

Exploring the persuasive effects of altruistic behaviour framing with affect-inducing images in print advertisements

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Abstract

A type of goal-framing in health-promoting messages that is researched infrequently is altruistic behaviour framing (ABF) where the recipient of the message is not the direct beneficiary of the advocated behaviour but instead someone else benefits when the message recipient conforms to the advocated behaviour. The current study focused on exploring the persuasive effects of goal-framing in advertisements on behavioural intentions of participants in the altruistic setting of blood donations. The current study included the use of affect-inducing images with the prediction that matching affect-inducing images would amplify the persuasive effects of both gain- and loss-framing in advertisements as recent studies found that gain-framing evokes positive affect and loss-framing evokes negative affect. The first goal of this study was to research if the effectiveness of goal-framing is also applicable to the altruistic topic of blood donations and secondly if images evoke affect and if affect is a mediator between the framed message and behavioural intent to donate blood. The study featured 176 Dutch-speaking participants with two independent variables, type of frame (gain or loss) and type of affect-inducing image (positive or negative) with a pre- and post-measurement of behavioural intent to donate blood. This meant an experiment with a 2 x 2 x 2 mixed design with four conditions. Results indicated that goal-framing is applicable to the topic of altruistic behaviour as the gain-framed condition was more effective in persuading behavioural intent to become a blood donor in comparison to the baseline measurement than loss-framing irrespective of the combined affect-inducing image. The positive affect-inducing image was found to evoke positive affect but the negative affect-inducing image only indicated a trend in the expected direction. No effects were found for goal-framing to evoke affect and affect was not found to be a mediator between the framed message and behavioural intent.

Introduction

Every second of every minute three people receive a lifesaving blood transfusion worldwide (NHS Blood and Transplant, 2016). Although blood transfusions are a vital component in the healthcare system there has been a significant drop in donors in the past 10 years. A worldwide survey among first time blood donors, held in 21 countries in 2016, revealed a decrease of 27.6 percent in comparison to 2005 (NHS Blood and Transplant, 2016). The survey revealed that the decrease of first time donors on the one hand can be explained by a lack of awareness of the process of blood donation and on the other by more exotic travelling and the increased popularity of tattooing, which bring about a high risk of transmittable blood diseases which do not allow for blood donations (American Red Cross, 2017).

To battle the drop in the number of blood donors, a global initiative by 25 blood services was launched in 2016 called the #MissingType campaign (Sanquin, 2016). In this campaign, multinational companies (e.g. Coca-Cola and Microsoft) and people in the partaking countries, are convoked to participate in the promotion of becoming a blood donor. Brands and participants are asked to replace the matching blood type letters (A, B and O) in their names in marketing manifestations and social media with an underscore to raise awareness and persuade others to become a donor. The campaign has proven successful with a reach of over two billion people and 30,000 new donor registrations in the National Blood Week in the United Kingdom alone (Andrews, 2016). At this stage, however, it is too early to tell the longitudinal effectiveness of this campaign. In the United Kingdom over 200,000 new blood donors are needed every year to replace existing donors who are not allowed to give blood due to illness, travelling, pregnancy or old age (NHS Blood and Transplant, 2016). In The Netherlands this amounts to 40,000 new donors in the coming years (Sanquin, 2016). While the #MissingType campaign shows promising results, the urgency of new donors deems it necessary to continuously raise awareness and search for best practices and methods in healthcare-promoting messages to continue the upkeep of lifesaving blood transfusions.

An important theory often associated with health-promoting messages is goal-framing theory (Levin, Schneider, & Gaeth, 1998). The purpose of goal-framing is to adjust a message in a specific way to highlight certain aspects of the information presented with the intent to persuade the recipient of the message to alter their attitudes and behaviour. Framing has

been widely regarded as a sound theory and forms the foundation of countless public-health campaigns (Van 't Riet, et al., 2016). The focus of framing studies in healthcare settings often resides with a prevention or promotion focus of health behaviour such as smoking or breast self-examination. However, studies on framing in altruistic topics such as donation and adoption are scarce (but see Reinhart, Marshall, Feeley, & Tutzauer, 2007; Chou & Murnighan, 2013; Randle, Miller, Stirling, & Dolnicar, 2016). Especially the altruistic topic of blood donation is fundamentally different in comparison to prevention or promotion health topics as the beneficiary of the advocated behaviour is not the message recipient (possible donor) but someone else (patient receiving the blood transfusion). The first goal of this study was to research if the effectiveness of goal-framing is also applicable to altruistic topics which in this case was blood donation.

