of how tired the children felt to ensure their understanding of the VAS. Because 10-point Likert scales were used to measure self-efficacy and prosocial intentions, these were also practiced in plenary, using the example of how much the children liked pancakes.

The experiment started with a paper-and-pencil questionnaire, henceforth referred to as pre-measurement. After completion, the children were instructed to put the questionnaire back into an envelope to prevent them from looking back at their answers. They then watched the video, after which they filled out a second questionnaire, henceforth referred to as post-measurement. After the post-measurement was completed, a cover story was used: Children were told that the experiment was finished, and they were all rewarded with €1.00 to thank them for their participation. Furthermore, they were told about the organization *Labour Behind the Label*, which aims to improve labor conditions in countries such as Bangladesh (see description of stimulus materials below), and that they could donate (part of) the money to this organization if they wanted to. They were also told that they were allowed to keep the rest of the money themselves. We stressed that donating is a private activity, and that they should remain quiet while deciding about their donation to limit the extent to which children would influence each other. Then, children received envelopes with ten coins of €0.10. After giving children some time to make a decision about the donation, the envelopes in which children could put the money were collected.

Lastly, children were debriefed about the study. Specifically, they were told that the factory collapse which was shown in the video had taken place in 2013, and that the circumstances in clothing factories have improved since then but are still not optimal. Furthermore, we told them that the videos were adapted based on original material.

## Materials

**Stimulus materials.** Children were exposed to an adapted news fragment closely resembling a broadcast from the NOS Jeugdjournaal. The materials were created

in cooperation with this organization and reported about a clothing factory collapse in Savar, Bangladesh, in 2013. Videos used to construct the fragments were broadcast on television between April 25, 2013 and April 24, 2014, thereby decreasing the likelihood that children remembered the videos. Indeed, 85.68% ( $n = 401$ ) of the participants indicated that they either had not seen the video or did not know whether they had seen it before. The topic of the videos revolved around the societal change that is needed to improve safety in clothing factories, which makes it suitable to detect prosocial intentions and behavior.

All videos were between 1:36 to 1:39 minutes long and consisted of the same structure: (1) the opening tune and general introduction to the topic by the news-reader (45 seconds), (2) material according to the condition (36 to 39 seconds), and (3) the closing tune (15 seconds). The general introduction – which was the same in each condition – highlighted that a clothing factory in Bangladesh had collapsed and stated how many deaths there were. It further explained how the safety in factories in Bangladesh is known to be compromised and showed footage of the collapsed factory.

With regard to the second part of the video, the *non-constructive condition* included negative information without emotion-based nor solution-based constructive elements. Specifically, the content of the non-constructive part of the video showed a woman telling how she lost her daughter in the collapse and that she never received any money as compensation. The video also explained how those working in the factory often took care of entire families, and that money was promised to them to compensate for their losses, highlighting that they still had not received the money a year after the collapse.

The *emotion-based condition* involved positive emotions. Specifically, this video highlighted the story of a woman who was found alive under the debris after 17 days, stressing that this was a ‘miracle’. In an interview, the woman explained how she tried to get others to hear her. Finally, the video explained that she was not wounded and that she was doing relatively well.

The *solution-based video* included solutions to the problems. Specifically, this video explained how the Netherlands donated 9 million euros to Bangladesh to improve the factories. A minister explained that they would inspect the factories, try to negotiate for better salaries with the factory-owners, and discuss the issue with the clothing brands producing their clothes in Bangladesh and nearby countries. The video highlighted how important clothing brands had already made an agreement to only produce their clothes in ‘proper’ factories.

**Manipulation check.** The manipulations were checked using five items measured on a 10-point Likert scale. The scale measured to what extent the children believed the video they saw was positive (should be highest for the emotion-based condition), negative (should be highest for the non-constructive

condition), and included solutions (should be highest for the solution-based condition). The other two items measured perceived magnitude of the covered event and perceived importance of safety in clothing factories, which should be similar across conditions. Means for all items, per condition, are displayed in Table 1.

