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**Reducing stigma and punitive attitudes towards pedophiles
through narrative humanization**

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Abstract

Stigmatization and societal punitiveness about pedophilia has a range of potential consequences, such as the social isolation of people with sexual interest in children, and the formation of policies that are not consistent with empirical research findings. Previous research has shown that people with pedophilic sexual interests use societal thinking to self-stigmatize, which in turn may actually serve to increase their risk of committing a sexual offense. In this study, we compared two attitudinal interventions (first-person narrative vs. expert opinion) using a student sample ($N = 100$). It was hypothesized that both interventions would lead to reductions in stigmatization and punitive attitudes about pedophiles on an explicit (self-report) level, but that only the narrative intervention would lead to reductions of these constructs at the implicit level. Our findings supported both hypotheses. We further discuss the role of narrative humanization in this area, and offer suggestions for further research based upon the theoretical and methodological implications of the findings.

Keywords: pedophilia, punitive attitudes, narratives, dehumanization, stigmatization, attitude change

Reducing stigma and punitive attitudes towards pedophiles through narrative humanization

Pedophilia is broadly defined as a primary or exclusive sexual interest in pre-pubertal children, which causes harm, distress, and/or feelings of guilt and remorse (American Psychiatric Association, 2013). This type of sexual interest is implicated as an important risk factor in predicting reoffending among convicted child abusers (Helmus, Ó Ciardha, & Seto, 2015). However, recent research has demonstrated that fewer than half of all child abusers are actually pedophilic (Schmidt, Mokros, & Banse, 2013). In spite of this, there is a popular conflation of ‘pedophilia’ with ‘child sexual abuse’ within contemporary society (e.g., Feelgood & Hoyer, 2013). This leads to those who are labeled as pedophiles (either accurately as a result of their sexual interests, or inaccurately based on their offending behavior) facing substantial amounts of stigmatization and hatred in contemporary society (Imhoff, 2015; Jahnke, Imhoff, & Hoyer, 2015). In turn, this response acts as a potential hindrance to the accessibility of effective prevention services for those at-risk of committing sexual offenses against children (Jahnke & Hoyer, 2013). With this in mind, formulating effective communication strategies in order to promote a more reasoned social conversation about pedophilia and the prevention of child sexual abuse is of great importance.

Building on previous research in the area of attitude change, this paper seeks to examine the extent to which stigmatization towards pedophiles can be influenced through a process that we call *narrative humanization*. That is, we aim to establish whether presenting information about pedophilia from the first-person perspective of somebody with a sexual interest in children can have a more profound impact on stigmatization and punitive attitudes about this group than established methods (e.g., expert-delivered informative presentations).

Stigmatization and Pedophilia

The stigmatization of people with pedophilic sexual interests (even in the absence of offending behavior) has recently become a growing area of empirical inquiry. Jahnke and Hoyer (2013) identified this area as a ‘blind-spot’ in contemporary stigma research, and suggested several potentially important effects of widespread stigmatization of this group.

Stigma can be expressed in cognitive, affective, and behavioral ways (Corrigan, Morris, Michaels, Rafacz, & Rusch, 2012; Jahnke, Philipp, & Hoyer, 2015). In relation to pedophilia, stigmatization takes the form of stereotyping, emotional responses (such as fear, loathing, and hatred), and a belief that pedophiles should be incarcerated as a preventative measure. For example, in a recent study of Germans and Americans, a substantial proportion of participants were supportive of preventative incarceration for those labeled as pedophiles (Jahnke, Imhoff, & Hoyer, 2015), in spite of the study instructions explicitly stating that the people under consideration had not been convicted of any offenses. In the same samples, a pedophilic sexual interest was seen as something that a person chooses for themselves. These findings highlight why stigmatization towards pedophiles may be heightened. Given the conflation of ‘pedophilia’ (as a sexual interest) with ‘child sexual abuse’ (as a behavior), the attribution of controllability over pedophilic interests may reinforce the view that pedophiles (as a homogeneously labeled group) purposely seek out children to abuse.

Moreover, self-stigmatization among pedophiles has been found to contribute to a fear of discovery, as well as reductions in cognitive and emotional functioning (Jahnke, Schmidt, Geradt, & Hoyer, 2015). Given that these are potential risk factors for the commission of sexual offending (e.g., Gillespie, Mitchell, Fisher, & Beech, 2012), it can be argued that reducing

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stigmatization of non-offending pedophiles could contribute to reductions in sexual offending behavior. For example, stigmatization was implicated as a possible cause of social isolation among pedophiles, and a lack of willingness to actively seek treatment for their sexual interests (Jahnke & Hoyer, 2013). It is here where research into attitudes towards sexual offenders and pedophiles could be useful and lead to the development of public interventions for improving such views. By improving public attitudes (or, as a minimum, developing a more evidence-based understanding of the nature of pedophilia), a social environment that is supportive of rehabilitative efforts may be fostered. The desired outcome of this change being increased treatment-seeking behavior among those who self-identify as having deviant sexual interests.

Narrative Humanization and Attitude Change

Moral disengagement theory (MDT; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996) describes a range of mechanisms by which people rationalize punitive attitudes. One such mechanism is dehumanization, whereby the targets of punitive attitudes are linguistically and euphemistically stripped of their personhood. Viki, Fullerton, Raggett, Tait, and Wiltshire (2012) found that dehumanization of sexual offenders was associated with support for their social exclusion, and support for harsh punishments (including violence).

Several researchers have argued that dehumanized stereotypes are brought about by how the media presents sexual crime. As King and Roberts (2015) state, “when asked about ‘sex offenders’ many are inclined to envision the media-proliferated stereotypical image of a violent, predatory male pedophile” (p. 2). Harper and Hogue (2015a) reported how different aspects of the British media may be involved in promoting moral disengagement processes in relation to sexual crime. They found that tabloid newspapers use particularly dehumanized descriptors for

sexual offenders within headlines (e.g., ‘beast’, ‘monster’), and that child abusers are disproportionately labeled as ‘pedophiles’.

Based on these findings, it can be argued that presenting humanized information about pedophilic individuals (and sexual offenders in a general sense) may lead to improved societal attitudes. Although this notion has not been examined extensively in the area of sexual crime, there is some promising research in other areas that suggests presenting information about stigmatized people in the form of a first-person narrative can have a profound impact on responses to these individuals. Walkington and Ashton-Smith (2015) found that presenting a fictional narrative of a drug-addicted offender led to more empathetic responses than a standard news report on the same individual. In relation to pedophilia, narrative-based depictions have been found to improve explicit attitudes among a group of trainee psychotherapists working with pedophiles (Jahnke, Philipp, & Hoyer, 2015). These effects were still present in follow-up tests between one week and two months later.

While these findings offer important insights into the potential efficacy of narrative humanization in affecting attitude change, the studies have either used fictional depictions of stigmatized groups, or have focused predominantly on explicit attitude expression. Thus, we examine whether first-person narrative presentations can improve both explicit *and* implicit attitudes towards pedophiles.

The Explicit/Implicit Attitude Distinction

Within the attitude literature, there has been a focus on using indirect measurement procedures (Gawronski & De Houwer, 2014). These methods are typically computer-based, such as the Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001) and the Implicit Association

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Test (IAT; Greenwald, McGhee, & Schwarz, 1998), and are based on the idea that participants respond quicker to stimuli that reflect an underlying implicit association (e.g., ‘sex offender-bad’) when they share a response key (typically a keyboard button). Faster responses to ‘negative’ or ‘positive’ experimental blocks are taken as indicative of an index of participant’s implicit attitude towards the topic under investigation. Implicit cognitions are typically out of the conscious control or awareness of the individual, and are also less prone to faking than self-report (i.e., questionnaire-based) measures (e.g., Wolff, Schindler, & Brand, 2015). Given the socially-contentious nature of the topic, indirect procedures may, therefore, offer a useful approach to studying attitudes towards sexual offenders and pedophiles.

Previous work on attitudes towards sexual offenders and pedophiles has focused on explicit (i.e., self-reported) attitudes (for a review, see *Anonymous*, under review). Only one study has used an indirect measure to assess implicit attitudes towards sexual offenders (Malinen, Willis, & Johnston, 2014). It was hypothesized that informative media reporting about sexual offending would lead to reduced implicit attitudes towards sexual offenders. However, no such effect was observed. The reasons for this are numerous, but one possibility is that stimuli need to focus specifically on changing emotional responses to sexual offenders (e.g., via narrative humanization) in order to have an impact on implicit attitudes. Further, the Single Target Implicit Association Test that was used by Malinen et al. (2014) may not have been sensitive enough to detect smaller changes in implicit processing. There are emerging methodologies that allow the analysis of implicit processing *while* an evaluation is being made (e.g., mousetracking), as opposed to just measuring the amount of time it takes to make the evaluation. Mousetracking offers greater sensitivity by allowing “a single RT [reaction time] to be opened up into a continuous ongoing stream of rich cognitive output” (Freeman & Ambady,

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2010, p. 240). It does this by tracking a computer mouse cursor as a study participant categorizes a stimulus word into one of two response options. The extent to which the mouse cursor’s trajectory deviates from an idealized straight line from its starting position to the chosen response option (a line that is not visible to the participant) provides an indication of the implicit competition between the two response options. As such, mousetracking allows a researcher to observe data about both the absolute competition between the two response options (by measuring a total reaction time), and about the dynamic decision-making process that is automatically happening within the participant (by measuring the real-time position of the mouse cursor as the decision is being made). Owing to this potential advantage, mousetracking was used in the present study.