Studies have found that a framed message can evoke affect (emotion) which can function as a mediator between the message frame and attitude and/or behavioural intent towards a certain health topic (e.g. Van 't Riet, Ruiter, Werrij, Candel, & De Vries, 2010; Shen & Dillard, 2007). Another way to evoke affect is by means of an affective image, which also has found to have a persuasive effect on attitude and behavioural intent (e.g., Cho & Boster, 2008; Chang & Lee, 2010; Randle et al., 2016). The second goal of this study was to explore if images evoke affect and if affect is a mediator between the framed message and attitude and/or behavioural intent. By combining both framing and affective images in a blood donation advertisement, the present study hoped to find a better understanding of the effects of framing and the possible interaction effects between framing and images on attitude towards blood donation and the behavioural intent to donate blood.

The construct of framing

At the root of goal framing lies prospect theory, hypothesized by Tversky and Kahneman in 1981. In their research, Tversky and Kahneman (1981) found that people respond dissimilar to the possible consequences of their actions when these consequences were presented in a gain-type message or a loss-type message. Participants in Tversky and Kahneman's (1981) experiment were asked to choose between two possible cures (called 'programme one' and 'programme two') for a deadly disease which threatened 600 people. In the gain-framed message the information was presented positively in which programme one would save 200

people whereas programme two had a one-third chance of saving everyone and a two-third chance of saving no one. In the loss-framed message the information was presented negatively in which programme one would let 400 people die instantly and programme two had a one-third chance that no one died and two-third chance that everyone would die. The results of the experiment showed that while the consequences were the same, i.e., an equal amount of living or dead people in both framing conditions, most participants who read the gain-framed message preferred programme one whereas participants who read the loss-framed message preferred programme two. The explanation for this result, according to Tversky and Kahneman (1981), is that people avoid uncertain outcomes when there is a probability of gaining and prefer uncertain outcomes when there is a probability of a loss that is diminishable. The outcomes of programme one are framed as saving lives (certain of the amount of lives saved = 200) whereas the outcomes of programme two are framed as letting people die (uncertain of how many lives will be lost = chance).

In health promoting campaigns the concept of avoiding or preferring uncertain outcomes is translated into goal-framing theory in which uncertainty avoidance is more associated with disease prevention behaviour (e.g. brushing teeth) and uncertainty preference with disease detection behaviour (e.g. breast examination; Reinhart et al., 2007). Goal-framing theory focuses on either the positive consequences (Gain) or negative consequences (Loss) of performing or not performing the desired behaviour (Levin et al., 1998). The purpose of both types of framing is essentially the same which is to persuade the reader to carry out the desired behaviour. Gain- and loss-framing (goal-framing) is often studied with the goal to prevent or reduce certain behaviour, such as smoking (Nan, Zhou, Yang, & Iles, 2015), alcohol use (De Graaf, Van den Putte, & De Bruijn, 2015), and drug abuse (Cho & Boster, 2008).

Contrary to the often hypothesized effects of type of frame and health message (gain-frame with prevention setting or loss-frame with detection setting), a meta-analysis conducted by O'Keefe and Jensen (2006) found no meaningful differences in persuasive power between gain-framing and loss-framing. A follow up meta-analysis by the same authors found similar results with gain-framing being only slightly more persuasive than loss-framing in a prevention focus although effect sizes remained small ($r = .03$; O'Keefe & Jensen, 2007).

In summary, up until now research has been unable to prove that one type of frame is a significantly stronger persuader than the other in a prevention or detection setting.

Altruistic behaviour framing

While there is ample research conducted on prevention and detection message framing on the message recipient's behaviour and associated consequences in goal-framing, there are only a few studies available on message framing where the message recipient is not the direct beneficiary of the desired behaviour (e.g., Reinhart et al., 2007; Chou & Murnighan, 2013). With this type of framing, another person than the message recipient will benefit when the message recipient conforms to the advocated behaviour. Some examples of this (altruistic) behaviour are voluntary work and donations to charity (Chou & Murnighan, 2013). In healthcare, this behaviour can take on the form of organ donations and blood donations.

