

Does Matching the Degree of Psychological Distance of a Story and the Story-Receiver
Increase Narrative Persuasion?

Sanne van Hout

Master Thesis, 20 ECTS

MSc Behavioural Change, Radboud University

Municipality of Amsterdam

Date: 19-07-2019

Word count: 7164

Supervisors

Thijs Verwijmeren (RU), Wies de Jong (Municipality of Amsterdam)

Abstract

This study extends the research into narrative persuasion by investigating the effects of matching the psychological distance of the story frame with the psychological distance of the perspective of the story receiver. Psychological distance is the degree to which an individual pictures something as distant from oneself. A sample ($N=90$) was tested in the context of the behaviour of picking up litter. It is proposed that increasing the psychological distance in a narrative will be more persuasive when the reader of the story has a motivation with a large psychological distance (“saving the environment”), whereas decreasing the psychological distance will be more persuasive when the reader has a motivation with a small psychological distance (“cleaning up the city”). Contrary to expectations, the matching effect did not show, and participants did not have a stronger intention to pick up litter nor did not pick up more virtual litter when their motivation matched the story frame. However, it was shown that the motivation with a large distance from the self was predictive of the intention to and the behaviour of picking up litter, regardless of the psychological distance of the story frame. This provides evidence for the potential of motivations that transcend the self to bring about pro-environmental behaviour. The relationship between large psychological distance motivation and the amount of virtual litter picked up was mediated by narrative transportation. Further research may be done to test under what conditions the large psychological distance motivation can be strengthened to increase pro-environmental behaviour further.

Keywords: narrative persuasion, matching-effects, construal level theory, psychological distance

The world is facing the consequences of human behaviours that have serious environmental impact (Vlek & Steg, 2007). Since these environmental problems are the consequence of human behaviour, persuading people to change their behaviours can alleviate the problems. Persuasive messages are perceived as the first step in efforts to motivate people to change their behaviour (Pelletier & Sharp, 2008). When directly asking people to change, however, people might get the feeling their behavioural freedom is threatened. As a result, they might react defensively and hold on even more to their original behaviour, contrary to what was intended with the message. This is called psychological reactance, and makes people less prone to persuasion (Brehm & Brehm, 1981). An effective means to reduce reactance is embedding the persuasive message in a story, because narratives are not seen as persuasive attempts. People do not expect a story to be persuasive,

they expect it to be enjoyable. Persuasive messages might not even be apparent and fuse together with the story. Consequently, counterarguing against the content is reduced because the reader is left with no specific arguments to counter argue against (Cin, Zanna, & Fong, 2004). Resistance is furthermore reduced because when people become immersed with a story, they disconnect from their existing beliefs (Cin et al., 2004). Consequently, the plot is perceived as truthful, even when people know it is false, which leads to more positive attitudes about the plot (Van Laer, De Ruyter, Visconti, & Wetzels, 2013).

Narratives are furthermore a great persuasive tool because of their ability to evoke emotions. Reading a story leads to emotional, empathetic connections with the story plot and the story characters (Heath, Bell, & Sternberg, 2001). The receiver of the story enters a different world because of the imagination of the story plot and by developing empathy for the story characters (Van Laer et al., 2013), which is called narrative transportation (Green & Brock, 2000). Narrative transportation results in increased and long-lasting persuasive effects (Van Laer et al., 2013). Namely, when narratively transported, attitudes, intentions and behaviour change in reflection to the story (Jones & McBeth, 2010; Green & Brock, 2000; Van Laer et al., 2013). There are different aspects that determine whether transportation is likely to occur. These aspects are on part of the story, the story receiver, and the interaction between them, which will be discussed in more detail.

Story Aspects

Firstly, the story plot should be imaginable. The more the plot is imaginable, the more transportation occurs. This is because an imaginable plot enhances mental imagery, in which story receivers generate vivid images of the story plot, which make them feel as though they are experiencing the events themselves (Cin et al., 2004). It appears that both positive and negative story events can be persuasive (Escalas, 2004). Taking a story about litter on the streets as an example, a positive story event, like people cleaning up the neighbourhood, can be persuasive by inducing positive emotions. A negative story event, like litter on the street affecting the environment, could also be persuasive when this event is portrayed as being solvable. When the deteriorating effects can be undone, the negative emotions that the story evokes result in persuasion. A second aspect on part of the story is verisimilitude, which is the believableness of the plot. When it is more likely that the events would actually occur, mental imagery increases, which results in more transportation (Van Laer et al., 2013). Thirdly, the story characters should be easy to empathise with, because empathy results in positive associations with beliefs and behaviours in line with the story

(Cin et al., 2004). However, involvement with the story plot has been shown to be a better predictor of behavioural change than empathy with story characters (Murphy, Frank, Moran, & Patnoe-Woodley, 2011). Besides characteristics of the story, characteristics of the story-receiver also predict the degree of narrative transportation, and should therefore be considered. There has already been some research into story-receiver characteristics, which will be discussed.

Story Receiver Aspects

Firstly, people differ in their personality and thus in how easily they are transported by a story. The more easily transported, the more narrative transportation and persuasion (Mazzocco, Green, Sasota, & Jones, 2010). Secondly, narrative transportation is enhanced when the reader pays attention to the story. Individuals pay more attention when a story is found to be interesting (Nielsen & Escalas, 2010). The aforementioned studies all focused on characteristics of the story or of the receiver in isolation. However, narrative transportation likely depends on the interaction between them. A first indication of the interaction between story receiver and story content is that more prior knowledge and personal experience with a story topic results in more transportation (Green, 2004). This is because the interpretation of a story requires the ability to process the content, and thus requires a certain degree of (cultural) knowledge (Van Laer et al., 2013). However, research is lacking regarding the importance of a match between story content and the psychological state of the story receiver. In the current study we therefore aim to investigate matching effects in the context of narrative persuasion.

Matching Effects

The importance of matching message frames to people's psychological states has already been demonstrated in a variety of research fields. Matching effects have for example been shown regarding regulatory fit theory (Higgins, Idson, Freitas, Spiegel, & Molden, 2003), attitude functions (Petty & Wegener, 1998), cognitive and affective orientations (Mayer & Tormala, 2010), approach-avoidance orientations (Sherman, Mann, & Updegraff, 2006), and construal level theory (e.g. Griffioen, Handgraaf, & Antonides, 2019). The theory behind why a message frame that matches someone's psychological state results in increased persuasion is that people will pay more attention to information that is in line with their beliefs and motivation, and information that matches their psychological state is processed more efficiently (Kunda, 1990). Matching information is experienced to be more personally relevant, and consequently results in more engagement with the message (Aaker

& Lee, 2006). Subsequently, positive reactions become more positive and negative reactions become more negative and persuasion is enhanced (Cesario, Grant, & Higgins, 2004). Furthermore, a matching message frame can increase subjective ease of processing. When people process information how they do naturally, processing fluency is enhanced, which makes a message more persuasive (Kim, Rao, & Lee, 2008).