The Present Study

The present study examined the extent to which both explicit and implicit attitudes towards pedophiles may be influenced through narrative humanization. We made the following hypotheses:

- (1) Both first-person narrative-based and expert-delivered presentations about pedophilia will lead to a reduction of explicit stigmatization and punitive attitudes towards pedophiles;
- (2) Only first-person narrative-based presentations about pedophilia will lead to more positive responses to these individuals at the implicit level, while expert-delivered informative presentations will not.

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Methods***Participants***

The sample was comprised of 100 students (19 males, 81 females; $M_{\text{age}} = 22.53$ years, $SD = 6.48$ years) from [institution masked for peer-review]. Participants were recruited via direct approach on campus and internet-mediated advertisements delivered through an institutional research participation scheme. Psychology students received course credit in exchange for their participation. For all other participants, taking part was entirely voluntary. All participants were naïve to the aims and hypotheses of the study at the time of participation.

Measures

The present study took the form of a lab-based experimental study, with all materials being presented using a Windows laptop. Full wording of all of the questionnaires and experimental stimuli that we used are available as an Online Supplement, or can be accessed through the first author upon request.

Demographics. Participants provided information about their age, gender, newspaper readership, and political ideology/engagement information. Data were also collected in relation to whether or not participants had personal knowledge of either victims or perpetrators of sexual offenses (Table 1).

[Insert Table 1 Here]

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Attitudes to Sexual Offenders Scale (ATS-21). The Attitudes to Sexual Offenders scale (ATS; Hogue, 1993) was developed as an adaptation of Melvin et al.'s (1985) 36-item Attitudes to Prisoner Scale. *Anonymous* (in submission) have since revalidated the ATS, and produced a shortened 21-item version (ATS-21) which was used in this study. The ATS-21 is comprised of three underlying factors ('Trust', 'Intent', and 'Social Distance'), and correlates highly with the original 36-item ATS ($r = .98, p < .001$). Items are framed as attitudinal statements (e.g., "I think I would like a lot of sex offenders"). Respondents must rate their agreement with each item using a 5-point Likert scale, scored from 0 (*strongly disagree*) to 4 (*strongly agree*). Eleven items are reverse-scored. The ATS-21 has a scoring range of 0-84, with high scores indicating positive attitudes towards sexual offenders. The measure demonstrated excellent internal consistency in the present study ($\alpha = .96$). Although this study focuses on views about pedophilia, the ATS-21 was considered suitable as a baseline measure as previous work suggests that the phrase 'sexual offender' evokes the stereotypical image of a predatory adult male pedophile (King & Roberts, 2015).

Moral Disengagement Scale. A modified version of the 15-item Moral Disengagement Towards Sexual Offenders Scale (MDS-SO; *Anonymous*, in prep) was used to measure the extent to which a person holds morally disengaged views about pedophiles. The MDS-SO examines the extent to which people used the mechanisms of moral disengagement (Bandura et al., 1996) to make judgments about sexual offenders. The modification of the measure was the substitution of the phrase 'sex offender(s)' for the more specific descriptor of 'pedophile(s)'. Items on this measure were framed as statements (e.g., "Most pedophiles should be treated like the animals they are"), with participants rating their level of agreement with these using a 6-point Likert

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scale, scored from 0 (*strongly disagree*) to 5 (*strongly agree*). Scores ranged from 0-75, with high scores indicating the endorsement of morally disengaged views about pedophiles. This scale demonstrated excellent levels of internal consistency ($\alpha = .97$).

Stigma and Punitive Attitudes about Pedophilia. The Stigma and Punitive Attitudes toward Pedophiles Scale (SPS; Imhoff, 2015) is a 30-item measure that examines views about pedophiles' level of 'Dangerousness' (five items; e.g., "Pedophiles are dangerous for children"; $\alpha = .78$), 'Intentionality' (six items; e.g., "Pedophilia is something that you choose for yourself"; $\alpha = .83$), and 'Deviance' (six items; e.g., "Pedophilia is a mental disorder, just like schizophrenia"; $\alpha = .49$), as well as respondents' endorsement of punitive attitudes towards pedophiles (13 items; e.g., "Pedophiles should be pre-emptively taken into custody"; $\alpha = .89$). Participants respond to each item using a Likert scale that ranges from 1 (*strongly disagree*) to 7 (*strongly agree*). Average scores on each subscale were calculated in accordance with Imhoff's (2015) scoring procedure.

Go/No-Go Association Task. A response-latency Go/No-Go Association Task (GNAT; Nosek & Banaji, 2001) was used to measure participants' pre-existing implicit attitudes towards sexual offenders. The GNAT is a computer-based indirect measure of mental associations between a target (e.g., 'sexual offenders') and an attribute (e.g., 'positive', or 'negative'). The GNAT was created and presented using ePrime (version 2.0). Stimuli were 15 'sexual offender' words, 15 'distractor target' words, 15 'positive' words, and 15 'negative' words. These stimuli were randomly presented in the center of the screen.

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The task involved two blocks. In one block, participants were instructed to respond (by pressing the spacebar as quickly as possible) whenever they saw a positive word or a word related to sexual offenders ('go' trials), but not respond if they saw a negative or distractor word ('no-go' trials). In the other block, participants had to respond whenever they saw a negative word or a word related to sexual offenders, but inhibit their response towards positive and distractor words. Each 60 trial experimental block was preceded by a 16 trial practice phase. 'Go' stimuli were presented on screen for 1400ms, while 'no-go' stimuli were presented for 1000ms. This procedure follows similar studies using a response-latency-based GNAT to measure implicit attitudes (e.g., Teachman, 2003).

Output data were response times for the 'go' trials. As such, incorrect trials were excluded from the analysis. In line with previous research, trials with a response latency of less than 300ms were also removed, as this indicates a random responding pattern. Data from two participants were removed entirely, owing to trends in their data that suggested a misunderstanding of the task instructions (i.e., no responses to any 'sexual offender' words in one of the blocks). An index of implicit attitudes towards sexual offenders was calculated for each participant by subtracting the average response time for the 'sexual offender-positive' block from the 'sexual offender-negative' block. As such, negative GNAT indices indicated faster response times during the 'sexual offender-negative' block (i.e., a negative implicit attitude towards sexual offenders).

Pedophilia Information. Four presentations about pedophilia were used in this study, with the source of the information and method of delivery being manipulated between participants. Each of these presentations discussed the clinical basis for pedophilia, and distinguished the

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condition as a sexual preference disorder as opposed to a descriptive term for sexually abusive behavior against children. The four conditions were labeled ‘narrative video’ ($n = 23$), ‘informative video’ ($n = 22$), ‘narrative written’ ($n = 28$), and ‘informative written’ ($n = 27$). The narrative video was a five minute clip taken from the British documentary ‘*The Paedophile Next Door*’, which presented the story of a self-identified pedophile (‘Eddie’) as he spoke about the roots and consequences of his sexual interests in children from a first-person perspective. The informative video took the form of a five minute clip taken from www.YouTube.com, in which Dr. James Cantor discussed his research findings into the neural basis of pedophilic sexual interests (‘*Mysteries of the Mind: The Pedophile's Brain (HD)*’). At the end of each video, the protagonist argues that early intervention prior to the commission of sexual offenses would be an effective way to tackle the issue of child sexual abuse. Written stimuli were transcripts of these videos. Different formats were included in order to test whether changing the modality of stimulus delivery interacts with the stimulus message (Z. Walkington, personal communication, July 2, 2015).

Absorption Scale. An 11-item measure of absorption (adapted from Green & Brock, 2000) was used to examine participants’ level of engagement with the stimulus and the immediate impact they believed it had on their views about pedophilia. These items (e.g., “The content of the piece has changed my views about pedophilia”) were responded to using a seven-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Four items were reverse-scored, and an average item score was calculated as a measure of absorption. This scale demonstrated acceptable levels of internal consistency in the present study ($\alpha = .75$).