**Table 1:** Manipulation check: Means (and standard deviations) per video condition.

	Emotion-based	Solution-based	Non-constructive
Positivity	3.56 (2.47)	3.85 (2.80)	2.28 (2.07)
Negativity	6.05 (2.86)	5.90 (3.09)	7.74 (2.61)
Solutions included	2.86 (2.01)	5.28 (2.18)	2.73 (1.76)
Magnitude disaster	8.84 (1.31)	8.78 (1.51)	8.87 (1.69)
Importance event	8.77 (1.66)	8.89 (1.34)	8.69 (1.92)

We tested whether our manipulations worked as intended, using Kruskal-Wallis tests to test main effects and Dunn tests with Bonferroni adjustments for post-hoc tests. Results showed that the three videos differed significantly in perceived positivity ( $\chi^2(2) = 35.734, p < .001$ ) and negativity ( $\chi^2(2) = 38.042, p < .001$ ). As intended, the non-constructive video was perceived as less positive ( $p < .001$ ) and more negative ( $p < .001$ ) than the emotion- and solution-based videos. Although we intended for the emotion-based video to be more positive than the solution-based video, they did not differ significantly from each other on perceived positivity ( $p = .883$ ). The extent to which solutions were perceived to be included in the videos differed significantly between conditions ( $\chi^2(2) = 114.520, p < .001$ ), with the solution-based video including significantly more solutions than the emotion-based ( $p < .001$ ) and non-constructive videos ( $p < .001$ ), as was intended. Importantly, perceived magnitude of the covered event and perceived importance of factory safety did not differ between conditions ( $\chi^2(2) = 1.358, p = .507$  and  $\chi^2(2) = .053, p = .974$ , respectively).

To conclude, all videos were perceived as intended, with the exception of the emotion-based video, which – contrary to our intentions – was only perceived as more positive than the non-constructive video, but not more positive than the solution-based video. Because of the clear difference in content of the emotion-based video (cf. O'Keefe, 2003), and because of the significant differences with the non-constructive condition (with which emotion-based news is compared in the analyses), we believe that this particular experimental condition is nevertheless useable in light of the study aim.

## Measures

**Prosocial intentions.** Prosocial intentions were measured using six statements (ranging from 1 = *I would definitely not like to* to 10 = *I would definitely like to*) concerning (1) wanting to do something to help people in Bangladesh, (2) to do something to improve the safety in clothing factories in Bangladesh, (3) to find out whether their clothes were produced in a proper and safe factory, (4) to only buy and/or wear clothes made in proper and good factories, (5) to help in a campaign aiming to help the people in Bangladesh, and (6) to create a campaign to help the people in Bangladesh. These statements were constructed to match the statements we used to measure self-efficacy (see below), which were based on Bandura's (2006) guide for constructing self-efficacy scales.

We used a principal component analysis (PCA) to test whether all six items loaded onto the same factor. Because of a component loading of .42 (using the criterion of component loadings greater than 0.60, cf. Kline, 1994), we removed item 4 from the scale. After doing that, the Kaiser-Meyer-Olkin (KMO) measure was greater than 0.50, indicating sampling adequacy. Bartlett's test of sphericity was significant, indicating correlations were large enough to conduct a PCA. The remaining five items loaded onto the scale sufficiently (1:  $\lambda = .88$ ; 2:  $\lambda = .85$ ; 3:  $\lambda = .66$ ; 5:  $\lambda = .89$ ; 6:  $\lambda = .82$ ). Cronbach's alpha indicated internal consistency ( $\alpha = .87$ ). Therefore, we calculated an average score for these five items ( $M = 6.33$ ,  $SD = 2.11$ ).

**Prosocial behavior.** Prosocial behavior was measured by counting the amount of money children donated to the organization 'Labour Behind the Label'. Their donations varied between €0.00 and €1.00 (i. e., the entire range of the scale). On average, children donated €0.32 ( $SD = 0.37$ ).

**Negative emotions.** Negative emotions, including anger, sadness, fear, madness, sorrow, and anxiety, were measured using six VAS ranging from 1 to 100 (100 mm). On the left and right ends of the VAS, emoticons representing (the lack of) the respective emotion were displayed to make the concept of emotions less abstract to the participating children. Negative emotions were measured before and after exposure to the video. Difference scores were calculated for each emotion by subtracting pre-measurement from post-measurement emotion scores.

A PCA was conducted on these difference scores. Because of component loadings of .06 (anxiety) and .17 (fear), these two items were removed from the scale. The fact that the news item displayed an event that the participating children are not likely to ever experience might explain why their ratings of anxiety and fear differed from the other negative emotions that we measured. After the items were removed, the KMO measure was greater than 0.50, indicating sampling adequacy. Bartlett's test of sphericity was significant, indicating correlations were large enough to conduct a PCA. The remaining four items loaded onto

the scale sufficiently (anger:  $\lambda = .85$ ; sadness:  $\lambda = .85$ ; madness:  $\lambda = .84$ ; sorrow:  $\lambda = .85$ ). Cronbach's alpha indicated internal consistency ( $\alpha = .87$ ). Therefore, we calculated an average score of the four items ( $M = 5.56$ ,  $SD = 13.92$ ).