Considering that one of the core principles, the direct beneficiary of the advocated behaviour, of goal-framing and framing for altruistic motives is different, results of studies on goal-framing with a prevention or detection behaviour focus may not be generalizable to such other beneficiary type of framing (Reinhart et al., 2007). In the current study, this type of goal-framed messages, where the objective is to persuade the recipient of the message to comply with the desired behaviour not for the well-being of the self but for the well-being of someone else, was defined as *Altruistic Behaviour Framing (ABF)*. In a study on post-mortem organ and tissue donation conducted by Reinhart et al. (2007), results indicated that a gain-framed message (the saving or improving of lives) produced more favourable message reactions (agreement, relatability and credibility) and greater behavioural intentions among participants towards becoming organ donors than the loss-framed message (leaving patients on the transplant list indefinitely). In contrast to the results of Reinhart et al. (2007), Chou and Murnighan (2013) found different results in their study on blood donation behaviour. In their experiment, participants were urged in an e-mail message to donate blood to either "save someone's life" (gain-frame) or "help prevent an unnecessary death" (loss-frame). The loss-frame was significantly more effective in soliciting blood donors than the gain-frame. Similar to goal-framing it is unclear which type of frame (loss or gain) in ABF is more effective to persuade message recipients to comply with the desired behaviour. With ABF studies being scarce and results on what type of frame is more effective in persuading the recipient to

engage in altruistic behaviour being mixed, the current study aimed to complement the current knowledge of this particular type of framing to better understand its effects.

Affect evoked through framing

In their study, Van 't Riet et al. (2016) suggest the necessity for a new approach in message-framing studies to better understand the effects of message framing. Their proposal for a research agenda on health-promoting message-framing includes the focus on moderator or mediator variables between the framed message and the attitude and intentions of the message recipient (Van 't Riet, et al., 2016). One such mediator effect between the message frame and the desired behaviour by the recipient as Van 't Riet et al. (2016) describe can be found in affect, which is evoked by emotion. A study conducted by Shen and Dillard (2007) shows that goal-framing evokes affect with gain-framing evoking positive feelings and loss-framing evoking negative feelings. The concept fundamental to this effect is the relationship between an individual's goals and the current situation. If the current situation is compatible with the goals of the individual this leads to positive affect while incompatibility leads to negative affect (Shen & Dillard, 2007). Specifically, there is compatibility between goal (e.g., healthy gums) and the current situation (e.g., brushing teeth leads to healthy gums) which leads to a positive affect state. By contrast, an incompatibility between goal (e.g., healthy gums) and the current situation (e.g., neglecting to brush teeth leads to unhealthy gums) leads to a negative affect state. Gain-framed messages focus on beneficial outcomes in which ideally there is a compatibility between the situation and the goal of the recipient. Loss-framing messages focus on the possible negative outcome which enhances the incompatibility between the goal of the recipient and the situation (Van 't Riet et al., 2010).

Several studies have shown the persuasive effects of affect in healthcare framing-messages (Van 't Riet et al., 2010; Shen & Dillard, 2007). In their study to investigate the presence of a mediation effect of affect between framing and behavioural intent, using the topic of salt intake, Van 't Riet et al. (2010) found that the dependent variable positive affect contributed to information acceptance and attitude changes in gain-framed messages which led to an increase in behavioural intent to reduce the intake of salt. Negative affect contributed directly to behavioural intent to reduce the intake of salt without the mediation of information acceptance and attitude. A similar study was conducted by Shen and Dillard

(2007) on the persuasive effects of affect in health message-framing on multiple healthcare topics (skin cancer and vaccination against the flu). Shen and Dillard (2007) found similar effects of the relation between affect and framing although the effects proved differently with fear and anger as predictors of attitude. These predictors subsequently predicted behavioural intent to comply with the behaviour the message advocated (protecting skin against the sun and getting a flu-vaccine). A possible explanation for the different results is the nature of the research topic. Salt intake (Van 't Riet et al., 2010) has a less severe direct impact on the recipients' life than the risk of skin cancer or the flu (Shen & Dillard, 2007). Similar to the studies of Shen and Dillard (2007) and Van 't Riet et al. (2010), the current study featured *message-induced affect*. With message-induced affect the message itself causes the affect due to the processing of the persuasive message by the recipients. Message-induced affect is predictable and easier to manipulate compared to the recipients' current mood which is an unpredictable longitudinal accumulation of emotion and thus a variable that is not controllable.

Textual framing versus visual framing in advertisements

The vast majority of studies conducted on goal-framing theory feature a method that focuses on written text that is either gain- or loss-framed (O'Keefe & Jensen, 2006; O'Keefe & Jensen, 2007). This method of textual framing is often used in controlled laboratory settings (Reinhart et al., 2007) and e-mails (Chou & Murnighan, 2013) in which the recipient has unlimited time to read the framed message. However, with a healthcare campaign on television or in billboard advertising there is a limited time span for message processing and limited room to use an extensive amount of text to apply a frame to the intended message. Therefore, it is important to study framing in these fast-paced visual media to understand the effects of framing in settings that are commonly used for healthcare campaigns such as billboard advertising (Fortenberry Jr., Elrod, & McGoldrick, 2010).