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Perceptions of Sex Offenders Scale. The Perceptions of Sex Offenders Scale (PSO; Harper & Hogue, 2015b) is a 20-item scale that is comprised of three factors. These factors examine respondents' perceptions about sentencing and management policies (e.g., "Convicted sex offenders should never be released from prison"), stereotype-supportive beliefs about sexual offenders (e.g., "Most sex offenders are unmarried men"), and the risks posed by people convicted of sexual crimes (e.g., "Only a few sex offenders are dangerous"; reverse-scored). Respondents rate their level of agreement with each item using a 6-point Likert scale, ranging from 0 (*strongly disagree*) to 5 (*strongly agree*). Six items are reverse-scored, and high scores indicate the endorsement of negative, hostile, and stereotype-driven perceptions of sexual offenders. Each of the PSO factors demonstrated good-to-acceptable levels of internal consistency in the present study ('Sentencing and Management' $\alpha = .92$; 'Stereotype Endorsement' $\alpha = .83$; 'Risk Perception' $\alpha = .65$).

Mousetracking. The freely-available MouseTracker software (Freeman & Ambady, 2010) tracks participants' hand movements by indexing the trajectory of a computer mouse as it moves across the screen to select one of two evaluative response options. In this study, a list of 60 words was developed for use in a word categorization task using MouseTracker. These words pertained to 'positive' and 'negative' words, along with words corresponding to the 'Trust', 'Intent', and 'Social Distance' factors underlying the ATS-21, and the 'Sentencing' and 'Risk' factors underlying the PSO. There was an equal split of positively- and negatively-valenced words.

Participants initiated the presentation of a stimulus word by clicking on the /START/ box (positioned at the bottom-center of the screen) with the mouse. Participants were then instructed to classify the word into one of two categories by clicking on the correct response with the

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computer mouse. The two response options, which were located in the top left and right corners of the screen, were 'PEDOPHILE' and 'NOT A PEDOPHILE'. As with the GNAT, this task was completed in two blocks. In one block, participants were instructed to respond in such a way that corresponded with a positive view of pedophiles. In the other block, this rule was reversed. The order of block presentation, as well as the left/right location of the response options, was counterbalanced between participants. A 10-trial practice phase preceded each critical 60-trial phase. All stimulus words were presented in a random order.

Outcome data included: (1) the maximum deviation (MD) from an idealized straight line between the /START/ box and the correct response; (2) the area-under-the curve (AUC) between the mouse trajectory and the idealized straight line; and (3) the raw response time (RT) from each trial (for a graphical display of these outcomes, see Figure 1).

Prior to data analysis, trials were removed if they were incorrect, had an initiation time (the time between the presentation of the stimulus word and the first mouse movement) greater than 500ms, or had a total RT greater than 3000ms. This approach to data preparation is consistent with previous mousetracking research (e.g., Incera, Markis, & McLennan, 2013).

[Insert Figure 1 Here]

Procedure

Participants were recruited either by direct approach on the university campus, or by replying to online advertisements. A mutually-convenient time to attend a quiet lab space in order to complete the experiment was agreed with those who agreed to take part.

At the time of testing, participants were invited to read the study brief, provide demographic information, and complete the baseline measures in a standardized order (ATS-21 > MDS-SO > SPS > GNAT). Following this, participants were randomly presented with one of the four experimental stimuli about pedophilia, before completing the absorption scale. Next, the MDS-SO and SPS measures were repeated in order to examine changes in these scores as a function of the information presented. Participants then completed the mousetracking task, and finally the PSO. At the end of the study, participants were fully debriefed and thanked for their participation.

This procedure received full consideration and approval from the School of Psychology Research Ethics Committee (SOPREC) prior to data collection.

Results

Pre-Manipulation Scale Correlations

In order to examine the convergent validity of the scales used in this study, we conducted correlational analyses between all of the pre-manipulation measures that we administered (i.e., the ATS-21, the GNAT, and the subscales of the SPS). The results of these analyses are presented in Table 2.

[Insert Table 2 Here]

All self-report measures were significantly correlated with each other. However, the GNAT index that was created by subtracting the average response time in the ‘sexual offender-positive’ GNAT block from the ‘sexual offender-negative’ GNAT block was not significantly correlated

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with any of the self-report measures. While weak correlations between indirect and self-report measures of contentious social attitudes are not uncommon within the social psychological literature (e.g., Cunningham, Preacher, & Banaji, 2001), the lack of correlations between the newly-created GNAT and the self-report measures used in this study call into question the validity of the GNAT. As such, no further comment will be made to the GNAT this paper, and further work should be undertaken in order to specifically validate this method for assessing implicit attitudes towards sexual offenders.

Effect of Presentation Modality

The effect of the modality of the stimulus presentation (i.e., video vs. written) was examined using a 2 (Condition: Narrative vs. Informative) x 2 (Modality: Video vs. Written) between-groups multivariate analysis of covariance (MANCOVA). Dependent variables were average change indices for the MDS-SO, SPS, PSO, and absorption scales. Owing to high correlation coefficients between the ATS-21 and (a) the MDS-SO and SPS scales (Table 2), and (b) the PSO scale (Harper & Hogue, 2015b), it was important to include baseline attitudes towards sexual offenders (i.e., ATS-21 scores) as a covariate in this analysis¹. As such, we were able to account for the effect of the experimental manipulations independent of these baseline attitudes. ATS-21 scores were a significant covariate in relation to each dependent variable ($p \leq .001$).

¹ We are aware of recent criticisms of only reporting statistical analyses including covariates (Simonsohn, Nelson, & Simmons, 2014). However, the strength of the relationships between the scales used in this study (exemplified both in the coefficients reported in Table 1, and through the findings of previous research in this area) warrants the inclusion of ATS-21 scores as a covariate in all analysis of self-reported outcomes reported in this paper, such as to remove the influence of baseline attitudes over outcome data and provide a cleaner analysis of the effects of the experimental manipulations. For data clarity and transparency, full details of all analyses without covariates are available in an online Supplementary File.

In relation to most of the dependent variables, there was a non-significant interaction between Condition and Modality, meaning that the format of the pedophilia-related stimulus information had no significant impact on the outcome variables. The only exception to this was in relation to the average change score on the SPS ‘Intent’ subscale ($F(1, 99) = 4.38, p = .039, \eta^2 = 0.03$). Using simple main effects analyses (with Bonferroni correction), this interaction was attributable to significantly higher perceptions of pedophiles’ intent when those in the narrative condition were presented with a video stimulus than a written stimulus ($p = .029, d = 0.84$). Descriptive data are presented in Table 3.

Owing to this solitary interaction between Condition and Modality, all subsequent analyses were conducted by combining participants into ‘narrative’ ($n = 51$) and ‘informative’ ($n = 49$) condition groups.

[Insert Table 3 Here]

Moral Disengagement Judgments

A 2 (Condition: Narrative vs. Informative) x 2 (Time: Pre- vs. Post-Manipulation MDS-SO scores) mixed analysis of covariance (ANCOVA) was conducted, with Condition as the between-groups factor, Time as the within-subjects factor, and ATS-21 scores the covariate ($p < .001$).

Consistent with hypothesis one, a significant interaction was observed between Condition and Time ($F(1, 97) = 19.91, p < .001, \eta^2 = 0.06$; Figure 2). Analyses of simple main effects (with Bonferroni correction) revealed a significant reduction in moral disengagement scores in both the narrative condition ($p < .001$) and the informative condition ($p < .001$). The size of the effect of

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the manipulation, however, was much greater in the narrative condition ($d_z = 1.55$) than in the informative condition ($d_z = 0.88$). Descriptive data are presented in Table 4.

[Insert Figure 2 Here]

Stigma and Punitive Attitude Judgments

A series of two-way mixed ANCOVAs were conducted in order to examine the effect of Condition (Narrative vs. Informative; between-subjects factor) on Time (Pre- vs. Post-manipulation scores on the 'dangerousness', 'intentionality', 'deviance', and 'punitive attitudes' subscales of the SPS; within-subjects factors). ATS-21 scores were covaried in this analysis, and had a significant effect on all dependent variables ($p < .001$; except 'deviance', $p = .622$). Descriptive data are presented in Table 4, while graphical depictions of the impact of the experimental manipulation on SPS scores are provided in Figure 3.

[Insert Table 4 Here]

In relation to perceptions of pedophiles' dangerousness, a significant interaction was observed between Condition and Time ($F(1, 97) = 12.42, p = .001, \eta^2 = 0.04$). Simple main effects analyses using the Bonferroni correction found that perceptions of pedophiles' dangerousness reduced as a function of both the narrative condition ($p < .001$) and the informative condition ($p < .001$). However, the size of the effect of the manipulation was much larger in the narrative condition ($d_z = 1.20$) than in the informative condition ($d_z = 0.57$).

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There was a non-significant interaction between Condition and Time in relation to perceptions of pedophiles’ intent (conceptualized as control over their sexual preferences; $F(1, 97) = .104, p = .748$), meaning that pre-/post-manipulation differences in these perceptions were not contingent on the experimental manipulation.

A significant interaction between Condition and Time in relation to perceptions of deviance levels among pedophiles ($F(1, 97) = 7.46, p = .008, \eta^2 = 0.01$). Simple main effects analyses using the Bonferroni correction revealed that deviance ratings were significantly reduced as a function of the narrative presentation ($p < .001, d_z = 0.60$), but unaffected by the informative presentation ($p = .655$).