**Self-efficacy.** The mediator self-efficacy was measured using six items, which were identical in their wording as the six items used to measure prosocial intentions. The only difference was that instead of referring to intentions, they were referring to perceived ability. We chose this approach since we aimed to measure whether the children felt able to act on their previously indicated intentions. To be more specific, self-efficacy was measured by six items (ranging from 1 = *I am definitely not able to* to 10 = *I am definitely able to*), concerning (1) wanting to do something to help people in Bangladesh, (2) to do something to improve the safety in clothing factories in Bangladesh, (3) to find out whether their clothes were produced in a proper and safe factory, (4) to only buy and/or wear clothes made in proper and good factories, (5) to help in a campaign aiming to help the people in Bangladesh, and (6) to create a campaign to help the people in Bangladesh. These scales were constructed based on Bandura's guide for constructing self-efficacy scales (Bandura, 2006).

Before asking about the six items of interest, we provided three sample items to help the children get used to the concept of this measure and differentiating it from the items measuring prosocial intentions. As Bandura (2006) suggested, the sample questions related to children's ability to lift objects of different weights; specifically, about lifting (1) a pen ( $M = 9.96$ ,  $SD = .35$ ), (2) a full grocery bag ( $M = 9.16$ ,  $SD = 1.38$ ), and (3) a couch ( $M = 4.01$ ,  $SD = 2.67$ ). The means indicated that the children understood the concept of these questions, particularly because of the difference in the means between lifting a pen and lifting a couch.

A PCA was conducted to test whether all six self-efficacy items loaded onto the same factor. Because of a component loading of .43, we removed item 4 from the scale. The KMO measure was greater than 0.50, indicating sampling adequacy. Bartlett's test of sphericity was significant, indicating correlations were large enough to conduct a PCA. The remaining five items loaded onto the scale sufficiently (1:  $\lambda = .85$ ; 2:  $\lambda = .83$ ; 3:  $\lambda = .63$ ; 5:  $\lambda = .81$ ; 6:  $\lambda = .78$ ). Cronbach's alpha indicated internal consistency ( $\alpha = .84$ ). Therefore, we calculated an average score of the five items ( $M = 6.05$ ,  $SD = 2.13$ ).

## Analysis procedure

Before we conducted the analyses, we first investigated whether we needed to control for potentially influencing variables. To do that a number of randomization checks were conducted. We planned to include sex, age, baseline prosocial

cial behavior<sup>1</sup>, child TV news consumption<sup>2</sup>, importance, and enjoyment of news watching<sup>3</sup> as potential covariates in the model. A Chi-square test showed that boys and girls were equally distributed over the three experimental conditions,  $\chi^2(2, N = 468) = 0.346; p = .841$ . We used analysis of variance (ANOVA) to test the other potential covariates. The randomization showed to be also successful for baseline prosocial behavior ( $F(2, 462) = 1.691; p = .185$ ), child TV news consumption ( $F(2, 463) = 3.447; p = .166$ ), importance of news watching ( $F(2, 461) = .297; p = .743$ ), and enjoyment of news watching ( $F(2, 458) = .924; p = .715$ ). Therefore, there was no reason to control for these variables in the analyses.

With regard to age, the results of the randomization check showed that children of various ages were not equally distributed over the three conditions ( $F(2, 465) = 14.542; p < .001$ ). However, subsequent analyses showed that the correlation between age and the two dependent variables and two mediating variables was small (i. e.,  $r < .20$ ; cf. Cohen, 1992). It is thus unlikely that age influences the results, and we, therefore, also did not control for age in the analyses.

To test the hypotheses and research questions we, firstly, tested the direct effects of condition on the outcome variables, prosocial intentions and behavior, using one-way ANOVA in SPSS. We then continued to test the indirect relationships, using the PROCESS macro (Hayes, 2013) in SPSS. We started testing the significance of the relationships between the conditions and the mediators, then between the mediators and the outcomes, and finally the significance of the whole indirect path. All hypotheses and research questions were tested at a significance level of  $\alpha = .05$ . Effect sizes for the direct paths were estimated using  $\eta_p^2$ , whereas  $R^2$  was used as the effect size for the indirect effects.

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**1** Baseline prosocial behavior was measured using the prosocial scale of the Strengths and Difficulties Questionnaire (Goodman, Meltzer, and Bailey, 1998). The items covered (1) being kind to others and taking their feelings into account, (2) sharing with others, (3) helping those who are hurt in some way, (4) being kind to younger children, and (5) offering help to others (ranging from 1 = does not apply to me at all to 6 = does apply to me very much). Since a PCA indicated a component loading of .56 for item 2, this item was removed from the scale. The remaining four items loaded onto the scale sufficiently (1:  $\lambda = .70$ ; 3:  $\lambda = .76$ ; 4:  $\lambda = .71$ ; 5:  $\lambda = .76$ ). Cronbach's alpha indicated internal consistency ( $\alpha = .70$ ). Therefore, we calculated an average score of the four items ( $M = 5.02$ ,  $SD = 0.64$ ).