To the knowledge of the researcher, only one study to date has shown matching effects regarding narrative persuasion. In this research it is shown that matching narrative frame with the cultural worldview a reader beholds is important for narrative transportation to occur (Jones & Song, 2014). The more congruent the frame of the story is with the readers cultural orientation, the more persuasive the story is, and the more one acts in accordance with the story (Jones & Song, 2014). Thus, the importance of a match between story frame and story reader on the cultural dimension has already been shown. Another story-receiver characteristic on which matching could be of importance is psychological distance. Namely, people always take in a certain point of view when thinking about behaviour and picture the behavior as more abstract and psychologically distant from themselves, or as more concrete and personally close (Trope & Liberman, 2010) Narratives are also portrayed from a certain perspective. It can be written about the near future or the distant future, it can involve the reader personally or be about a city far away. The distance from the reader can be increased or decreased. Thus, both story frame and story receiver take in a certain perspective when construing a topic.

Psychological Distance

Psychological distance is a central aspect of construal level theory (CLT). According to CLT, people form mental construals when thinking about behaviour (Trope & Liberman, 2010), which can differ in the degree of psychological distance (Liberman & Trope, 1998). For example, when global warming is the story subject, this could be framed to have personal impact or to have an impact on the world in general. It can furthermore be framed to happen soon or in the long run. Thus, distance can arise on different dimensions. In CLT, four dimensions of psychological distance are differentiated. Psychological distance increases when an event or behaviour is placed further in time (temporal dimension), when it is less likely to happen (hypotheticality dimension), when it happens further away from your home (spatial dimension) or when someone is less involved (social dimension) (Liberman, Trope, & Stephan, 2007).

It has been shown that to make a message persuasive, the degree of psychological

distance with which a person approaches a message should match with the psychological distance of the message itself (e.g. Goldsmith, Newman & Dhar, 2016). For example, when people were thinking about the distant future, they only chose a green product when self-transcending product benefits were highlighted. When people were thinking about the near future, they only chose a green product when self-enhancing product benefits were highlighted (Goldsmith et al., 2016). In some studies, only matching large psychological distance resulted in more persuasion and behavioural change (Fujita, Eyal, Chaiken, Trope, & Liberman, 2008; Griffioen et al., 2019), whereas matching small psychological distance did not. To the knowledge of the researcher, no study to date investigated these effects in the context of narrative persuasion. This study extends the research into construal level theory within the framework of narratives, and investigates whether the persuasiveness of a story depends on the degree to which the story frame matches with the psychological state of the reader regarding psychological distance.

Study Context

In the current study, the effectiveness of a story aimed to evoke picking up litter will be examined. Incentives like economic advantages, and cultural values can motivate people to act pro-environmentally without doing it out of environmental concern (Kollmuss & Agyeman, 2002). Picking up litter can be performed out of environmental concern or for the personal advantage of a clean neighbourhood, and can therefore easily be construed on the dimensions of psychological distance. When picking up litter for the environment, a large psychological distance applies, in which an individual thinks of the consequences of litter at a global scale, thus not having an immediate effect or being immediately personally beneficial. When picking up litter for the personal advantage of clean streets, a small psychological distance applies, in which an individual thinks of litter as having an immediate impact close to ones' home. Brown, Ham and Hughes (2010) looked into the cognitive structures behind picking up litter in a natural environment, and confirmed that there were universal motivations to pick up litter (prevention of water pollution and harm to wildlife) as well as personally relevant motivations (to set a good example for others and to adhere to the social norm that one should pick up litter). In a city environment the small psychological distance motivation will likely be more defined on the social scale compared to a natural environment, since people are personally benefitted from keeping *their* neighbourhood or *their* city clean. In the current study, an intervention will target the two

motivations to pick up litter, and a narrative will be construed which is differentiated on psychological distance regarding the spatial and social dimensions of construal level.

Study 1

The aim of study 1 was to exploratively look into the underlying cognitive structures of the behaviour of picking up litter by investigating the dimensionality of the motivational orientations. On one hand, it could be the case that people strongly have one of the two motivations, and thus, always take in a high distance or a low distance perspective. In this case, motivational orientation is one-dimensional. On the other hand, it could be the case that people score high on both motivations, the presence of one of the two motivations not excluding the other. In this situation, motivational orientation would be two-dimensional. To test the dimensionality, the strength of both motivational orientations was determined for every participant, and a factor-analysis was performed subsequently.

Method

Participants and Design

Twenty seven participants voluntarily participated in this study. The study used a within-subjects design and the variables included were small psychological distance motivation and large psychological distance motivation.

Measures and Procedure

Participants were recruited in the streets of Amsterdam near a local metro stop. Participants were asked whether they wanted to participate in a short study on “litter”. If they agreed, they were asked whether they picked up litter. When they answered approvingly, it was asked what their motivation was to do so. When they answered no, it was asked what a motivation for them would be to start picking up litter. Answers given included “I pick it up because it looks messy” and “I would pick it up because it is harmful to animals”. All answers could be classified in one of the two motivational orientations (large-/ small psychological distance). It was furthermore quantitatively tested whether reasons with a large- or small psychological distance were a stronger motivator to pick up litter. Two subscales of each five items were created to measure the motivation to pick up litter for universal- (large psychological distance) or self-serving (small psychological distance) reasons. Items included “I would pick up litter because it is harmful to the environment” and “I would pick up litter because it is harmful to animals” (see Appendix

A). Participants were asked to answer the proposition on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Results and Discussion

The results showed that all answers given on the initial question could be classified in one of the two motivational orientations. Most people mentioned they would pick up litter to keep the city clean (small psychological distance motivation), whereas the rest mentioned the environment (large psychological distance motivation) (low = 16, high = 11). Regarding the quantitative investigation, 26 people scored higher on one of the two motivational orientations while one of them had the exact same score on both motivations. To test the distinctiveness of the two motivational orientations, an exploratory factor analysis was conducted using Varimax rotation. Based on eigenvalues, cumulative variance (63,24%) and inspection of the scree plot, a two factor model fitted the data well. The five items of large psychological distance motivation loaded all on Factor 1, whereas four out of five items of the small psychological distance motivation loaded on Factor 2. Item 5 of the small psychological distance questions (“I would pick up litter because litter in the streets is unhygienic”) did not load on the factor. Thus, the two motivations to pick up litter are independent of each other and can co-exist. Reliability of the high- and small psychological distance scales were considered acceptable ($\alpha = .72; .79$ respectively). Correlations were furthermore not significant ($r = .15, p = .43$), which confirms that the motivation to pick up litter is a two-dimensional construct.