There was a significant interaction between Condition and Time in relation to punitive attitudes towards pedophiles ($F(1, 97) = 13.77, p < .001, \eta^2 = 0.04$). Simple main effects analyses using the Bonferroni correction found that significant reductions in punitive attitudes occurred as a function of both the narrative condition ($p < .001$) and the informative condition ($p < .001$). Again, the size of the effect of the manipulation was much larger in the narrative condition ($d_z = 1.31$) than in the informative condition ($d_z = 0.44$). Combined, these results are also supportive of hypothesis one.

[Insert Figure 3 Here]

Sentencing, Stereotypes, and Risk Judgments

A one-way MANCOVA was conducted, with each of the PSO factors (‘Sentencing and Management’, ‘Stereotype Endorsement’, and ‘Risk Perception’) as dependent variables, Condition (Narrative vs. Informative) as the between-subjects factor, and ATS-21 scores as

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covariates ('Sentencing and Management' $p < .001$; 'Stereotype Endorsement' $p = .124$; 'Risk Perception' $p = .001$).

Again consistent with hypothesis one, a significant main effect of Condition was observed in relation to the Sentencing and Management subscale ($F(1, 97) = 12.07, p = .001, \eta^2 = 0.08$). This effect was attributable to less punitive sentencing judgments being made by participants in the narrative condition ($M = 9.52, SE = 0.98$) than those in the informative condition ($M = 14.55, SE = 0.99$). There was no significant difference in the Stereotype Endorsement scores ($F(1, 97) = 2.55, p = .114$) of participants in the narrative condition ($M = 12.42, SE = 0.64$) or informative condition ($M = 10.93, SE = 0.65$). This non-significant interaction (though approaching significance) was also found in relation to the Risk Perception scores ($F(1, 97) = 3.05, p = .084$) of participants in the narrative condition ($M = 13.88, SE = 0.53$) and informative condition ($M = 15.25, SE = 0.54$).

Mousetracking Data

Mousetracking data were calculated in relation to 'positive' and 'negative' responding. For example, when positive words were linked with the response label 'PEDOPHILE' and negative words were linked to the response label 'NOT A PEDOPHILE', these responses were grouped into a single 'positive responding' variable. Data for trials when negative words were linked with the response label 'PEDOPHILE' and positive words were linked to the response label 'NOT PEDOPHILE' were grouped into a single 'negative responding' variable.

Consistent with previous research using a mousetracking paradigm (Schneider et al., 2015), correlational analyses were conducted between MD and AUC output data. These two outcomes were highly correlated for both positive and negative responding styles (positive:

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$r(100) = .94, p < .001$; negative: $r(100) = .74, p < .001$). As such, only AUC outcome data are discussed in order to reduce repetition.

A one-way MANOVA was conducted on these data, with Condition (Narrative vs. Informative) as a between-subjects variable, and AUC and RT data for ‘positive’ and ‘negative’ mousetracking responding as four separate dependent variables. Descriptive data are presented in Table 5, and average mouse trajectories within each condition are depicted graphically in Figure 5.

[Insert Table 5 Here]

In relation to positive responding data, there was a significant main effect of Condition on AUC outcomes ($F(1, 99) = 20.53, p < .001, \eta^2 = 0.17$). Post-hoc comparisons attributed this effect to a significantly greater AUC in the narrative condition than in the informative condition ($p < .001, d = 0.93$). These data indicate a greater pull towards the negative responding option on trials where participants were instructed to respond positively about pedophiles in the narrative condition, comparative to the informative condition. However, there was a non-significant effect of Condition on RTs ($F(1, 99) = 2.49, p = .118$) when participants were instructed to respond positively about pedophiles.

In relation to negative responding data, there was also a significant main effect of Condition on AUC outcomes ($F(1, 99) = 32.40, p < .001, \eta^2 = 0.25$). This effect was again attributed to a significantly greater AUC in the narrative condition than in the informative condition ($p < .001, d = 1.14$). These data indicate a greater pull towards the positive responding option on trials when participants were instructed to respond negatively about pedophiles in the

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narrative condition, comparative to the informative condition. There was also a significant effect of Condition on RTs when participants were instructed to respond negatively about pedophiles ($F(1, 99) = 5.59, p = .020, \eta^2 = 0.05$), with participants in the informative condition responding faster on these trials ($p = .024; d = 3.25$).

[Insert Figure 4 Here]

A further series of 2 (Condition: Narrative vs. Informative; between-groups) x 2 (Response Type: Positive vs. Negative; within-groups) mixed MANOVAs were conducted in order to examine the differences between positive and negative response trajectories *within* each of the conditions. This analysis was important in order to examine the relative levels of competition between positive and negative responding as a function of the experimental manipulation. There was a marginally significant interaction between Condition and Response Type in relation to AUC data ($F(1, 98) = 3.83, p = .054, \eta^2_p = 0.04$) and a non-significant interaction for RT data ($F(1, 95) = 1.37, p = .244$).

In light of the marginally significant interaction for AUC outcomes, we examined the effect of Response Type on AUC data within each condition separately using a one-way repeated measures ANOVA. The results revealed a significant effect of Response Type within the narrative condition ($F(1, 50) = 9.70, p = .003, \eta^2_p = 0.16$), such that there was a significantly greater ‘pull’ towards positive responding than negative responding. However, there was no effect of Response Type within the informative condition ($F(1, 48) = 0.69, p = .410, \eta^2_p = 0.01$). These results are reflected in the mousetracking trajectory plots (Figure 4). That is, there is no observable difference between positive and negative mouse trajectories within the informative

condition (exemplified by the trajectories overlapping), while there is a visual differences between positive and negative trajectories within the narrative condition. This pattern of results is consistent with hypothesis two.

Discussion

This study sought to examine the potential effectiveness of narrative humanization in reducing levels of stigmatization, moral disengagement, and punitive attitudes about pedophiles. At the explicit (self-report) level, significant reductions in these constructs were observed in both the narrative condition (whereby a self-identified pedophile spoke about his sexual interests from a first-person perspective) and the informative condition (in which information was presented by an expert). However, the size of the effect was substantially greater in the narrative condition, suggesting that a narrative presentation may be more effective in improving self-reported attitudes towards pedophiles. These findings support hypothesis one. At the implicit level, participants in the narrative condition were more likely to express both a positive and a negative bias in their mousetracking responses than participants in the informative condition. This is perhaps due to the narrative presentation of pedophilia eliciting a greater general level of emotion within participants in this condition. That is, by presenting information in a narrative format, we were able to increase general levels of emotion among these participants. However, when comparing response trends within each of the conditions, participants in the narrative condition expressed a significantly greater bias towards positive responding than negative responding. The size of the effect in each of these cases was large. There were no significant differences in positive and negative responding patterns within the informative condition,

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indicating that a change in automatic affective responses to pedophiles was limited to those participants in the narrative condition. These results are consistent with hypothesis two.

Theoretical and Practical Implications

The findings from the self-report data are consistent with similar research in this area, in which informative stimuli have been found to improve explicit attitudes (e.g., Malinen et al., 2014). Further, these results provide support for previous claims that using content delivered by pedophiles themselves can have a profound effect on reducing stigma (Jahnke, Philipp, & Hoyer, 2015). However, this study is novel, in that information presented in a first-person narrative form also had positive effects on implicit attitudes towards pedophiles.

These findings have implications for the ways in which we discuss the topic of pedophilia at a societal level. Analyses of media reports suggest that the ‘pedophile’ label is often used as a catch-all term for child molesters (Feelgood & Hoyer, 2008; Harrison et al., 2010), and that this stereotype of a predatory pedophile comes to shape public perceptions of sexual offenders in a general sense (King & Roberts, 2015; Salerno et al., 2010). However, by presenting information about pedophilia using a first-person narrative format, such as that used in this study, it may be possible to improve societal attitudes towards people with pedophilic sexual interests.

As outlined earlier, Jahnke and Hoyer (2013) suggested that fear of discovery often prevents self-identifying pedophiles from seeking treatment within the community before they commit a contact sexual offense. By using a narrative humanization approach to address public attitudes, it may be possible to help community members see beyond the ‘pedophile’ label, and instead to consider these people as individuals struggling with sexual interests that they do not want, and do not choose to have. A further implication of these attitudinal changes would be a

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rehabilitation supporting social environment, where those with deviant sexual interests who have not yet offended are not subjected to social isolation and loathing, but are encouraged to seek treatment in order to manage their sexual urges.

Sampling and Methodological Implications

Our findings indicate that first-person narrative humanization can have a significant positive effect on the explicit and implicit views held by students. This research builds upon similar results to our self-report data in a sample of trainee psychotherapists (Jahnke, Philipp & Hoyer, 2015). However, they suggested that their findings may be subject to a sampling bias, with their sample being exposed to people with pedophilic sexual interests on a regular basis. By reporting a significant improvement in attitudes towards pedophiles in a non-professional sample, we can begin to hypothesize that this type of presentation could be used to affect real attitude change among those who may not have regular contact with people with a sexual interest in children.