**2** This variable reflects the frequency with which children watch the Dutch children's TV news (ranging from 0 = never to 7 = 7 days a week), resulting in an average of 3.59 ( $SD = 1.86$ ).

**3** Two items measured perceived importance and enjoyment of watching news (ranging from 1 = totally not important/enjoyable to 6 = totally important/enjoyable). The mean for importance was 4.55 ( $SD = .89$ ) and for enjoyment 4.33 ( $SD = .96$ ).

## 4 Results

### Direct effects of condition on prosocial intentions and behavior

We first investigated the direct effects of video condition on prosocial intentions and behavior. There were no significant differences in prosocial intentions between non-constructive ( $M = 6.34$ ,  $SD = 2.28$ ), emotion-based ( $M = 6.43$ ,  $SD = 2.04$ ), and solution-based ( $M = 6.18$ ,  $SD = 2.03$ ) news,  $F(2, 452) = 0.567$ ,  $p = .568$ ,  $\eta_p^2 = .003$ . However, there were significant differences in prosocial behavior between non-constructive ( $M = 38.89$ ,  $SD = 38.04$ ), emotion-based ( $M = 34.04$ ,  $SD = 38.19$ ), and solution-based ( $M = 23.15$ ,  $SD = 32.55$ ) news,  $F(2, 465) = 7.123$ ,  $p < .001$ ,  $\eta_p^2 = .030$ . By conducting pairwise comparisons with Bonferroni adjustments, we investigated which video conditions differed significantly on prosocial behavior. There was no difference between emotion-based and non-constructive news ( $p = .725$ ). However, children who watched the non-constructive video ( $p < .001$ ) and children who watched the emotion-based video ( $p = .021$ ) donated significantly more money than children who watched the solution-based video (see Figure 2).

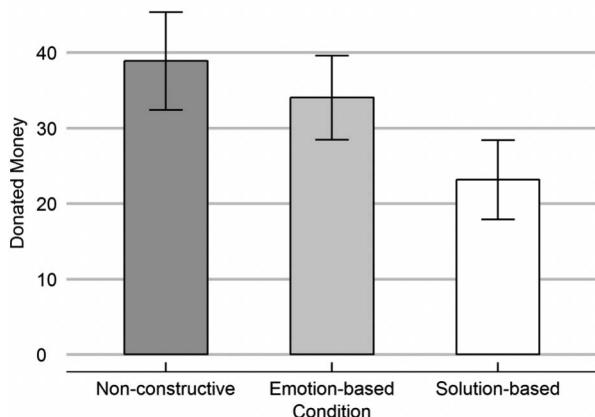


Figure 2: The effect of video condition on prosocial behavior.

## Mediating effects of condition on prosocial intentions and behavior

Although not all direct effects on prosocial intentions and prosocial behavior were significant, it can be argued that indirect effects should still be tested in mediation analysis (e.g., Hayes, 2009; Hayes and Rockwood, 2017). Therefore, we examined the significance of the indirect effects in all cases. For reasons of parsimony, we here focus on the description of the significant results (see Appendix for tables with all findings).

**Negative emotions as mediator for emotion-based news.** H1 predicted that emotion-based news – via a lower increase in negative emotions – would lead to more prosocial intentions and behavior than non-constructive news. Although the direct effects of emotion-based versus non-constructive news on prosocial intentions and behavior was not significant, we found some significant indirect effects for prosocial intentions. For prosocial behavior, no mediating effect of negative emotions was found ( $b = .49$ ,  $SE = .48$ , 95 % CI [-.36, 1.59]).

For prosocial intentions, we first found that there was a significant difference between the two video conditions in their effect on negative emotions ( $b = 3.01$ ,  $SE = .89$ ,  $p < .001$ ), with emotion-based news being indeed associated with a smaller increase in negative emotions than non-constructive news (see Figure 3). The two conditions explained 19.16 % of the variance in negative emotions,  $F(1, 301) = 11.47$ ,  $p < .001$ . Next, we also found a significant positive relation between negative emotions and prosocial intentions ( $b = .03$ ,  $SE = .01$ ,  $p = .001$ ). More negative emotions were associated with more prosocial intentions. After controlling for this effect, the direct effect of the two conditions on prosocial intentions remained non-significant ( $p = .241$ ). This model explained 18.62 % of the variance in the model,  $F(2, 300) = 5.39$ ,  $p = .005$ . Finally, the complete indirect effect, tested using bootstrapping ( $n = 5,000$ ), showed that the indirect effect was significant ( $b = .08$ ,  $SE = .03$ , 95 % CI [.02, .15]). Thus, negative emotions functioned as a mediator in the relationship between news condition (comparing emotion-based to non-constructive news) and prosocial intentions. Emotion-based news was associated with a lower increase in negative emotions, but – in contrast to H1 – more instead of fewer negative emotions were associated with more prosocial intentions. This implies that particularly non-constructive news leads, via a stronger increase in negative emotions, to more prosocial intentions.