A study that focused on such fast-paced visual media is the study on antidrug advertisements on television by Cho and Boster (2008). Cho and Boster (2008) found that antidrug advertisements that used a loss-frame were more effective in persuading at-risk participants to not do drugs and simultaneously proved the effectiveness of framing in television advertisements. In a more recent ABF study to explore the effects of print framing

advertisements on attracting foster carers, Randle et al. (2016) found that advertisements with an image depicting a negative situation (sad girl and neglected boy) provoked significantly more negative affect than advertisements with an image depicting a positive situation (foster carer and foster child fishing together with foster carer portrayed as Superman). The effects were reversed with an image depicting a positive situation evoking significantly more positive affect than the image depicting a negative situation. The results of this study showed that the positively framed images were associated with a stronger positive reaction towards foster care than the negatively framed images (Randle et al., 2016).

Both studies demonstrate the persuasive effects of image framing proving the effectiveness of image framing next to textual framing only messages. Which type of frame proved more effective in image framing differed between both studies and can possibly be explained by the difference in topics (prevention focus vs. donation focus) and image framing (television vs. print media). The current study focused on both message framing and visual framing in advertisements by combining the framed message with an image in a way that is similar to the approach adopted by Randle et al. (2016). This was done in print advertisements that are suitable for brochures, magazines and billboards and is applicable for healthcare campaigns and adds to the scarce knowledge of healthcare and altruistic behaviour framing in fast-paced visual media.

Affect amplifies the persuasive effects of message framing by means of images

The studies by Shen and Dillard (2007) and Van 't Riet et al. (2010) focus on the affect invoked purely by the framing of the message with gain-framing evoking positive affect and loss-framing evoking negative affect. Evoking affect is also possible by means of imagery as shown earlier by Randle et al. (2016) in their print advertisement study on attracting foster carers and the study by Cho and Boster (2008) on anti-drug advertisements. A study conducted by Chang and Lee (2010) to research the effectiveness of combining message framing with a congruent vivid image in leaflets proved successful and resulted in a significant increase of behavioural intent to donate to a charity compared to a non-congruent vivid image and message frame. Their results indicate that a fundraising campaign for charities should include both message framing and matching images to be effective and that a loss-framed message with a negative image proved more successful than a gain-framed message with a positive

image on donation intentions (Chang & Lee, 2010). The current study adopted the approach of Chang and Lee (2010) by researching both the congruence and incongruence effects of both message framing and images on affect, attitude and behavioural intent towards blood donation.

An important theory that supports both the influence of message framing and images on attitude and behavioural intent is the dual coding theory (Paivio, 1971). This theory hypothesizes the presence of two different mental systems: the verbal and the nonverbal system. Both systems continuously process information received by the individual. The verbal system processes language and symbols, which focuses on the message frame. The nonverbal system covers emotions (affect) and visuals, and focuses on images (Paivio, 1971). By combining both elements in message framing and images, both mental systems are working together in the form of cognition (the message frame) and affect (images) to form attitude and behaviour (Seo, Dillard, & Shen, 2013). By evoking affect by means of images, next to message framing, an enhanced effect of the persuasive message could be achieved by initiating both mental systems. By combining both images and message framing with the congruence and incongruence effects on affect and behavioural intent, as studied by Chang and Lee (2010), the following research question was formed: *To what extent is a framed message with a matching affect-inducing image more persuasive in altruistic behaviour framing in print advertisements than a framed message with a conflicting affect-inducing image?* This research question translates into the following hypotheses:

- H1:** *Altruistic behaviour framed messages with an image that matches the frame will yield stronger emotional responses (affect) toward the blood donation advertisements than altruistic behaviour framed messages with an image that does not match the frame*
- H2:** *Altruistic behaviour framed messages with an image that matches the frame will yield a stronger behavioural intent to donate blood compared to an established baseline than altruistic behaviour framed messages with an image that does not match the frame*

In the study by Chou and Murnighan (2013) results showed that a loss-framed message, in an altruistic behaviour framed setting, was significantly more effective to influence behaviour (actually donating blood after reading an e-mail) than a gain-framed

message. Chang and Lee (2010) found similar results in their study with leaflets on fundraising intention for charity with loss-framing being more effective in influencing behavioural intent (financial donation) than gain-framing. As a result of the outcomes of these altruistic behaviour framed studies I hypothesized:

H3: *Loss-framed messages with an image that matches the frame will yield a stronger behavioural intent to donate blood than gain-framed messages with an image that matches the frame compared to an established baseline*

In their study to test the mediation of affect between framing and behavioural intent using the topic of salt intake, Van 't Riet et al. (2010) found that positive affect in gain-framed messages contributed to attitude changes which led to the behavioural intent to reduce the intake of salt. Therefore I hypothesized:

H4: *Gain-framed messages with an image that matches the frame will yield a stronger attitude towards blood donation than loss-framed messages with an image that matches the frame*

H5: *The effects of the framed messages with an image that matches the frame on behavioural intent will be mediated by attitude*

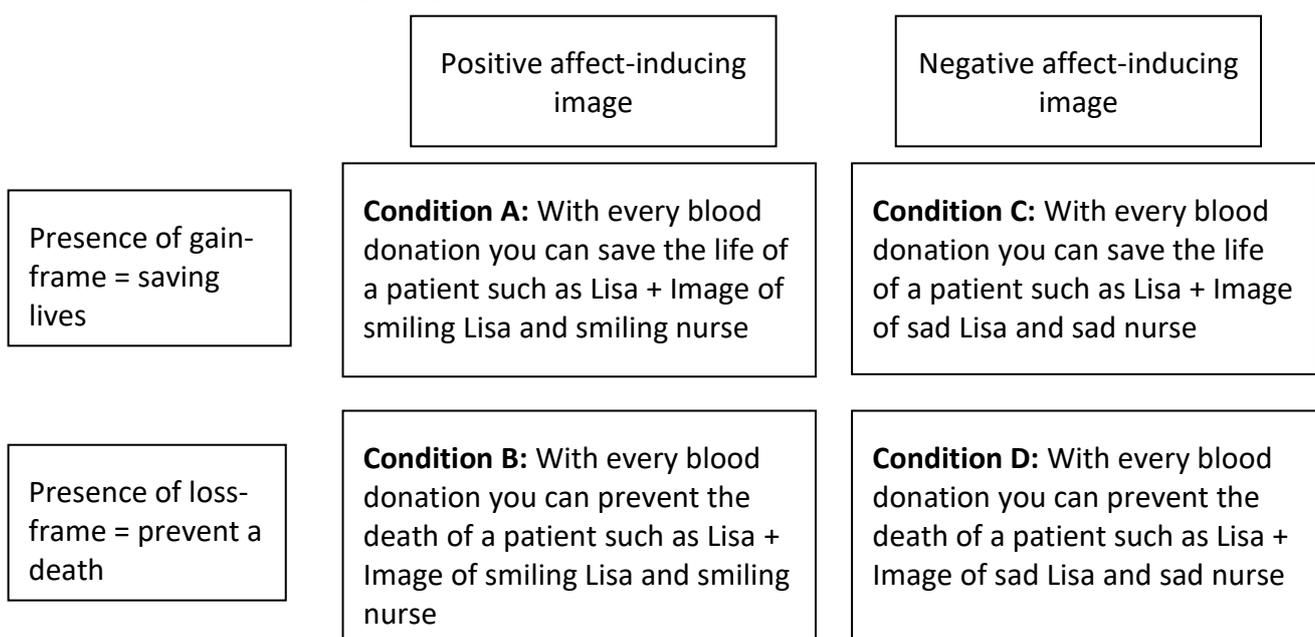
Method

Materials

To select the materials for the current study certain criteria had to be met. Firstly, the materials had to include the different types of framing with a gain-framed message and a loss-framed message. As the current study featured an advertisement that could be viewed on a leaflet or billboard the message needed to be short without compromising the distinctness between the gain- and loss-frame material (Randle et al., 2016). The one-sentence gain-framed message highlighted the benefit of saving the life of an individual by donating blood. The one-sentence loss-framed message highlighted that by donating blood an unnecessary death will be prevented, which indirectly indicates that by not donating blood you are not preventing deaths of patients in need of blood. Both sentences are presented in Appendix 1, condition A and condition B. As the current study was conducted in the Netherlands the materials featured were created in Dutch.