This study used an indirect mousetracking paradigm in order to assess the effect of the experimental manipulation on implicit cognition. In comparison to established indirect measures of social cognition, such as the Implicit Association Test (IAT; Greenwald, McGhee, & Schwarz, 1998), which rely solely on response times in the classification of stimuli, mousetracking enables the analysis of the real-time dynamic cognitive processing of these stimuli when making such classifications.

By using this paradigm, we were able to examine both the level and direction of the emotionality of the stimuli that we presented. While these differences may not reflect definitive changes to the associations between pedophilia and positive or negative evaluations, they do

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suggest that implicit competition between positive and negative responding was induced as a function of the first-person narrative humanization of pedophiles. To our knowledge, this is the first study that has measured such attitudes using the mousetracking paradigm, as well as the first to find changes in implicit attitudes in this area. As such, this is the key strength of the present study, and we believe that these data provide a sound rationale for the continuation of such methodologies in this area of research.

Limitations and Future Directions

The present study has three key limitations. First, only students were tested, with a sample that was comprised predominantly of females. Thus, the sample may have been biased as students have previously been found to hold more positive attitudes towards sexual offenders (in a general sense) than non-student members of the public (e.g., Gakhal & Brown, 2011). Second, we did not include a follow-up testing session in our research design. Previous work has found that effects of narrative-based presentations of pedophiles are long-lasting at the explicit level (Jahnke, Philipp, & Hoyer, 2015), but we cannot make the same claims about our data. Third, only cognitive and affective changes in attitudes towards pedophiles were examined in our outcome data. Missing from these data are behaviorally-based attitudes, which should also be examined in order to produce a fuller overview of responses to these kinds of socially-contentious issues.

Future research should address these limitations by using gender-balanced and general public samples. First, a replication of this study using a non-student sample is warranted in order to support the idea that narrative humanization has the potential to impact upon a non-professional and non-student sample. If results are replicated in a public sample, then this has the

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potential to act as a catalyst for researchers to approach film-makers and other mass media outlets with regards to tailoring their presentations of pedophilia.

Subsequent studies could adopt longitudinal designs, or at a minimum, include a follow-up examination of the stability of post-manipulation changes in responses to pedophiles. Longer-term approaches to research in this area may be able to yield results that are more indicative of real attitude change at a societal level than studies using a single exposure to a stimulus and immediate attitude changes.

With regards to incorporating a behavioral outcome component, future research could use an outcome such as those used in charitable giving studies. Here, researchers could have a pot of research funds (either real or imagined), and ask participants to divide these funds between a selection of charitable organizations (e.g., victim groups, law enforcement groups, and organizations involved in preventative treatment for self-identifying pedophiles. This approach could reveal important information about the actual behavioral impact of such an experimental manipulation, rather than an imagined outcome expressed via a questionnaire.

It is worth noting that the correlation coefficients between mousetracking outcome data and the self-report measures that we used were greater among those participants in the narrative condition than in the informative condition (see Supplementary File). As we did not have a ‘no manipulation’ group, it is not possible to suggest whether the narrative presentation led to a greater correlation between the data produced by these tasks, or if the informative presentation eliminated these relationships. Nonetheless, the mousetracking paradigm was successful in highlighting differences in automatic decision-making processes as a function of the experimental manipulations that we used. We argue that this paradigm has substantial advantages over traditional indirect measures (e.g., IATs and GNATs), although this task does need further

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examination in order to interrogate its psychometric properties without the interference of experimental manipulations.

Concluding Remarks

This study found evidence for both explicit and implicit attitude change about pedophiles in response to an intervention based around the concept of narrative humanization. To our knowledge, this is the first study to report results that suggest a method for influencing attitudes towards pedophiles at the implicit level. This is significant, as influencing implicit-level cognitions means that snap judgments about this group may also be influenced, potentially leading to more rational and progressive social discourses. More research is certainly warranted in order to establish the long-term effects of such an intervention on constructs like attitudes and policy preferences.

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Table 1: Sample demographics

Characteristic	<i>N</i>
Gender	
Male	19
Female	81
Age	22.58 (6.48)
Newspaper Readership	
Tabloids	22
Broadsheets	16
Both	26
Neither	36
Political Ideology	
Liberal	51
Moderate	21
Conservative	28
Knows a Sexual Crime Victim	
Yes	48
No	50
Prefer not to disclose	2
Knows a Sexual Offender	
Yes	28
No	71
Prefer not to disclose	1

Note: 'Age' figure is a mean value for the sample (standard deviation in parentheses) in years.

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Table 2: Zero-order correlations and descriptive statistics for baseline measures

	1	2	3	4	5	6	7
1. ATS-21	-						
2. GNAT	.00	-					
3. MDS-SO	-.88**	-.05	-				
4. SPS Dangerousness	-.75**	-.13	.73**	-			
5. SPS Intentionality	-.61**	.01	.67**	.68**	-		
6. SPS Deviance	-.20 *	-.03	.20	.36**	.26**	-	
7. SPS Punitive Attitudes	-.84**	.06	.87**	.72**	.65**	.21*	-
<i>M</i>	43.55	-35.15	35.51	4.68	3.34	4.81	3.74
<i>SD</i>	16.17	65.77	18.69	1.11	1.22	0.74	1.02

p* < .05 *p* < .01

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Table 3: Average change indices for each of the outcome variables as a function of stimulus modality, by Condition

Condition and Measure	<u>Written</u>		<u>Video</u>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Narrative				
MDS-SO	-25.68	17.04	-21.87	13.49
SPS dangerousness	-1.65	1.26	-1.34	1.27
SPS intentionality	-1.05	1.21	-0.15	0.92
SPS deviance	-0.26	0.56	-0.46	0.61
SPS punitive attitudes	-1.28	0.93	-0.85	0.62
Informative				
MDS-SO	-12.59	9.61	-4.37	7.11
SPS dangerousness	-0.36	0.67	-0.58	0.94
SPS intentionality	-0.05	0.56	-0.36	1.04
SPS deviance	-0.05	0.48	-0.05	0.54
SPS punitive attitudes	-0.21	0.38	-0.35	0.84

Note: Average change scores calculated by subtracting pre-manipulation scores from post-manipulation scores. As such, a negative change score indicates a reduction as a result of the manipulation.

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Table 4: Estimated marginal means for pre- and post-manipulation changes on the MDS-SO and SPS measures, by Condition

Condition and Measure	Pre-manipulation	Post-manipulation	<i>t</i>	<i>p</i>	<i>d_z</i>
Narrative					
MDS-SO	35.56 (1.29)	14.46 (1.47)	13.85	< .001	1.55
SPS dangerousness	4.16 (0.11)	3.25 (0.15)	9.41	< .001	1.20
SPS intentionality	3.17 (0.14)	2.73 (0.14)	3.50	.001	0.55
SPS deviance	5.00 (0.10)	4.64 (0.09)	4.50	< .001	0.60
SPS punitive attitudes	3.71 (0.08)	2.78 (0.09)	10.50	< .001	1.31
Informative					
MDS-SO	35.46 (1.32)	24.42 (1.50)	7.09	< .001	0.88
SPS dangerousness	4.75 (0.11)	4.14 (0.15)	4.12	< .001	0.57
SPS intentionality	3.52 (0.14)	3.13 (0.13)	2.95	.004	0.23
SPS deviance	4.62 (0.11)	4.59 (0.10)	0.45	.655	0.09
SPS punitive attitudes	3.77 (0.08)	3.33 (0.09)	4.91	< .001	0.44

Note: Figures represent estimated marginal means, corrected for baseline ATS-21 scores.
Standard error data displayed in parentheses.

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Table 5: Descriptive and inferential statistics for mousetracking output data, by Condition

Measure	<u>Narrative</u>					<u>Informative</u>				
	Positive	Negative	<i>t</i>	<i>p</i>	<i>d_z</i>	Positive	Negative	<i>t</i>	<i>p</i>	<i>d_z</i>
AUC	0.84 (.35)	1.00 (.40)	3.12	.003	0.44	0.56 (.25)	0.60 (.29)	0.83	.410	0.12
RT	1243.15 (127.16)	1313.05 (153.85)	3.67	.001	0.51	1193.54 (183.45)	1226.60 (208.67)	1.49	.143	0.21

Note: ‘Positive’ and ‘negative’ refer to responding style (i.e., ‘positive’ or ‘negative’ responding about pedophiles). Figures refer to uncorrected mean data (and standard deviations).