**Negative emotions as mediator for solution-based news.** To investigate RQ2, we examined the extent to which negative emotions functioned as a mediator in the relationship between exposure to solution-based news and prosocial intentions and behavior among children. For prosocial intentions, a direct effect of news condition on negative emotions was found ( $b = 6.27$ ,  $SE = 1.87$ ,  $p < .001$ ).

As shown in Figure 3, non-constructive news led to a larger increase in negative emotions than solution-based news (see Figure 3). The two conditions explained 19.98 % of the variance in negative emotions,  $F(1, 270) = 11.22, p < .001$ . The effect of negative emotions on prosocial intentions was also significant ( $b = .03, SE = .01, p < .001$ ), with more negative emotions being associated with more prosocial intentions. After controlling for this effect, the direct effect of the two conditions on prosocial behavior remained not significant ( $p = .719$ ). Together, these effects explained 25.12% of the variance in the model,  $F(2, 269) = 9.06, p < .001$ . Finally, we tested the significance of the complete indirect effect, showing that the indirect effect was significant ( $b = .22, SE = .07, 95\% \text{ CI } [.09, .38]$ ). This implies that negative emotions function as a mediator: Non-constructive news led to more negative emotions than solution-based news, and consequently to more prosocial intentions.

For prosocial behavior, we first tested the relation between news condition and negative emotions for solution-based compared to non-constructive news. Results showed again that there was a significant difference between the two video conditions in their effect on negative emotions ( $b = 6.18, SE = 1.83, p < .001$ ), with non-constructive news being associated with a larger increase in negative emotions than solution-based news (see Figure 3). The two conditions explained 19.92 % of the variance in negative emotions,  $F(1, 277) = 11.45, p < .001$ . Next, we also found a significant positive relation between negative emotions and prosocial behavior ( $b = .47, SE = .14, p < .001$ ), with more negative emotions being associated with more prosocial behavior. After controlling for this effect, the direct effect of the two conditions on prosocial behavior remained significant ( $b = 13.40, SE = 4.23, p = .002$ ), indicating partial mediation. Together, these effects explained 29.87 % of the variance in the model,  $F(2, 276) = 13.52, p < .001$ . We also tested the significance of the complete indirect effect using bootstrapping ( $n = 5,000$ ). This showed that the indirect effect was significant ( $b = 2.87, SE = 1.13, 95\% \text{ CI } [5.07, 21.72]$ ). Thus, negative emotions functioned as a mediator in the relationship between news condition (comparing solution-based to non-constructive news) and prosocial behavior, with non-constructive news being associated with a stronger increase in negative emotions, and more negative emotions being associated with more prosocial behavior.

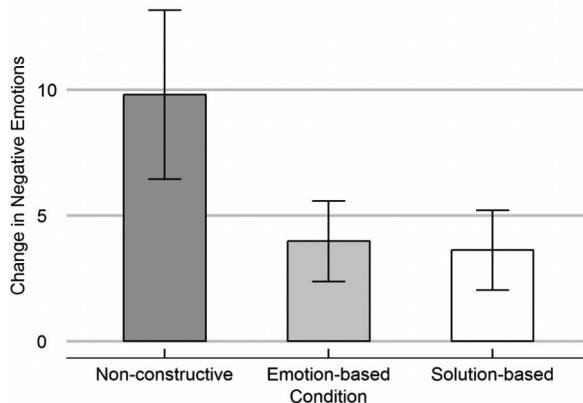


Figure 3: The effect of video condition on the difference in negative emotions.

**Self-efficacy as mediator for solution-based news.** To test H2, we investigated whether self-efficacy mediated the relation between news condition and prosocial intentions and behavior, comparing solution-based to non-constructive news. For prosocial intentions, no indirect effect of self-efficacy was found ( $b = .17$ ,  $SE = .13$ , 95 % CI [-.08, .44]). In addition, the indirect effect of video condition on prosocial behavior via self-efficacy was not significant either ( $b = .97$ ,  $SE = .78$ , 95 % CI [-.31, 2.75]). Our results suggest that self-efficacy did not mediate the relationship between news condition (comparing solution-based to non-constructive news) and prosocial intentions and behavior. Therefore, we rejected H2.