Whereas most participants scored higher on one of the two motivations, it is shown that motivational orientation fitted a two-factor model. This means people can have both motivations for picking up litter at the same time. This implicates that for many people, it might not matter whether they are presented with a narrative with a large or small psychological distance. However, for people with a relatively high score on one of the two dimensions, matching might be crucial for persuasion. A limitation of the factor-analysis is that the sample size was quite small, which likely resulted in a low power. However, in study 2 the dimensionality will be tested with a larger sample size.

Study 2

The goal of study 2 was to examine the matching effect on the main variables: intention to pick up litter, and a behavioural simulation of picking up litter. Besides, it was expected that these effects would be mediated by narrative transportation. Two stories were deployed to establish a (mis)match between story frame (large-/ small psychological distance) and motivation of an individual (large-/ small psychological distance). Following on the literature on matching effects, it is expected that an interaction effect between motivation and story frame will occur. When individuals encounter a story frame which is congruent with their dominant motivation, it is expected that their motivational orientation will lead to a beneficial filtering of the story content, and will allow thorough processing. Subsequently, narrative transportation will be enhanced. It is expected that this will lead to a stronger intention to pick up litter and the actual act of picking up litter. In the incongruent condition, it is expected that story content processing will be diminished, preventing narrative transportation and persuasion to occur, resulting in the absence of the intention to and the behaviour of picking up litter. Thus, it is expected that a narrative will be persuasive to the extent to which it matches with the motivational orientation of the reader, and that this effect will be mediated by narrative transportation.

Method

Participants and Design

The main experiment used a 2x2 between-subjects design with motivational psychological distance (large / small) and psychological distance of the story frame (large / small) as independent variables and amount of virtual litter (spacebar count) and intention to pick up litter as dependent variables. It was aimed to detect a medium effect size and the power and alpha were set to .80 and .05, respectively. In that case, a sample size of 92 is needed to detect a significant effect when there is an actual effect in the population (Faul, Erdfelder, Lang, & Buchner, 2007). The study consisted of three parts. 208 people initially signed up, but 37 of them did not continue, resulting in 171 participants. One participant was excluded because every question was answered the same, and it took the participant only 43 seconds to fill out the questionnaire, which is considered too short to read the questions. Thus, 170 participants were included in part one, in which motivation was measured. As for part two, which included the narrative and spacebar count measure, 96 out of 170 participants continued, and were sequentially assigned to the large- or small

psychological distance condition. Two participants had extreme scores on number of times spacebar was pressed ($>5 \times \text{IQR}$), and were excluded from analysis to prevent distortion of the data. Thus, a sample of 93 participants was analysed to test the effect of the model on spacebar count. As for part three, which included the intention measure, 92 participants continued. Minus the outliers, a sample of 90 participants was analysed to test the effect on intention.

Participants had to be at least 18 years old. The age of the final sample ranged from 18 to 67 years old ($M_{age} = 30,78$, $SD = 12,44$) and 46 males (51,1%), 43 females (47,8%) and 1 unspecified gender (1,1%) participated. An explanation for the high degree of drop-out could be that a plug-in had to be installed to participate, which could have been an obstacle. However, inspection of the data showed that participants who partially participated did not differ from participants who completed the whole study regarding the (in)dependent measures.

Procedure

Participants were recruited by means of social media, by distribution of the link on platforms of the Municipality of Amsterdam and by recruitment in the university library. An online survey was created using Qualtrics (2011). People were asked whether they wanted to participate in a study about litter, and were informed about the study. They received a link which directed them to Qualtrics. First, participants were further informed about the study and filled out informed consent. Next, participants filled out the motivation questionnaire. When finished, they were directed to Inquisit 4 (2015) where participants downloaded the Inquisit web plug-in. Here, participants read one of the narratives, which was visually supported. After the story, they played a game in which they had to pick up virtual litter (the outcome measure). They read the game instructions which explained the goal of the game to hit spacebar as often as possible to save the environment / the city, dependent on the condition. Participants were informed that real litter would be picked up for their efforts. Next, participants were redirected to Qualtrics, and filled out a questionnaire which measured intention to pick up litter, the Transportation Questionnaire to measure narrative transportation and a filler questionnaire. They were thanked for their participation and offered the opportunity to send an e-mail to the researcher for further information.

Construction of the Narratives

Two narratives were written corresponding to large psychological distance (forest story) and small psychological distance (city story). In the forest story, the story described

negative consequences of litter for animals and the ocean (social dimension) and the story was framed in terms of global consequences (spatial dimension). In the city story, litter was portrayed to negatively impact the reader (social dimension) and it was framed in terms of local consequences (spatial dimension) (see Appendix E). The character talking in the stories is a tree of the forest / the city. The narratives were inspired by the rebirth genre, since this genre fits well with an emotional appeal. Rebirth is one of the seven universal basic story plots in which a dark power leaves the main character barely alive, until he or she is saved by someone (Booker, 2004). This genre was applied by picturing the tree in a thriving forest / city, which later on starts to decay because of garbage suddenly appearing. At the end of the story, it becomes clear to the reader that it is his or her task to make the tree come to life again, and save the forest / city.

The narrative was presented in blocks of two or three sentences, and participants could continue reading by pressing enter. To support the narratives, four images were included which visually showed the course of the story (see Appendix F). The images of the large psychological distance condition were designed as a forest-like environment, whereas the images of the small psychological distance condition were designed as a city-like environment. There were four different visual stimuli for every condition, which visualised the litter appearing around the tree and the world becoming darker. When the story proceeded, the images alternated correspondingly.