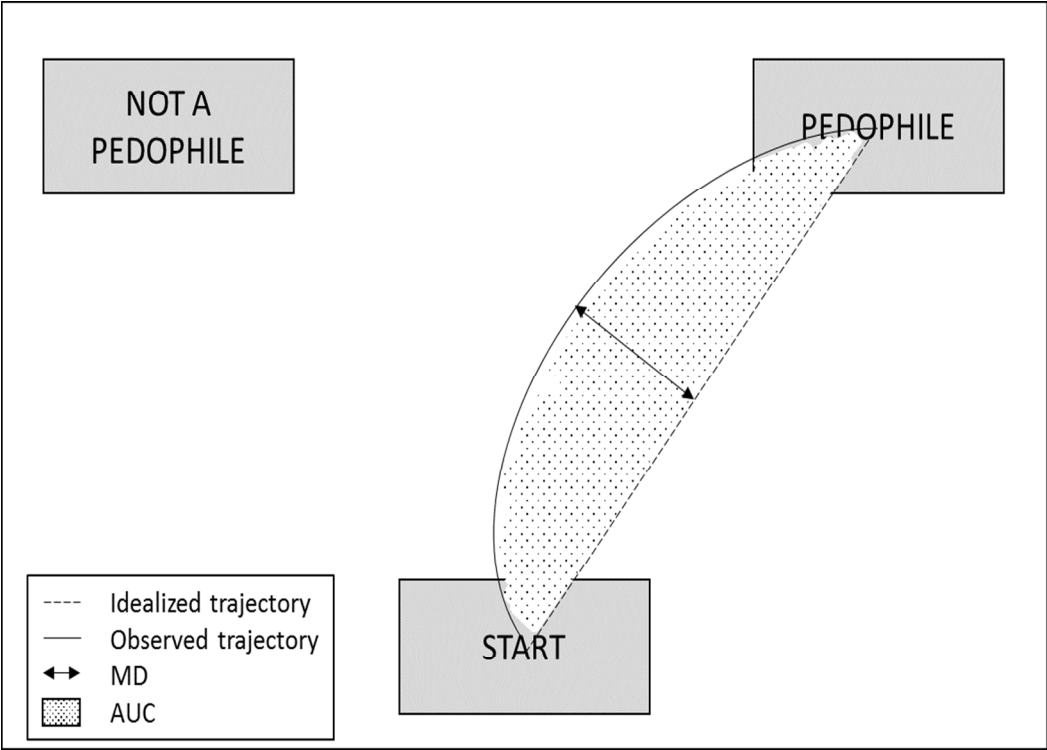


Figure 1. Mousetracking set-up and graphical depiction of outcome measures

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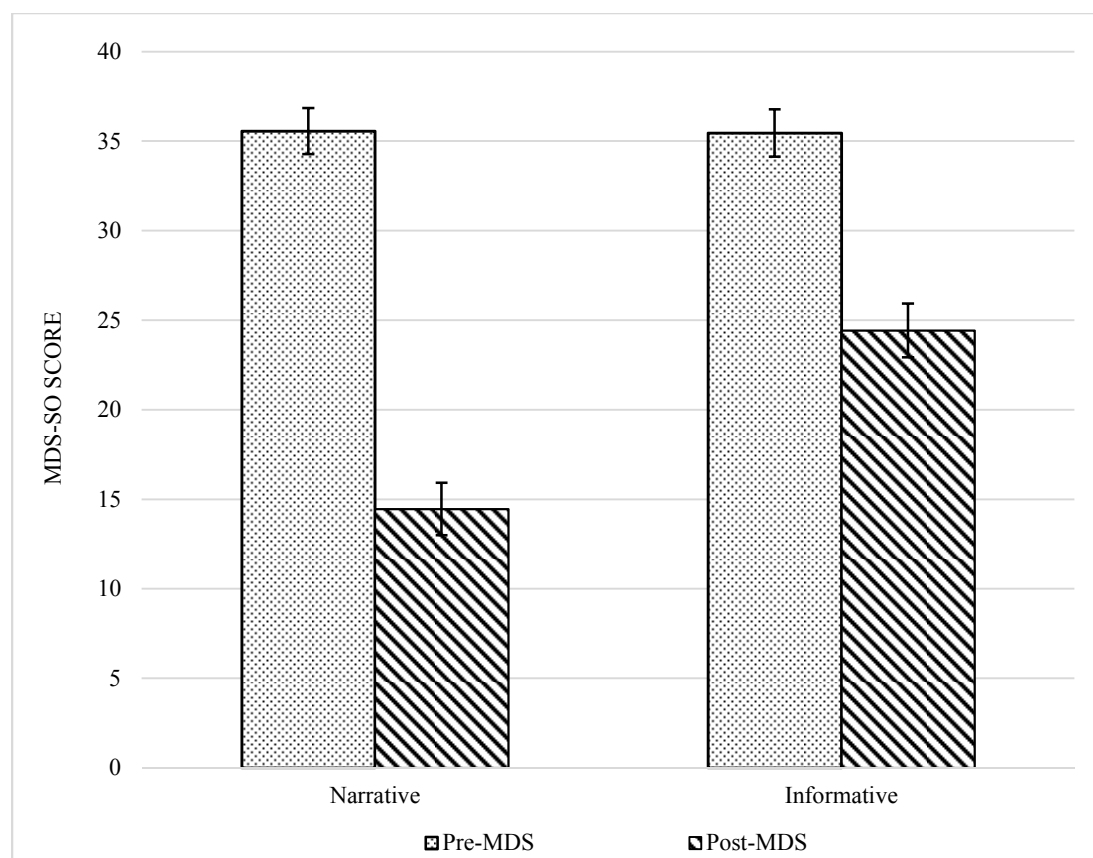


Figure 2. Pre- and post-manipulation changes in moral disengagement scores, by Condition.

Values based on estimated marginal means, corrected for baseline ATS-21 scores. Error bars represent standard error of the mean

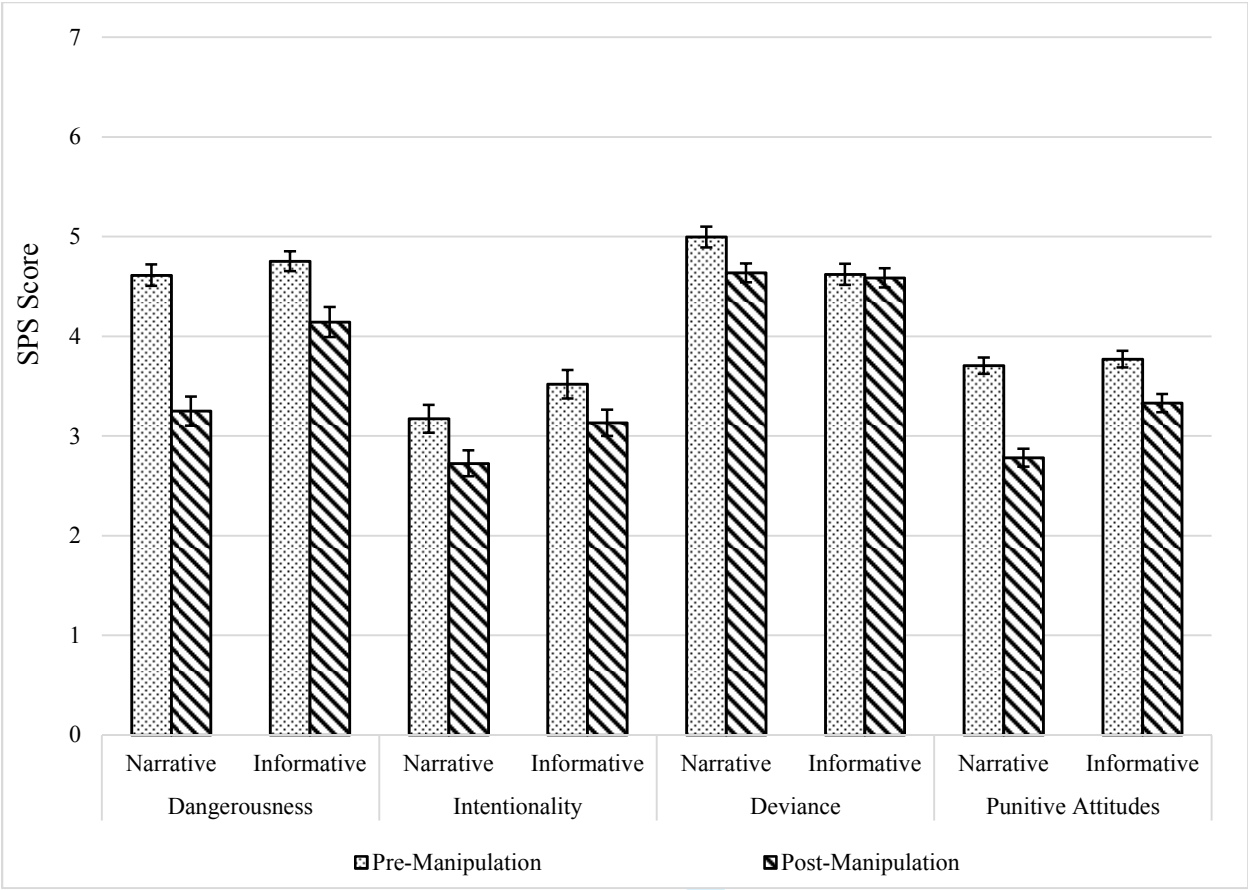


Figure 3. Pre- and post-manipulation changes in SPS scores, by Condition. Values based on estimated marginal means, corrected for baseline ATS-21 scores. Error bars represent standard error of the mean