**Self-efficacy as mediator for emotion-based news.** We asked in RQ1 whether self-efficacy was a mediator in the relationship between exposure to emotion-based news versus non-constructive news and prosocial intentions and behavior among children. However, we did not find significant indirect effects of self-efficacy for intentions ( $b = .07$ ,  $SE = .07$ , 95 % CI [-.05, .21]) and behavior ( $b = .45$ ,  $SE = .42$ , 95 % CI [-.28, 1.40]). Thus, our results suggest that self-efficacy did not play a mediating role with regard to emotion-based versus non-constructive news.

## 5 Discussion

This study aimed to investigate the extent to which emotion- and solution-based news – not in combination but separately – led to different levels of negative emotions and self-efficacy and, as a consequence, to different levels of proso-

cial intentions and behavior. Prosocial intentions were not directly promoted via constructive news reporting, but we found significant differences on prosocial behavior, with solution-based news leading to significantly less prosocial behavior than emotion-based and non-constructive news. This finding contradicted our expectation but might be explained by the fact that (only) solution-based news emphasized what has already been done by others, thereby evoking the feeling that there is less of a need to become active oneself. This behavior is in line with the bystander effect (Darley and Latané, 1968), the phenomenon that people are less likely to help when other people are present because of a diffusion of responsibility. Accordingly, the two other videos might have illustrated the lack of help, thereby stimulating prosocial behavior. It seems plausible that this effect interfered with the effect we hypothesized.

We also found that both emotion- and solution-based news led to fewer negative emotions compared to non-constructive news. These results contribute to prior studies (Kleemans, De Leeuw et al., 2017; Kleemans, Schlindwein, and Dohmen, 2017), which found that a combination of emotion- and solution-based news could decrease negative emotions, highlighting that videos using only one approach can also be effective in reducing negative emotions. This might be explained by the fact that both videos showed that, although the reported event clearly is of a negative nature, there are subtle positive elements that can be found in the context of the event – either the ‘miracle’ of surviving in a seemingly hopeless situation or hope given by the help of the Dutch government.

One of the most interesting findings – both from a theoretical and a more applied perspective – is that negative emotions mediated the effect of the different news conditions on prosocial intentions and behavior, except for emotion-based versus non-constructive news on donating money. Contrary to what constructive journalism pursues, negative emotions were associated with more, instead of less, prosocial intentions and behavior. This might be explained by Cialdini’s negative state relief model, which states that people tend to try to relieve their own negative feelings by behaving charitably (Cialdini, Darby, and Vincent, 1973). After watching non-constructive news, children experienced more negative emotions, which they might try to relieve by behaving in a prosocial manner.

These findings align with insights that were already obtained from (and frequently applied to) charity campaigning, namely that increasing negative emotions via the use of shocking elements in advertisements (e.g., via raw images of suffering of victims) is an effective way of eliciting prosociality (cf. Albouy, 2017). This counteracts core aims of constructive journalism. In particular, our study indicates that it is hard to promote prosociality if journalists at the same time aim to reduce the negativity bias in news. To advance knowledge on the theoretical basis of constructive journalism, future research might investigate how to balance

the inclusion of various constructive elements in order to contribute to prosocial intentions and behaviors. Our study provides interesting starting points for this investigation, as we found that negative emotions were substantially lower for emotion-based news compared to non-constructive news, but prosocial behavior was only slightly lower in the emotion-based, compared to the non-constructive condition. For solution-based news, these differences were more severe. Hence, emotion-based constructive news reporting might be more promising in meeting both goals to at least certain extents.

As expected, self-efficacy did predict both prosocial intentions (significant with  $p < .001$ ) and behavior (significant with  $p < .01$ ; see Appendix, Table A3). However, against our expectations, solution-based news did not lead to more self-efficacy than non-constructive news. To provide a potential reason why we did not observe this effect, it might be helpful to look at factors contributing to the success of modeling: attention (here, to the video), retention (cognitively organize the seen content), production (translate these thoughts into intentions and behaviors), and motivation (to act on these; Schunk and Zimmerman, 2007). The solutions presented in our stimulus materials might not have been tangible enough or might even have been intimidating to children (e.g., investing millions of euros in improving working conditions). Hence, maybe it was difficult for children to translate thoughts on the video's content into personal intentions, which is why the solution-based video did not increase self-efficacy.

In addition, a lack of similarity between the children and the main actor in the solution-based video (i.e., the government) might have prevented self-efficacy from increasing. According to Schunk (1987), modeling works less well when there is a low perceived similarity to the models. Moreover, research suggests that perceived similarity is especially important if observers are not familiar with a problem or solution, and if consequences are not immediately visible (Akamatsu and Thelen, 1974). Both apply to our stimulus material, thereby indicating that this might have been a reason for the lack of the hypothesized effect.