Behavioural Measure of Litter Picking

To simulate the behaviour of picking up litter to obtain a behavioural measure, a game was developed. In the game, four different types of garbage would appear in random order and at random location on the screen, which participants could pick up by pressing spacebar. A random intertrial interval of litter appearance between 0.8 and 2 seconds was used. Participants were able to stop playing whenever they wanted by pressing “X”. Therefore, the more often they pressed spacebar, the more litter they would presumably pick up in a real life setting. To strengthen the link between in-game behaviour and real behaviour, it was communicated that one piece of litter would be picked up for every ten pieces of virtual litter the participants picked up. Real-time feedback was provided by a counter that showed how many pieces of litter were already collected, since this enhances engagement (Deterding, 2012). The previously described visual stimuli were furthermore included in the game. Participants could make progress by picking up more litter, and at certain quantities of litter (10, 50, 100 pieces), they would go to the next stage and be

presented the next image. The images were shown in reverse order compared to the order of image presentation in the narrative, thus the tree and its surroundings appearing gradually in a better condition.

Measures

Several questionnaires were conducted. Participants responded to all survey items on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), unless otherwise specified.

Virtual litter picked up. The total amount of virtually picked up litter (spacebar count) was the behavioural outcome of the study.

Intention to pick up litter. A questionnaire of 10 items was designed to measure intention to pick up litter. The scale included several categories of litter and different contexts in which one could pick up litter ($\alpha = .94$). An item example is “When I see litter, I will pick it up and search for a garbage bin” (see Appendix B). Total scores were computed as a measure of the strength of the intention.

Motivation. To measure the two motivations to pick up litter, the questionnaire as constructed for study 1 was used. Total scores for small psychological distance motivation ($\alpha = .87$) and large psychological distance motivation ($\alpha = .85$) were computed. A confirmative factor analysis was conducted to validate the extraction of the two factor model as found in study 1. Again, Varimax rotation was used, and the two factor model fitted the data well, based on eigenvalues, cumulative variance (65,66%) and inspection of the scree plot. The five items of the large psychological distance motivation questionnaire loaded all on Factor 1. This time, item 5 did load well on the small psychological distance factor. Again, it was shown that there can be made a clear distinction between the two motivations to pick up litter.

Narrative transportation. The Transportation Questionnaire (Green & Brock, 2000) consists of eleven items and was used to determine the degree of narrative transportation ($\alpha = .83$) (see Appendix C). The scale was used to evaluate the quality of the experimental narratives and to see how well the stories resulted in transportation. An example item is “I wanted to learn how the narrative ended”. Total scores were computed as a measure of narrative transportation

Filler questionnaire. To prevent participants from detecting the goal of the study, a questionnaire about their experience of the game was included (see Appendix D). An example item is “The game was boring to play”.

Data-Analysis

Multicollinearity between independent variables was a concern ($VIF > 5$), thus all independent variables were centralized. All reported tests are two-sided. Furthermore, story frame condition was dummy coded ($-0.5 =$ small psychological distance story frame, $0.5 =$ large psychological distance story frame). Item 1, 5, and 9 of the Transportation Questionnaire were reversed. Assumptions of linear regression were tested and histograms and P-P plots showed the normality assumption was met. Assumptions of linearity and homoscedasticity were tested by means of scatterplots and it was shown that these assumptions were met as well.

Results and Discussion

Sample Descriptives

First, means and standard deviations of all variables were computed for each story frame condition separately, as to obtain a first impression of the means per condition (see table 1).

Table 1

Sample descriptives for the dependent and independent variables

	Forest story frame ($N=49$)		City story frame ($N=45$)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Small psychological distance motivation	17.92	3.23	17.67	3.36
Large psychological distance motivation	19.53	3.57	18.80	4.03
Intention to pick up litter	27.15	7.78	26.60	7.77
Virtual litter picked up	126.65	65.38	109.93	62.98
Narrative transportation	38.58	8.55	37.45	7.95

Note. *M* = Mean. *SD* = Standard Deviation. Small psychological distance motivation and large psychological distance motivation range from 10 (no motivation) to 25 (strong motivation). Intention to pick up litter ranges from 10 (no intention) to 100 (strong

intention). Narrative transportation ranges from 11 (not narratively transportation) to 66 (strongly narratively transported).

Correlations

Next, correlations were computed to assess the cohesion between variables. Table 2 displays the zero-order correlations between the dependent and independent measures. Unexpectedly, the correlations show that in the city story condition, the small psychological distance motivation does not correlate better with the dependent measures than the large psychological distance motivation. In the forest story frame condition, the large psychological distance motivation does correlate better with narrative transportation and intention to pick up litter than the small psychological distance motivation, but not with virtual litter picked up.

Table 2

Zero-order correlations between high and low construal motivation, intention to pick up litter, amount of virtual litter picked up and narrative transportation for each of the story frame conditions.

City story frame	1.	2.	3.	4.	5.
1. Low construal motivation	-				
2. High construal motivation	.11 (45)	-			
3. Intention to pick up litter	.32* (42)	.51** (42)	-		
4. Virtual litter picked up	.12 (45)	.49** (45)	.40** (42)	-	
5. Narrative transportation	.10 (43)	.39* (43)	.55** (42)	.34* (43)	-
Forest story frame	1.	2.	3.	4.	5.
1. Low construal motivation	-				
2. High construal motivation	.28 (49)	-			
3. Intention to pick up litter	.17 (48)	.69** (48)	-		

4. Virtual litter picked up	.20 (49)	.19 (49)	.24 (48)	-	
5. Narrative transportation	.36* (48)	.62** (48)	.57** (48)	.42** (48)	-

Note. * $p < .05$, ** $p < .01$. (...) = Sample size.

Amount of Virtual Litter Picked Up

To test whether the amount of virtual litter picked up could be predicted out of the independent measures and their interactions, a multiple regression analysis was performed. Large psychological distance motivation, small psychological distance motivation, condition, and the two-way interactions (Story Frame x Large Psychological Distance Motivation, Story frame x Small Psychological Distance Motivation) served as independent variables and the number of times spacebar was pressed as dependent variable. The results indicated that there was a significant effect of the model on amount of virtual litter picked up ($F(5, 88) = 3.37, p = .008, R^2 = 0.16$). In contrast to the main hypothesis, the interactions between large psychological distance motivation and story frame ($\beta = -24.39, t(88) = -1.43, p = .158$), and small psychological distance and story frame ($\beta = 10.52, t(88) = 0.53, p = .595$) were not significant. Thus, the results do not provide evidence for the hypothesis that a match in psychological distance between the motivation of the story-receiver and the narrative leads to more picking up of litter.