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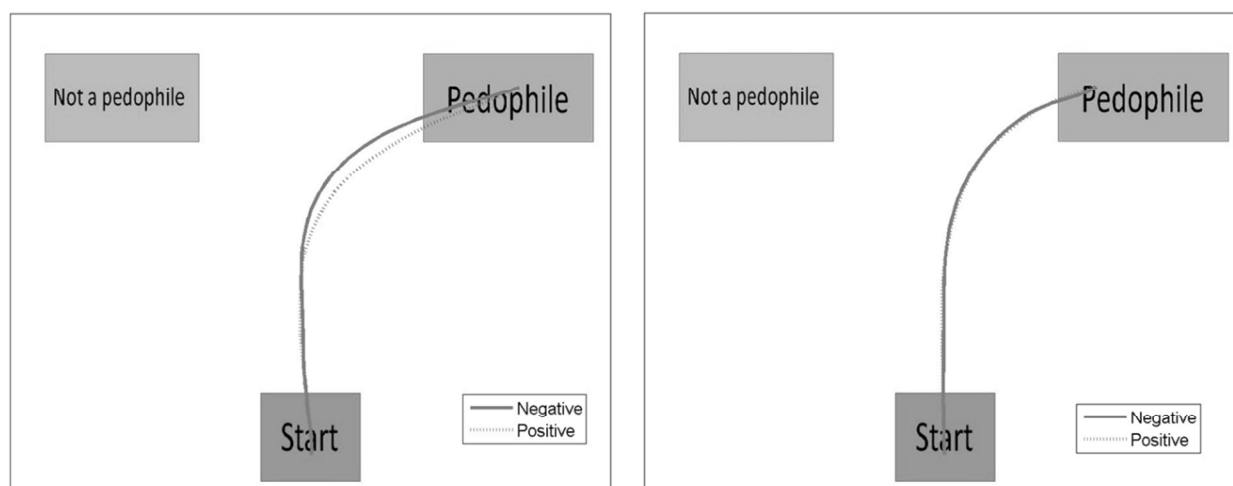


Figure 4. Mousetracking trajectory differences for negative and positive responding within the narrative condition (left graph) and informative (right graph) conditions

Reducing stigma and punitive attitudes towards pedophiles through narrative humanization

Supplementary Materials

This supplementary file offers additional information about the study that will aid the reader in understanding our study content and analysis in a clear and transparent manner. First, we provide item and stimulus content for all questionnaires and indirect tasks used in the study. Second, we present data analysis without the use of covariates, in response to comments from one anonymous reviewer following criticisms of other studies that have been accused of ‘p-hacking’ by including non-relevant covariates in their analyses.

Section 1: Study Materials

ATS-21

1. Sex offenders are different from other people
2. Most sex offenders are victims of circumstance and deserve help
3. Sex offenders have feelings like the rest of us
4. It is not wise to trust a sex offender too far
5. I think I would like a lot of sex offenders
6. Give a sex offender an inch and they take a mile
7. Sex offenders need affection and praise just like anybody else
8. Trying to rehabilitate sex offenders is a waste of time and money
9. Sex offenders are no better or worse than other people
10. You have to be constantly on your guard with sex offenders
11. If you give a sex offender your respect, he'll give you the same
12. Sex offenders only think about themselves
13. There are some sex offenders I would trust with my life
14. Most sex offenders are too lazy to earn an honest living
15. I wouldn't mind living next door to a treated sex offender
16. Sex offenders are just plain mean at heart
17. Sex offenders are always trying to get something out of somebody
18. Sex offenders are immoral
19. I would like associating with some sex offenders
20. Sex offenders respect only brute force
21. If sex offenders do well in prison/hospital, they should be let out on parole

MDS-SO (Pedophile Version)

1. It is appropriate to punish pedophiles harshly because of the harm they cause their victims
2. The Government should treat pedophiles harshly if that is what the public wants
3. Harsh punishment is deserve by pedophiles once they break the law
4. Many pedophiles lack the ability to feel emotions like the rest of us
5. When pedophiles don't care about their victims' human rights, they should lose their own
6. Treating pedophiles harshly helps them to change their ways
7. Pedophiles have nobody to blame for their harsh treatment but themselves
8. Most pedophiles are monsters
9. If pedophiles aren't punished harshly, they will never respect the law
10. Pedophiles deserve to be excluded from the rest of society
11. Society as a whole needs to be more excluding of pedophiles
12. It is better to excessively punish some pedophiles than to allow others out to commit more crimes
13. If you don't punish pedophiles harshly, you can't complain when they continue to break the law
14. Most pedophiles should be treated like the animals they are
15. An individual citizen cannot be judged for excluding pedophiles from the community if the rest of society does the same

SPS Dangerousness

1. Pedophiles are dangerous for children
2. Pedophiles are perverse sex offenders
3. There exists no strong relationship between pedophilia and sexual abuse of children
4. Many pedophiles never have any sexual contact with a child
5. Pedophilia sooner or later always leads to child sex abuse

SPS Intentionality

1. Pedophilia is something that you choose for yourself
2. If someone is pedophilic there is nothing he can do about it
3. If someone is pedophilic, it is his own fault
4. People can decide whether they are pedophilic or not
5. Pedophilia is a disposition that you cannot do anything about
6. People with a pedophilic orientation have consciously decided for this orientation

SPS Deviance

1. Pedophilia does not require treatment
2. Pedophilia is not pathological
3. Pedophilia is a mental disorder, like for example schizophrenia
4. Pedophiles are normal people with an infrequent sexual orientation
5. Pedophiles are sick
6. Someone who is pedophilic but never sexually abuses as child is not mentally ill

SPS Punitive Attitudes

1. Pedophiles should be pre-emptively taken into custody
2. One should not condemn pedophiles too harshly
3. Pedophiles should be castrated
4. Known pedophiles should be sentenced for life as deterrence
5. Pedophiles should be allowed to work with children
6. Citizens should have a right to get informed if pedophiles move to their neighbourhood
7. Pedophiles should be forced to undergo therapy
8. If all other means fail, it should be legal in exceptional cases to torture pedophiles
9. Pedophiles should experience leniency when dealing with the legal system
10. There should be a website listing pedophiles with name, photo and address
11. Pedophiles should be chemically castrated
12. The privacy of pedophiles is more important than information and safety needs of the public
13. Known pedophiles should be sentenced to death as deterrence

Absorption

1. While I was [reading/watching] the piece, I could easily picture the events taking place
2. While I was [reading/watching] the piece, activity going on in the room around me was on my mind
3. I could picture myself in the shoes of [Dr. Cantor/Eddie] when he was describing his experiences
4. I was mentally involved in the piece while [reading/watching] it
5. After finishing [reading/watching] the piece, I think it will be easy to put it out of my mind
6. I want to learn more about [Dr. Cantor's work/Eddie's experiences]
7. The piece affected me emotionally
8. I found myself thinking of other ways to interpret [Dr. Cantor's findings/Eddie's story]
9. I found my mind wandering while [reading/watching] the piece
10. The content of the piece is relevant to my everyday life
11. The content of the piece has changed my views about pedophilia

PSO

1. With support and therapy, someone who committed a sexual offence can learn to change their behaviour
2. People who commit sex offences should lose their civil rights (e.g. voting, privacy)
3. The death penalty should be reintroduced for sex offenders
4. People are far too on edge about the risks posed by sex offenders
5. More sex offenders should be given sentences in the community
6. Sex offenders prefer to stay home alone rather than be around lots of people
7. Most sex offenders do not have close friends
8. Sex offenders have difficulty making friends, even if they try real hard
9. The prison sentences sex offenders receive are much too long when compared to the sentence lengths for other crimes
10. People who commit sex offences should be subject to harsh restrictions on their liberty for the rest of their lives
11. Trying to rehabilitate a sex offender is a waste of time
12. Sex offenders should wear tracking devices so their location can be pinpointed at any time
13. Only a few sex offenders are dangerous
14. Most sex offenders are unmarried men
15. It's not if a sex offender commits another crime, it's when
16. Most sex offenders keep to themselves
17. Sex offenders should have all of their details announced to local communities
18. Convicted sex offenders should never be released from prison
19. Sex offenders will almost always commit further offences
20. Some sex offenders should be allowed to work in schools