Our study thus indicates that self-efficacy is important when the goal is to promote prosocial intentions and behavior. Whether solution-based news is successful in increasing self-efficacy, however, may depend on how a solution-based news item is constructed. We advise practitioners to pay careful attention to the kind of solutions that are presented and to the actors who implement these solutions in a given news item. Furthermore, future research should look into the conditions under which modeling affects children. This is not only relevant because of the potential problems we encountered with the solution-based video and self-efficacy but might also explain why we did not find an effect of video condi-

tion on prosocial intentions. In contrast to our study and to Kleemans, Schlindwein, and Dohmen (2017), De Leeuw et al. (2015) found that news was able to stimulate prosocial intentions in children. However, the specific prosocial behaviors were modeled in their stimulus material. Modeling the behaviors explicitly might be a requirement for stimulating prosocial intentions. Future research may shed more light on this.

The current research is subject to some limitations. First, to increase the ecological validity of the experiment, we used original news broadcast materials. We deem ecological validity as very important because of the applied character of the study. Due to limited availability of original materials, some differences were unavoidable (e.g., differences in the voice-over narrator in small parts of the videos). In addition, the narratives in the manipulated parts of the videos differed between video conditions. This was not only because of a lack of materials to select from, but also because the only way to compare the emotion-based versus solution-based elements of constructive journalism was to include different aspects of the story. That is, a story featuring positive emotions cannot include a solution and the other way around if the goal is to disentangle the separate effects of those elements. We thus had to use different narratives. However, as the major part of the video was comparable between the conditions and because other differences were avoided as much as possible, it is likely that the findings of the current study can be dedicated to the experimental manipulations in particular.

Second, and related to the first limitation, the manipulation check showed that the emotion-based video was not perceived as more positive than the solution-based video. This might be explained by the fact that our manipulation check of the emotion-based video was indirect (i.e., by assuming that the extent to which it was rated as positive is comparable to positive emotions). We were not able to include a more direct measure in the manipulation check for the emotion-based condition because children's emotional responses were already defined as a mediator in the model. In addition, we think it is possible that also the solution-based video was rated as positive by the children because it provided the outlook of a positive outcome (i.e., better circumstances in clothing factories and money that was already donated to achieve this). Consequently, not only the video including positive emotions but also the video presenting solutions was perceived as positive. Concerning the first two limitations, it might be interesting to use videos that are created for research purposes only in future research because this will limit the influence of potential confounding factors and can thus shed light on the role they might have played in the current study. However, the flipside will be that the ecological validity of the study will decrease, which may, in turn, cause other limitations (e.g., that children will notice that it is fake material).

A third limitation concerns the fact that this was a single-stimuli experiment in which the stimulus materials covered one topic. This might limit the generalizability of the findings of this study to other topics. However, the results on the effects of news conditions on children's emotions compare to the results of similar studies which included other topics (cf. Kleemans, De Leeuw, et al., 2017; Kleemans, Schlindwein, and Dohmen, 2017). This suggests that, at least for these findings, our results do translate to other topics. Future studies can replicate the current study using other topics to investigate whether the mediating effects are also comparable across topics.

Fourth, because the data were nested in classes and schools, running a mixed-effects model could have improved the accuracy of the results. We tried to conduct these analyses, but the mixed-effects models did not converge in this study – possibly because there were not enough observations to estimate the random effects (cf. Barr, Levy, Scheepers, and Tily, 2013). Future studies might therefore increase the number of observations. And finally, although we instructed children to make their own decision regarding donation, some children looked at their peers, which might have influenced their decisions. We could have avoided this issue by taking children out of the classroom for the donation. For reasons of feasibility, and because the time difference between watching the video and the donation might influence the donation, we decided against it. Future research might take seating locations in the classroom into account to control for peers influencing each other.

Despite these limitations, our study provides some valuable insights that contribute to the theoretical understanding of constructive journalism and are also useful for news producers. In particular, our findings suggest that it is difficult to combine the two goals of constructive journalism for children at the same time: limiting the increase in negative emotions after news watching and fostering prosocial behavior. While the two tested elements of constructive journalism both successfully reduced negative emotions, children in the non-constructive news condition showed more prosociality. Taking into account the significant positive correlations between negative emotions and prosocial intentions and behavior, the two goals seem contradict and hard to unite.