Unexpectedly, the effect of large psychological distance motivation significantly predicted the number of times spacebar was pressed ($\beta = 25.22, t(88) = 2.93, p = .004$). Furthermore, in line with predictions, the strength of small psychological distance motivation did not predict virtual litter picked up ($\beta = 11.36, t(88) = 1.15, p = .252$). As expected, the effect of story frame condition on virtual litter picked up was not significant ($\beta = 12.45, t(88) = 0.99, p = .326$). Thus, both stories were equally persuasive. Overall, the results show that large psychological distance motivation on itself strongly predicts the amount of litter picked up, irrespectively of the story frame.

Intention to Pick up Litter

Another multiple regression analysis was performed to test whether the model was predictive of the intention to pick up litter. The results indicated that there was a significant effect of the model on intention to pick up litter, $F(5, 84) = 11.87, p = .000, R^2 = 0.41$). Again, the interactions between large psychological distance motivation and story frame ($\beta = 0.35, t(84) = 1.66, p = .100$), and small psychological distance and story frame ($\beta = -0.42,$

$t(84) = -1.59, p = .117$) were not significant. Again, the effect of large psychological distance motivation again was statistically significant, and strongly predicted the intention to pick up litter ($\beta = .75, t(84) = 7.05, p = .000$). The strength of small psychological distance motivation marginally predicted the intention ($\beta = 0.23, t(84) = 1.78, p = .079$). The effect of story frame condition on intention was not significant ($\beta = -0.09, t(88) = -0.55, p = .582$). Thus, the results again do not provide evidence for the hypothesis that a match between psychological distance of the story-receiver and the narrative leads to a stronger intention to pick up litter. Again, the effect of large psychological distance motivation is significant, and predicts intention to pick up litter.

Narrative Transportation as a Mediator

It was expected that congruency in construal level between story frame and someone's dominant motivation would result in more narrative transportation. Furthermore, it was expected that narrative transportation would predict intention to and the act of picking up litter. Whereas the interaction effects were not significant, PROCESS model 9 (Hayes, 2013) was used to test for the possibility an interaction would show when including narrative transportation in a mediated moderation model. The four steps in mediation as described by Baron and Kenny (1986) were considered. First, virtual litter picked up was considered as the dependent measure. For mediation to be present, the interactions should have a significant effect on narrative transportation, which was not the case for the large psychological distance interaction ($\beta = -0.30, t(85) = -1.66, p = .098$) nor for the small psychological distance interaction ($\beta = -0.22, t(85) = -0.978, p = .333$). Thus, there could not be a significant mediation effect, even though the effect of narrative transportation on virtual litter picked up was significant ($\beta = 31.80, t(88) = 3.89, p = .000$). Likewise, with intention as dependent variable, the regression of the large psychological distance interaction on intention ($\beta = -0.32, t(85) = -1.76, p = .083$, and the small psychological distance interaction $\beta = -0.24, t(85) = -1.08, p = .282$) were not significant. Again, the effect of narrative transportation was significant and narrative transportation predicted intention ($\beta = 0.71, t(88) = 6.28, p = .000$). Thus, there was no mediated interaction effect of narrative transportation.

Explorative Analysis

Since large psychological distance motivation was predictive of both dependent measures, and narrative transportation was shown to predict the dependent measures as well, it was exploratively analysed whether narrative transportation mediated the relationship

between large psychological distance motivation and the dependent measures. This time, PROCESS model 4 (Hayes, 2013) was used. Firstly, virtual litter picked up was considered as the dependent measure. For mediation to be present, large psychological distance motivation should have a significant effect on virtual litter picked up, which was the case as mentioned previously. Secondly, large psychological distance motivation should have a significant effect on narrative transportation, which was the case ($\beta = 0.50$, $t(89) = 5.58$, $p = .000$). Thirdly, narrative transportation should have a significant effect on virtual litter picked up when including large psychological distance motivation in the analysis, which was the case ($\beta = 21.27$, $t(88) = 2.30$, $p = .024$). Finally, the relationship between large psychological distance motivation and virtual litter picked up should diminish when including narrative transportation, which was shown to be the case ($\beta = 21.63$, $t(88) = 2.30$, $p = .020$). Thus, narrative transportation mediated the relationship between large psychological distance motivation and virtual litter picking.

Next, intention was considered as the dependent measure. For mediation to be present, firstly large psychological distance motivation should have a significant effect on intention, which was the case as mentioned previously. Secondly, large psychological distance motivation should have significant effect on narrative transportation, which was the case ($\beta = 0.49$, $t(89) = 5.49$, $p = .000$). Thirdly, narrative transportation should have a significant effect on intention when including large psychological distance motivation in the analysis, which was the case ($\beta = 0.44$, $t(89) = 3.73$, $p = .000$). Finally, the relationship between large psychological distance motivation and intention should diminish when including narrative transportation, which was not the case ($\beta = 0.52$, $t(89) = 4.58$, $p = .000$). Concluding, narrative transportation mediated the relationship between large psychological distance motivation and amount of virtual litter picked up, but not between large psychological distance motivation and intention to pick up litter.

Study imitations

A limitation of the study is that participants possibly did not fully understand the game because of the concise guidelines presented regarding how to stop playing. The game instructions included “Press spacebar to pick up litter or press X to stop playing”. Participants might have been confused regarding whether the game had a premediated ending, which might have resulted in quitting immediately or continuing longer than preferred. However, motivated people will likely continue regardless of possible ambiguity. Another point to mention is that the story was not interactively designed. Consequently,

participants might have skipped through the story without thoroughly reading it. However, this was partially controlled for by presenting the story in blocks.

General Discussion

In study 1, it was shown that motives to pick up litter can be placed under large psychological distance (pick up litter for the environment) or small psychological distance (pick up litter for a clean city). It was furthermore shown that the construct of motivation to pick up litter was two-dimensional, meaning that the motivations do not exclude each other. In study 2, the matching hypothesis was tested and against expectations, the results showed that participants who received a story that matched with the psychological distance of their dominant motivational orientation did not have a stronger intention to pick up litter nor did pick up more virtual litter than participants who were presented a story less congruent with their dominant motivation. Furthermore, the results showed that narrative transportation did not mediate the relationship between the interactions and the dependent variables. Thus, the results do not provide evidence for the matching hypothesis, which is not in line with research into matching effects found in several research fields (Higgins et al., 2003; Petty & Wegener, 1998, Mayer & Tormala, 2010, Sherman et al., 2006), and matching effects into construal level (e.g. Griffioen et al., 2019).