GNAT Stimuli

'Sexual offender'	'Distractor'	'Positive'	'Negative'
Sex offender	Salamander	Happy	Brutal
Child molester	Chimney sweep	Great	Dirty
Rapist	Rapper	Fabulous	Revolted
Sexual abuser	Secular	Pleasure	Hate
Pedophile	Paella	Joyful	Angry
Sexual predator	Semester	Loving	Sickening
Child abuser	Chichester	Cheerful	Horrible
Sexual sadist	Seismic	Beautiful	Evil
Flasher	Florida	Splendid	Terrible
Incest offender	Information	Marvellous	Rotten
Molester	Moleskin	Super	Bad
Abuser	Abider	Fantastic	Awful
Pervert	Petrude	Merry	Dreadful
Sexual deviant	Sedimentary	Good	Sick
Sex attacker	Scatter	Excellent	Nasty

Mousetracking Stimuli

‘Positive’	‘Negative’	‘Trust’	‘Intent’	‘Distance’	‘Sentence’ and ‘Risk’
Friendly	Horrible	Trustworthy	Selfish	Associate	Punish
Nice	Egotistical	Honest	Immoral	Approach	Kill
Smart	Arrogant	Responsible	Manipulative	Welcome	Jail
Charming	Horrid	Dependable	Scheming	Accept	Detain
Pleasant	Unpleasant	Reliable	Devious	Include	Attack
Good	Bas	Truthful	Controlling	Integrate	Dangerous
Lovely	Disgusting	Genuine	Calculating	Reintegrate	Deviant
Normal	Vile	Sincere	Narcissistic	Befriend	Risky
Caring	Unkind	Open	Nasty	Support	Unsafe
Kind	Mean	Trustable	Evil	Embrace	Threatening

Section 2: Transparent Statistical Analysis

We are aware of ongoing controversies about the reporting of statistical analyses that include covariates in order to ‘*p*-hack’ and achieve statistically significant results (e.g., Simonsohn, Nelson, & Simmons, 2014). An anonymous reviewer of our paper suggested that we report our analyses both with and without covariates in order to achieve transparency in our data. As such, in this online supplement, we present our analyses without covariates. Only analyses with covariates are reported in the main text of the paper, with a rationale for this being provided in footnote one. As can be seen in the ‘Sig.’ values, our *p* values were in some cases increased (i.e., weakened) by the inclusion of covariates. However, the theoretical importance of such variables necessitated their inclusion in our analyses.

Effect of Modality

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Narrative or Informative	ATS-21	3173.987	1	3173.987	15.068	.000
	GNAT	1894.352	1	1894.352	.427	.515
	MDS-SO_Change	5722.975	1	5722.975	36.093	.000
	SPS_Danger_Change	23.780	1	23.780	20.960	.000
	SPS_Intent_Change	2.836	1	2.836	3.132	.080
	SPS_Deviance_Change	2.205	1	2.205	7.218	.009
	SPS_Punitive_Change	14.648	1	14.648	27.366	.000
	Absorption	.659	1	.659	.987	.323
Presentation Modality	ATS-21	510.535	1	510.535	2.424	.123
	GNAT	1058.582	1	1058.582	.239	.626
	MDS-SO_Change	75.748	1	75.748	.478	.491
	SPS_Danger_Change	.107	1	.107	.094	.759
	SPS_Intent_Change	2.654	1	2.654	2.931	.090
	SPS_Deviance_Change	.155	1	.155	.507	.478
	SPS_Punitive_Change	.585	1	.585	1.093	.299
	Absorption	3.790	1	3.790	5.675	.019
Condition * Modality	ATS-21	1320.722	1	1320.722	6.270	.014
	GNAT	256.922	1	256.922	.058	.810
	MDS-SO_Change	841.157	1	841.157	5.305	.023
	SPS_Danger_Change	2.193	1	2.193	1.933	.168
	SPS_Intent_Change	10.359	1	10.359	11.440	.001
	SPS_Deviance_Change	.195	1	.195	.637	.427
	SPS_Punitive_Change	2.150	1	2.150	4.017	.048
	Absorption	.000	1	.000	.000	.989

Effect of Condition on MDS-SO Scores

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
MDS_SO * Condition	3158.686	1	3158.686	38.461	.000
Error(MDS_SO)	8048.369	98	82.126		

Effect of Condition on Pre- and Post-SPS Factor Scores

Tests of Within-Subjects Effects

Measure: SPS_Dangerousness

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
SPS_Danger * Condition	13.846	1	13.846	24.629	.000
Error(SPS_Danger)	55.093	98	.562		

Tests of Within-Subjects Effects

Measure: SPS_Intentionality

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
SPS_Intent * Condition	2.569	1	2.569	5.022	.027
Error(SPS_Intent)	50.139	98	.512		

Tests of Within-Subjects Effects

Measure: SPS_Deviance

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
SPS_Deviance * Condition	1.140	1	1.140	7.571	.007
Error(SPS_Deviance)	14.757	98	.151		

Tests of Within-Subjects Effects

Measure: SPS_PunitiveAttitudes

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
SPS_Punitive * Condition	8.318	1	8.318	30.653	.000
Error(SPS_Punitive)	26.592	98	.271		

Effect of Condition on PSO Scores**Tests of Between-Subjects Effects**

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Condition	PSO1: Sentencing and Management	46.204	1	46.204	.692	.407
	PSO2: Stereotype Endorsement	103.308	1	103.308	5.351	.023
	PSO3: Risk Perception	3.277	1	3.277	.223	.638
Corrected Total	PSO1: Sentencing and Management	6587.960	99			
	PSO2: Stereotype Endorsement	1995.390	99			
	PSO3: Risk Perception	1444.750	99			

Zero-Order Correlations Between All Observed Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. ATS-21	-	.06	-.91	-.86	-.74	-.13	-.88	.35	-.61	-.50	-.35	-.22	-.59	-.53	-.30	-.38	-.24	-.15
2. GNAT	-.02	-	-.12	-.13	-.01	-.08	.02	-.01	-.07	-.06	-.27	-.05	-.05	-.14	.28	-.04	.23	.08
3. MDS-SO (Pre)	-.79	-.01	-	.83	.73	.10	.90	-.35	.62	.50	.33	.24	.64	.58	.32	.29	.29	.09
4. SPS Dangerousness (Pre)	-.38	-.21	.45	-	.72	.22	.77	-.25	.65	.50	.35	.37	.52	.52	.22	.31	.17	.15
5. SPS Intentionality (Pre)	-.37	.01	.58	.59	-	.06	.73	-.40	.67	.48	.54	.14	.60	.60	.30	.21	.21	.07
6. SPS Deviance (Pre)	-.07	-.01	.13	.53	.50	-	.03	.21	-.03	.02	.11	.65	-.01	-.02	.11	.12	.03	.07
7. SPS Punitive Attitudes (Pre)	-.68	.08	.78	.53	.50	.31	-	-.33	.60	.44	.27	.22	.69	.51	.28	.27	.22	.09
8. Absorption	-.02	-.06	.14	-.03	.13	-.03	-.03	-	-.56	-.43	-.38	.12	-.46	-.61	-.17	-.16	-.04	.03
9. MDS-SO (Post)	-.69	-.06	.81	.37	.40	.08	.70	-.09	-	.80	.64	.17	.77	.80	.25	.28	.16	.10
10. SPS Dangerousness (Post)	-.17	-.08	.11	.61	.29	.37	.32	-.39	.35	-	.57	.22	.71	.67	.17	.27	.19	.07
11. SPS Intentionality (Post)	-.19	.04	.33	.42	.67	.41	.40	-.26	.48	.52	-	.02	.59	.57	.03	.01	-.11	.07
12. SPS Deviance (Post)	-.06	.12	.01	.33	.24	.72	.21	-.12	.06	.32	.23	-	.18	.11	.16	.19	.11	.03
13. SPS Punitive Attitudes (Post)	-.51	.17	.51	.33	.30	.19	.68	-.32	.68	.48	.52	.18	-	.68	.19	.10	.04	-.06
14. PSO	-.74	.06	.64	.21	.29	.01	.59	-.14	.73	.33	.40	.05	.72	-	.30	.33	.22	.15
15. Mousetracking (Positive AUC)	-.08	-.35	.08	.01	.02	-.05	-.01	.07	.06	.10	-.01	-.09	-.10	.16	-	.27	.55	-.08
16. Mousetracking (Positive RT)	.01	.04	.10	.02	.07	.05	.21	-.22	.18	.18	.08	-.01	.23	.26	.12	-	.14	.55
17. Mousetracking (Negative AUC)	.03	-.27	.08	-.03	.14	.16	-.02	.06	.01	-.06	-.05	.09	.15	-.03	.50	.11	-	.30
18. Mousetracking (Negative RT)	.05	.22	.05	-.17	.02	.12	.05	-.24	.10	.08	.13	.08	.14	.20	-.09	.69	-.03	-

Note: Correlation coefficients above the diagonal refer to correlations among those participants in the ‘narrative’ condition. Those below the diagonal refer to correlations among those participants in the ‘informative’ condition