Secondly, the images of the material needed to match the affect that the message frame evokes. As the literature suggests, gain-framing evokes positive affect and loss-framing evokes negative affect (Van 't Riet et al, 2010; Shen & Dillard, 2007). Appendix 1 shows the images chosen for the experiment which featured a nurse and a girl either smiling which should evoke positive affect (conditions A and B) or expressing sadness which should evoke negative affect (conditions C and D). To combine the text (either gain- or loss-frame) and the image into a single credible advertisement, the patient (the girl) in the advertisement was given a name (Lisa) and became the main subject of the advertisement. Furthermore, the material featured a fictional name and logo that displayed similarities with the name and logo of the blood services in The Netherlands: Sanquin, to enhance the credibility of the conditions. As the purpose of the advertisement was to persuade viewers to become blood donors a sentence was added to all conditions that highlighted the necessity for blood donations (the disease of Lisa) and an imperative was added to become a blood donor that matched either the gain- or loss-framed message. As the experiment also focused on the congruence and incongruence between the type of frame and the affect-inducing image, the material featured two conditions with a mixed set-up with a gain-framed message and a negative affect evoking image (condition C) and a loss-framed message with a positive affect evoking image (condition B). Figure 1 shows the four conditions which are on par with the conditions in Appendix 1.

Figure 1. four separate conditions with both independent variables: framing and affect-inducing image



All four conditions were pre-tested to assess the effectiveness of the manipulations of all conditions. Each condition was assessed by at least 10 participants and focused on the manipulation of affect by both the message frame and the image. In total, 40 participants were needed to complete the pre-test. Participants were recruited offline at Radboud University (age: $M = 23.08$, $SD = 4.34$; range 18 – 43; 50% male). A two-way ANOVA with type of frame (gain or loss) and type of affect-inducing image (positive or negative) indicated no main effect of frame on positive affect ($F(1, 36) < 1$) and no main effect of affect-inducing image on positive affect ($F(1, 36) = 2.48$, $p = .124$). However, there was an interaction effect between type of frame and type of affect-inducing image on positive affect ($F(1, 36) = 9.15$, $p = .005$, $\eta^2 = .20$). A one-way ANOVA, this time with a split file for type of frame, showed a main effect of the gain-framed advertisement and positive affect-inducing image on positive affect ($F(1, 18) = 11.77$, $p = .003$, $\eta^2 = .40$). This meant that condition A as shown in figure 1 ($M = 4.18$, $SD = .80$) induced significantly more positive affect than condition C ($M = 3.04$, $SD = .68$). There was no main effect for the loss-framed condition and type of affect on positive affect ($F(1, 18) < 1$).

A second two-way ANOVA with type of frame (gain or loss) and type of affect-inducing image (positive or negative) indicated no main effect of frame on negative affect ($F(1, 36) = 1.41$, $p = .243$) but did indicate a trend in the expected direction of affect-inducing image on negative affect ($F(1, 36) = 3.04$, $p = .090$, $\eta^2 = .08$). This implied that the negative affect-inducing image of conditions C and D ($M = 4.35$, $SD = .80$) induced more negative affect than the positive affect-inducing image of conditions A and B ($M = 3.91$, $SD = .79$). There was no interaction effect between type of frame and affect-inducing image on negative affect. Although not all tests proved significant there were clear signs that the manipulations of the conditions in both framing and in affect-inducing image were successful. These signs included the interaction effect between the gain-framed message and positive affect-inducing image on positive affect and the trend in the expected direction of negative affect-inducing image on negative affect. All condition as shown in Appendix 1 were used in the study.

Subjects

Participants were 271 Dutch speakers. After removing extreme outliers with over 25 minutes completion time and participants who did not complete the experiment, 176 participants were included in the current study (age: $M = 33.34$, $SD = 13.81$; range 15 – 76; 62.5% female). 26 of the 176 participants were current blood donors (age: $M = 33.50$, $SD = 14.14$; range 19 – 63; 61.5% female) and were included in the analyses as currently being a blood donor does not automatically predict the intention to donate blood in the next three months. The University of Applied Sciences was the most common educational level among participants ($M = 49.4\%$; range high school – academic). Participants were equally distributed across conditions regarding gender ($\chi^2(3) = 6.97$, $p = .073$), age ($F(3, 172) = 1.317$, $p = .271$), current status of being a blood donor ($\chi^2(3) = 2.85$, $p = .415$) and different levels of education ($\chi^2(9) = 15.56$, $p = .077$).

Design

Participants were randomly assigned to one of four conditions featuring a persuasive communication advertisement promoting blood donations, which either contained a gain- or a loss-frame, and either a positive or negative affect-inducing image. Furthermore, behavioural intention to donate blood was measured pre- and post-exposure. This meant an experiment with a two (frame: gain versus loss) by two (affect: positive versus negative) by two (pre- and post-exposure) mixed factorial design.