Unexpectedly, the results showed that large psychological distance motivation significantly predicted the dependent measures, whereas small psychological distance motivation was not a significant predictor. The stronger the large psychological distance motivation, the more litter was picked up and the stronger the intention was to pick up litter in real life. Whereas studies show that high construal level is only effective when there is a match (e.g. Griffioen et al., 2019), the results are in line with some studies which show that a self-distanced perspective can result in pro-environmental behaviour (Hou, Sarigöllü, Jo, & Liang, 2018; Spence & Pidgeon, 2010). A self-distanced perspective can make people focus on environmental protection instead of self-interests and thus promoting pro-environmental options (Hou et al., 2018), and framing environmental problems as occurring at distant locations instead of happening locally makes people perceive environmental problems as more severe (Spence, & Pidgeon, 2010). An explanation could be that people act more upon their pro-environmental values when thinking at a high construal level, which are predictive of pro-environmental behaviour (De Groot, & Steg, 2008). Future research may further investigate whether a large psychological distance results in more pro-environmental behaviour in other settings, for example preventing people from littering in

the first place. It was furthermore shown in an exploratory analysis that narrative transportation mediated the relationship between large psychological distance motivation and virtual litter picked up. This is in line with research into narrative transportation, which shows that more transportation leads to more persuasion (Van Laer et al., 2013). Narrative transportation did against expectations not mediate the relationship between large psychological distance motivation and intention to pick up litter. No explanation is found for this finding, and future research should further investigate this relationship.

The Absence of the Matching Effects

An explanation for the absence of the interaction effects on the outcome measures could be that the narratives were not congruent enough with the motivational orientations. It is possible that both stories were accidentally construed with a large psychological distance frame. This could be the case because both stories are fantasy stories, which are hypothetical by definition. Participants knew there would not actually appear litter from out of nowhere. Consequently, the dimension of hypotheticality of construal level theory was high in both conditions. Even so, the behavioural measure was hypothetical. Instead of measuring real litter picking, the behaviour was simulated. Thus, picking up litter was also hypothetical. As a result, the narrative as well as the dependent measures fitted better with a large psychological distance motivation. Consequently, there might have always been a mismatch with the small psychological distance motivation, and a match with the large psychological distance motivation. However, the stories clearly differed on the social and spatial dimension of construal level. Still, future research may be done to investigate the importance of matching the hypotheticality dimension.

It could furthermore be the case that participants did not experience a (mis)match, because the narratives possibly did not meet the story requirements of empathy, verisimilitude (Van Laer et al., 2013) and / or efficacy (Escalas, 2004). First of all, the stories were relatively short, possibly preventing empathy with the story-character to occur. Secondly, the stories might have been difficult to relate to because of their imaginative nature. Consequently, verisimilitude might have been low. Thirdly, the story events were construed to be negative in nature, and formulated in such a way that they appeared solvable, which is shown to be persuasive (Escalas, 2004). Possibly, the imaginative nature of the story decreased the experience that the deterioration of the forest / the city could be undone, resulting in negative emotions without an action perspective. However, the strength of narrative transportation indicated the stories indeed were effective in establishing

narrative transportation, which implicates the story requirements were met. Even more so, narrative transportation mediated the relationship between large psychological distance motivation and virtual litter picked up, providing evidence that the stories were invasive instead of the degree of narrative transportation being a personal characteristic.

Limitations

There are certain limitations regarding the way of measurement. First of all, this study did not measure behaviour in a naturalistic setting. Consequently, it will differ from picking up real litter, which makes the results not naturally generalisable. However, the study did include a behavioural simulation which comes closer to real behaviour than only measuring intention. Furthermore, participants knew that real litter would be picked up, which likely increased perceived realism. Another point to mention is that all measures except from virtual litter picking were self-reported, which is prone to bias. People like to think of themselves as morally good, thus reporting they are not motivated to pick up litter might evoke feelings of moral friction. As a result, the answers might have been biased in the positive direction. However, the main scores on intention to pick up litter were relatively low, indicating that people did not answer socially desirable. Lastly, it should be mentioned that participants completed the study on different devices, which made it impossible to hold the visual presentation of the narratives and the images constant regarding screen resolution and screen size. However, differences in presentation are likely randomly distributed across the two conditions, levelling out the possible bias.

Future Research

Because it is not possible to rule out that both stories had a large psychological distance, future research should be done in which the small psychological distance condition contains a story which is about the real world instead of being imaginative. Furthermore, real litter picking could be taken as the outcome measure. Also, future research may be done to further investigate the mediating effect of narrative transportation. Whereas it could be the case that the narratives did match a high construal orientation better, resulting in more transportation in participants with a dominant large psychological distance motivation, it could also be possible that people with a dominant large psychological distance perspective are in general more easily narratively transported than people with a smaller psychological distance perspective. When future research shows that people with a large psychological distance are more easily transported, a new story receiver antecedent is discovered. Furthermore, the motivation to pick up litter was shown to be a two-dimensional construct.

Future research may focus on whether large- and small psychological distance taken in by the message receiver is two-dimensional in general, or whether there are certain contexts in which psychological distance is a one-dimensional construct. When it is shown to be one-dimensional, motivation could be measured on a single scale and consequently, it will be easier to create a match, since people will clearly fall in one out of two categories.

Theoretical and Practical Implications

This study extended the research into narrative persuasion by investigating the effects of matching the psychological distance of a story frame with the psychological distance of the perspective of the story receiver. While the findings of the study are not in line with studies into construal level congruency, which show that a match in psychological distance of the story frame and psychological distance of the story receiver is of importance to bring about pro-environmental behaviour, evidence is provided for the effect of large psychological distance motivations on the behaviour of and intention to pick up litter. Whereas the narrative that matched the large psychological distance motivation did result in even more picking up of litter, evidence is provided for the potential of increasing psychological distance to promote pro-environmental behaviour. The results create a ground for future research to increase psychological distance in narratives. A narrative, or other persuasive messages, could be optimized to increase psychological distance and consequently induce behavioural change to alleviate the environmental impact of human behaviour.