While one could argue that the focus should be on reducing negative emotions when it comes to news for children, we want to point out that we did not investigate how long-lasting the negative emotions evoked by our videos were. With that said, in case the elicited negative emotions disappeared quickly, they might be acceptable in order to promote prosocial behavior. Lemish (2007) argues that negative news might empower children, for example, by representing their interests and providing them with the opportunity to voice their views. However, it is also important to note that we did not investigate how long-lasting the effect

on prosocial intentions and behavior was. Thus, future research should focus on investigating the long-term effects of different news types on both negative emotions and prosociality. Concluding, when choosing a suitable approach for a news item, it is important to keep in mind whether the aim is to reduce negative emotions or to stimulate prosocial intentions and behavior.

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## Appendix

**Table A1:** Average scores (standard deviations) of measured variables per condition.

	Condition		
	Non-constructive	Emotion-based	Solution-based
Prosocial intentions	6.34 (2.28)	6.43 (2.04)	6.18 (2.03)
Prosocial behavior	38.89 (38.04)	34.04 (38.19)	23.15 (32.55)
Increase in negative emotions	9.80 (19.59)	3.98 (10.83)	3.62 (9.71)
Self-efficacy	6.29 (2.14)	6.01 (1.95)	5.89 (2.31)
Baseline prosocial behavior	5.00 (0.72)	5.08 (0.64)	4.94 (0.78)
Baseline news consumption	2.20 (1.09)	2.08 (1.08)	1.91 (1.02)

**Table A2:** Pearson correlation coefficients between measured variables.

Variable	1	2	3	4	5	6	7	8	9	10	11
1 Prosocial intentions	1	.31***	.19***	.52***	.25***	.10*	.04	.02	.10*	.42***	.21***
2 Prosocial behavior	.31***	1	.14**	.17***	.11*	.04	-.17***	.10*	-.18***	.25***	.06
3 Negative emotions	.19***	.14**	1	.12**	.08	.09	-.11*	.13**	-.10*	.10*	.09
4 Self-efficacy	.52***	.17***	.12**	1	.17***	.04	-.02	.10*	.08	.24***	.16**
5 Perceived importance	.25***	.11*	.08	.17***	1	.24***	-.01	.09*	.06	.22***	.07
6 Perceived magnitude	.10*	.04	.09	.04	.24***	1	.01	.09	.04	.04	.11*
7 Perceived positivity	.04	.17***	.11*	-.02	-.01	.01	1	-.60***	.28***	.00	-.02
8 Perceived negativity	.02	.10*	.13**	.10*	.09*	.09	-.60***	1	-.11*	.04	.05
9 Perceived included solutions	.10*	.18***	-.10*	.08	.06	.04	.28***	-.11*	1	-.03	-.02
10 Baseline prosocial behavior	.42***	.25***	10*	.24***	.22***	.04	.00	.04	-.03	1	.28***
11 Baseline news consumption	.21***	.06	.09	.16**	.07	.11*	-.02	.05	-.02	.28***	1

Note.  $p < .05^*$ ;  $p < .01^{**}$ ;  $p < .001^{***}$

**Table A3:** Mediation coefficients.

Dependent variable	Mediator	Model		Path		
		a	b	c'	c [BT 95 % CI]	
Prosocial intentions	Negative emotions	1	3.01***	0.03**	-0.15	0.08 [0.02; 0.15]
		2	6.27***	0.03***	-0.09	0.22 [0.09; 0.38]
		3	-0.25	0.03*	-0.26	-0.01 [-0.07; 0.06]
	Self-efficacy	4	0.14	0.53***	-0.09	0.07 [-0.05; 0.21]
		5	0.35	0.48***	0.04	0.17 [-0.08; 0.44]
		6	-0.07	0.52***	-0.19	-0.04 [-0.28; 0.22]
	Negative emotions	7	2.91***	0.17	2.21	0.50 [-0.36; 1.59]
		8	6.18***	0.47***	13.40**	2.87 [0.88; 5.24]
		9	-0.36	0.35	-10.73**	-0.12 [-0.98; 1.04]
	Self-efficacy	10	0.14	3.24**	1.96	0.45 [-0.28; 1.40]
		11	0.39	2.46**	13.90**	0.97 [-0.31; 2.75]
		12	-0.12	2.56**	-9.76*	-0.29 [-1.64; 1.00]

*Note.* For paths a (video condition – mediator), b (mediator – dependent variable) and c' (direct effect of video condition – dependent variable), significance is indicated by p-values:  $p < .05$  \*;  $p < .01$  \*\*;  $p < .001$  \*\*\*. For path c (total effect), bootstrapped (BT) 95 % confidence intervals (CI) were used. Models 1, 4, 7, 10 compare non-constructive news vs. emotion-based news, models 2, 5, 8, 11 compare non-constructive news vs. solution-based news, models 3, 6, 9, 12 compare emotion-based news vs. solution-based news.