Instruments

In addition to the four experimental conditions constituting the independent variables, the study featured the following dependent variables: affect, attitude and behavioural intent. All scales for the dependent variables were translated and back-translated from English by a graduate of the master programme International Business and Communication (IBC) to ensure a correct translation. The variable affect (positive and negative) was measured on 7-point Likert scales (1 = I didn't feel this at all, 7 = I felt this strongly) adapted and translated from Randle et al. (2016). Participants were asked to assess what they felt on given affect items after being exposed to the advertisement. The compound variable positive affect was measured by means of five items: happiness, empowerment, admiration, compassion and

pride. The compound variable negative affect was also measured by means of five items: sympathy, guilt, sadness, pity and annoyance.

In their study, Randle et al. (2016) found in a factor analysis that their pre-tested scales of positive and negative emotions were in fact three scales with the addition of intolerance which comprised of compassion, sympathy and annoyance. Therefore, in the current study a factor analysis was conducted with all ten emotion items to research the cohesion of these items. This factor analysis used principle component factoring as extraction method and direct oblimin with Kaiser Normalization as rotation with the suppression of factors below 0.4. This yielded three factors that explained 65 percent of the total variance (See Table 1). The factor analysis revealed the compound variable “positive affect” which comprised of happiness, empowerment, admiration and pride which had an acceptable reliability fit ($\alpha = .73$). The second compound variable that was revealed was “negative affect” which comprised of compassion, sympathy, guilt, sadness and pity and showed a good reliability fit ($\alpha = .83$). The reason for compassion loading on the negative affect factor can possibly be explained by the Dutch meaning of the word. The translation into Dutch for the word compassion (medeleven) displays strong similarities with the Dutch meaning for sympathy (sympathie) and pity (medelijden) and therefore loads on the negative affect factor. The last factor comprised of one item which was “annoyance” and was discarded as a factor as it only explained 11 percent of the total variance. Therefore, this study incorporated two affective factors in “positive affect” and “negative affect”.

To measure attitude towards blood donation scales were adapted and translated from a study using the theory of planned behaviour to predict blood donation intention (Robinson, Masser, White, Hyde, & Terry, 2008). Robinson et al. (2008) found that attitude proved to be a significant predictor of blood donation intentions. Attitude was measured by six 7-point semantic differential items toward engaging in blood donation in the next three months: unpleasant/pleasant, unsatisfying/satisfying, pointless/worthwhile, unrewarding/rewarding, stressful/relaxing and bad/good. A factor analysis was conducted on all six attitude items with principle component factoring as extraction method and direct oblimin with Kaiser Normalization as rotation with suppression of factors below 0.4. This yielded a two factor composition that explained 78 percent of the total variance. The first compound variable “Rewarding” consisted of satisfying, worthwhile, rewarding and good and showed good

reliability ($\alpha = .88$). The second compound variable "Stressful" comprised of unpleasant and stressful and also showed good reliability fit ($\alpha = .83$). Therefore, this study used these two attitude compound variables toward engaging in blood donation.

Behavioural intent was measured with the following four items, adapted from Hoeken, Hornikx and Hustinx (2012): "I am going to donate blood in the next 3 months", "I intend to donate blood in the next 3 months", "I am willing to donate blood in the next 3 months", "I will donate blood in the next 3 months". These items were measured with 7-point Likert scales ranging from 1 (Strongly disagree) to 7 (Strongly agree). To establish a baseline for behavioural intent towards blood donation the items were asked before and after exposure to the stimulus. To conceal the true intent of the study, behavioural intent on comparable topics were examined in a similar fashion pre-exposure only. The following topics were used: donations to charity and becoming a donor post-mortem. The inclusion of these topics in the experiment merely functioned as distraction from the purpose to create a baseline intention to donate blood. The baseline intention scale on donating blood proved very reliable ($\alpha = .91$). The behavioural intent measure after exposure to the condition also proved to have a very reliable fit ($\alpha = .93$). Furthermore, some background questions were asked about sex, age and highest completed education (ranging from primary school to university). Being a blood donor or past blood donor could influence the behavioural intent of the participants and therefore were also measured. Current status of being a blood donor and past status of being a blood donor were measured with two yes or no questions.

Procedure

The four conditions, the dependent and control variables were placed in one questionnaire which was developed in Qualtrics (2017) and participants were randomly assigned to one of four conditions to assure an even distribution among participants. The questionnaire was distributed through different communication channels such as Facebook and LinkedIn. The questionnaire was conducted on an individual basis on the internet without revealing the intentions of the study to participants. An incentive in the form of a giveaway was used to motivate participants to take part in the experiment. After opening the questionnaire participants were greeted and shown a short introduction to the experiment. Subsequently appreciation for participating was shown and participants were informed that the

information given would be processed anonymously and that partaking in the experiment could be stopped at any time. Participants were required to agree with these terms to continue the experiment by voluntarily ticking a box and by doing so agreeing on the anonymous processing of their information in the experiment. After agreeing to these terms participants started the experiment and were explained what was expected of them. When the experiment was started participants were informed that all questions needed to be answered and that they were technically obliged to complete every question and were unable to return to the previous part of the questionnaire to avoid changing answers or uncovering the true intent of the experiment.