References

- Aaker, J. L., & Lee, A. Y. (2006). Understanding regulatory fit. *Journal of Marketing Research*, *43*, 15-19. doi: 10.1509/jmkr.43.1.15
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182. doi: 10.1037/0022-3514.51.6.1173
- Booker, C. (2004). *The seven basic plots: Why we tell stories*, London: Continuum.
- Brehm, S. S., & Brehm, J. W. (1981). *Psychological reactance: A theory of freedom and control*. New York: Academic Press.
- Brown, T. J., Ham, S. H., & Hughes, M. (2010). Picking up litter: An application of theory-based communication to influence tourist behaviour in protected areas. *Journal of Sustainable Tourism*, *18*, 879-900. doi: 10.1080/09669581003721281
- Cesario, J., Grant, H., & Higgins, E. T. (2004). Regulatory fit and persuasion: Transfer from "feeling right." *Journal of Personality and Social Psychology*, *86*, 388-404. doi: 10.1037/0022-3514.86.3.388
- Cin, S. D., Zanna, M. P., & Fong, G. T. (2003). Narrative persuasion and overcoming resistance. In *Resistance and Persuasion*. doi: 10.4324/9781410609816.
- De Groot, J. I., & Steg, L. (2008). Value orientations to explain beliefs related to environmental significant behaviour: How to measure egoistic, altruistic, and biospheric value orientations. *Environment and Behaviour*, *40*(3), 330-354. doi: 10.1177/0013916506297831
- Deterding, S. (2012). Gamification: designing for motivation. *Interactions*, *19*, 14-17. doi: 10.1145/2212877.2212883
- Escalas, J. E. (2004). Imagine yourself in the product: Mental simulation, narrative transportation, and persuasion. *Journal of Advertising*, *33*, 37-48. doi: 10.1080/00913367.2004.10639163
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences. *Behaviour Research Methods*, *39*, 175-191. doi: 10.3758/BF03193146
- Fujita, K., Eyal, T., Chaiken, S., Trope, Y., & Liberman, N. (2008). Influencing attitudes toward near and distant objects. *Journal of Experimental Social Psychology*, *44*, 562-572. doi: 10.1016/j.jesp.2007.10.005

- Goldsmith, K., Newman, G. E., & Dhar, R. (2016). Mental representation changes the evaluation of green product benefits. *Nature Climate Change*, 6, 847-850. doi: 10.1038/nclimate3019
- Green, M. C. (2004). Transportation into narrative worlds: The role of prior knowledge and perceived realism. *Discourse Processes*, 38, 247-266. doi: 10.1207/s15326950dp3802_5
- Green, M. C., & Brock, T. C. (2000). The role of transportation in the persuasiveness of public narratives. *Journal of Aesthetics and Social Psychology*, 79, 701-721. doi: 10.1037/0022-3514.79.
- Griffioen, A. M., Handgraaf, M. J., & Antonides, G. (2019). Which construal level combinations generate the most effective interventions? A field experiment on energy conservation. *PloS One*, 14, doi: 10.1371/journal.pone.0209469
- Hayes, A. F. (2013). *Methodology in the social sciences. Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY, US: Guilford Press.
- Heath, C., Bell, C., & Sternberg, E. (2001). Emotional selection in memes: the case of urban legends. *Journal of Personality and Social Psychology*, 81, 1028-1041. doi:10.1037/0022-3514.81.6.1028
- Higgins, E., Idson, L., Freitas, A., Spiegel, S., & Molden, D. (2003). Transfer of value from fit. *Journal of Personality and Social Psychology*, 84, 1140-1153. doi: 10.1037/0022-3514.84.6.1140
- Hou, C., Sarigöllü, E., Jo, M. S., & Liang, D. (2018). Stepping Outside the Self Promotes Pro-Environmental Behaviours. *Sustainability*, 10, 3128. doi: 10.3390/su10093128
- Inquisit 4 [Computer software]. (2015). Retrieved from <https://www.millisecond.com>.
- Jones, M. D., & McBeth, M. K. (2010). A narrative policy framework: Clear enough to be wrong? *Policy Studies Journal*, 38, 329-353. doi: 10.1111/j.1541-0072.2010.00364.x
- Jones, M. D., & Song, G. (2014). Making sense of climate change: How story frames shape cognition. *Political Psychology*, 35, 447-476. doi: 10.1111/pops.12057
- Kim, H., Rao, A. R., & Lee, A. Y. (2008). It's time to vote: The effect of matching message orientation and temporal frame on political persuasion. *Journal of Consumer Research*, 35, 877-889. doi: 10.1086/593700
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education*

- Research*, 8, 239-260. doi: 10.1080/13504620220145401
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108, 480-498. doi: 0033-2909/90/S00.75
- Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Aesthetics and Social Psychology*, 75, 5-18. doi: 10.1037/0022-3514.75.1.5
- Liberman, N., Trope, Y., & Stephan, E. (2007). Psychological distance. *Social psychology: Handbook of basic principles*. New York: The Guilford Press.
- Mayer, N. D., & Tormala, Z. L. (2010). "Think" versus "feel" framing effects in persuasion. *Personality and Social Psychology Bulletin*, 36, 443-454. doi: 10.1177/0146167210362981
- Mazzocco, P. J., Green, M. C., Sasota, J. A., & Jones, N. W. (2010). This story is not for everyone: Transportability and narrative persuasion. *Social Psychological and Personality Science*, 1, 361-368. doi: 10.1177/1948550610376600
- Murphy, S. T., Frank, L. B., Moran, M. B., & Patnoe-Woodley, P. (2011). Involved, transported, or emotional? Exploring the determinants of change in knowledge, attitudes, and behaviour in entertainment-education. *Journal of communication*, 61, 407-431. doi: 10.1111/j.1460-2466.2011.01554.x
- Nielsen, J. H., & Escalas, J. E. (2010). Easier is not always better: The moderating role of processing type on preference fluency. *Journal of Consumer Psychology*, 20, 295-305. doi: 10.1016/j.jcps.2010.06.016
- Pelletier, L. G., & Sharp, E. (2008). Persuasive communication and pro-environmental behaviours: How message tailoring and message framing can improve the integration of behaviours through self-determined motivation. *Canadian Psychology*, 49, 210-217. doi: 10.1037/a0012755
- Petty, R. E., & Wegener, D. T. (1998). Matching versus mismatching attitude functions: Implications for scrutiny of persuasive messages. *Personality and Social Psychology Bulletin*, 24, 227-240. doi: 10.1177/0146167298243001
- Sherman, D. K., Mann, T., & Updegraff, J. A. (2006). Approach/avoidance motivation, message framing, and health behavior: Understanding the congruency effect. *Motivation and Emotion*, 30, 164-168. doi: 10.1007/s11031-006-9001-5
- Spence, A., & Pidgeon, N. (2010). Framing and communicating climate change: The effects of distance and outcome frame manipulations. *Global Environmental Change*, 20, 656-667. doi: 10.1016/j.gloenvcha.2010.07.002

- Trope, Y., & Liberman, N. (2010). Construal level theory of psychological distance. *Psychological Review*. doi: 10.1037/a0018963
- Van Laer, T., De Ruyter, K., Visconti, L. M., & Wetzels, M. (2013). The extended transportation-imagery model: A meta-analysis of the antecedents and consequences of consumers' narrative transportation. *Journal of Consumer research*, 40, 797-817. doi: 10.1086/67338
- Vlek, C., & Steg, L. (2007). Human behavior and environmental sustainability: Problems, driving forces, and research topics. *Journal of social issues*, 63, 1-19. doi: 10.1016/j.jenvp.2007.08.002

Appendix A – Motivation questionnaires

Introduction text: “This questionnaire is about your motivation to pick up litter lying around in the streets. Please indicate on a scale from 1 (Strongly disagree) to 5 (Strongly agree) to what extent you agree with the following statements.”

1. Large psychological distance motivation

1. I would pick up litter because litter is harmful to the environment
2. I would pick up litter because litter can end up in the ocean and harm nature
3. I would pick up litter because litter pollutes the soil
4. I would pick up litter because litter is harmful to animals
5. I would pick up litter because this way the litter can be recycled

2. Small psychological distance motivation

1. I would pick up litter because it is important that the neighbourhood is clean
2. I would pick up litter because this would improve how the streets look
3. I would pick up litter because litter in the streets looks messy
4. I would pick up litter because it is important that the city is clean
5. I would pick up litter because it is unhygienic when there is litter in the streets

Appendix B – Intention questionnaire

Introduction: “The next questions are about your intention to pick up litter. Please indicate the extent to which you agree with the following statements (1 = Strongly disagree, 6 = Strongly agree).”

1. I intend to pick up and throw away a glass bottle when I come across it in the street
2. I intend to pick up and throw away a plastic bottle when I come across it in the street
3. I intend to pick up and throw away a paper bag when I come across it in the street
4. I intend to pick up and throw away a metal can when I come across it in the street
5. When I see litter, I will pick it up when a garbage bin is nearby
6. When I see litter, I will pick it up and will search for a garbage bin
7. I intend to pick up litter when I’m having free time
8. I intend to pick up litter and throw it away even when I’m in a bit of a hurry
9. I intend to pick up litter and throw it away when I’m alone
10. I intend to pick up litter and throw it away when I’m with friends or family.

Appendix C – Narrative transportation questionnaire (Green & Brock, 2000).

Introduction: The next questions are about the story you just read. Please indicate to what extent you agree with the following statements (1 = Strongly disagree, 6 = Strongly agree).

1. While I was reading the story, activity going on in the room around me was on my mind.
2. I could picture myself in the scene of the events described in the story
3. I was mentally involved in the story while reading it
4. While I was reading the story, I could easily picture the events in it taking place
5. After finishing the story, I found it easy to put it out of my mind
6. I wanted to learn how the story ended
7. The story affected me emotionally
8. I found myself thinking of ways the story could have turned out differently
9. I found my mind wandering while reading the story
10. The events in the story are relevant to my everyday life
11. The events in the story have changed my life

Appendix D – Filler questionnaire

Introduction: “The next questions are about the game you just played. Please indicate the extent to which you agree with the following statements (1= Strongly disagree, 6 = Strongly agree).”

1. I liked the visual design of the game
2. The game was boring to play
3. I was motivated to continue playing
4. It felt like I was accomplishing something
5. I liked playing the game

Appendix E – The narratives

1. Large psychological distance condition

In the vast, green forest of Artora
For a long time now, I keep the world in balance
The people of the woods know me as the Garbage Tree
With my roots, I absorb all the garbage touching the ground
And make sure the animals are healthy and safe
I prevent the soil from becoming dirty
So new trees can grow
I prevent the litter from being carried away by wind and rivers
So sea and land stay clean
And the world can flourish
But you see, something is changing drastically

The world isn't what it used to be
When the people of the woods weren't looking ...
More and more garbage started to appear through the roots of the trees
Nobody knew where it came from
But the story goes a dark force has taken over the forest
The garbage has begun to pile up...
And when the garbage took over
The light of the woods started to disappear

The darkness is spreading through the forest
Poisoning the animals of the sea
And the birds high up in the trees
Even I cannot clean up this mess
The garbage spread through my leaves
And made them all fall off
To tell you the truth, soon the days of the forest will be done

Only you can save the world now
/You are our last hope to pick up the garbage that poisons nature
And destroy the dark force once and for all
Because only then, the forest can be saved from decay
And nature will bloom again
With every piece of garbage you pick up
The colour will gradually return.
And eventually the world will get back to its former glory
It's a mess out there, but I will be your guide"

2. Small psychological distance condition

In a nice neighbourhood in the city,
For a long time now, I reside at a pleasant spot in the middle of the street
The people of the neighbourhood know me as the Garbage Tree
With my roots, I absorb the dirt and garbage touching the ground,
And make sure the streets stay clean and shiny
"I prevent the pavement from becoming dirty,
so you can walk around freely
I prevent the garbage from being carried away by the wind,
so parks and driveways stay tidy,
And the city looks nice and clean.
But you see, something is changing drastically ...

The neighbourhood isn't what it used to be.
When the people of the city weren't looking ...
More and more garbage started to appear through the cracks in the pavement
Nobody knew where it came from
But the story goes a dark force has taken over the city
The garbage has begun to pile up.
And when the garbage took over,
The light of the city started to disappear.

The darkness is spreading through the neighbourhood
Ruining the view
And making the people sad and blue
Even I cannot clean up this mess
The garbage spreads through my leaves
Which all start to fall off.
To tell you the truth,
Soon the city won't be a nice place to live anymore

Only you can save the city now ...
You are our last hope to pick up the garbage that poisons the neighbourhood
And destroy the dark force once and for all.
Because only then, the city can be saved from decay
And it will be nice to live in the neighbourhood again
For every piece of garbage you pick up
The colour will gradually return.
And soon the city will get back to its former glory.
It's a mess out there, but I will be your guide ...

Appendix F – Visual stimuli

1. Large psychological distance story visuals





2. Small psychological distance story visuals