In order to establish the baseline for blood donation intent without revealing the goal of the study, the behavioural intent on similar topics (donation to charity and donor post-mortem) were asked first with the questions for the intentions to donate blood in-between. After these questions participants were asked the following control questions: Sex, age and education. Following the control questions participants were exposed to the advertisement (one of four conditions) for at least 5 seconds (technically obliged to ensure exposure). The average exposure time of the advertisement was 15.55 seconds (range: 6.73 seconds – 77.28 seconds). A one-way ANOVA showed no relation between the different versions and exposure time ($F(3, 172) < 1$). After exposure participants moved on to the items for the dependent variables affect, attitude and behavioural intent. As this study featured *message-induced affect* it was important to measure affect straight after the stimulus. As condition A (Gain-frame/Positive affect) should evoke positive affect the items for positive affect were presented first and the items for negative affect second. Condition D (Loss-frame/Negative affect) should evoke negative affect and therefore the items for negative affect were presented first and the items for positive affect second. Condition B (Loss-frame/Positive affect) and Condition C (Gain-frame/Negative affect) should evoke mixed affect and therefore the scales for positive and negative affect were randomized in both conditions. Randomization also was applied to all the items within the aforementioned affect scales. The six items for the independent variable attitude were also randomized to counter question order effects. The items for behavioural intent were not randomized as these were specifically designed to be presented in a particular order. This order starts with the item to measure planning the advocated behaviour and builds up towards the item to measure carrying out

the advocated behaviour. By randomizing these items carrying out the behaviour could be presented before planning the behaviour which is illogical as planning often precedes actually carrying out the behaviour.

Subsequent to completion of the items for the dependent variables participants were asked the last control questions about having been a blood donor in the past and being a blood donor at this very moment. The first reason to separate the control variables was to extend the time between the creation of the baseline and the stimulus. This was done to confound the participant of what the goals of the study were and secondly to let participants fail to remember the answer given for the baseline of the intention to donate blood. The second reason was that the control variables of being a blood donor in the past or at this moment might have implied what the goals of the study were if asked in advance of the stimulus. At the closing of the questionnaire participants were shown gratitude for participating and an option was presented to fill in an e-mail address to participate in the giveaway that was offered as the incentive beforehand to promote participation. The average time to complete the experiment was 5 minutes and 9 seconds (range: 2 minutes 06 seconds – 22 minutes 08 seconds).

Statistical treatment

To answer *H1* and the research question, to what extent a framed message with a matching affect-inducing image is more persuasive in altruistic behaviour framing than a framed message with a conflicting affect-inducing image, two-way ANOVA's with type of frame and type of affect-inducing image as independent variables were performed. This was done to investigate whether there is a difference in affect (positive and negative affect), attitude (rewarding and stressful) and behavioural intent between the four conditions. To test the effects of the four conditions on behavioural intent pre- and post-exposure, as hypothesized in *H2* and *H3*, two-way mixed ANOVA's were conducted. *H4* was tested by conducting one-way ANOVA's, after grouping together the framed messages with congruent affect-inducing images, for both dependent attitude variables rewarding and stressful. To test *H5*, the possible mediation effects of attitude on behavioural intent, the steps for mediation were explored and correlation analysis was conducted.

Results

H1: framed and congruent image effects on affect

To ensure that the manipulation of message-induced affect (positive or negative) was successful two two-way ANOVA's were conducted with type of frame (gain or loss) and type of affect-inducing image (positive or negative) as independent variables. The first two-way ANOVA indicated a main-effect of affect-inducing image on positive affect ($F(1, 172) = 9.69, p = .002, \eta^2 = .05$) but no main effect of type of frame ($F(1, 172) = 2.26, p = .135$). The positive affect-inducing image ($M = 3.11, SD = 1.10$) induced more positive affect than the negative affect-inducing image ($M = 2.61, SD = 1.06$). There was no interaction effect between type of frame (gain or loss) and affect-inducing image (positive or negative) on positive affect ($F(1, 172) < 1$). The means and standard deviations can be found in Table 1.

Table 1. Means and standard deviations for the interaction between type of frame and type of affect-inducing image on the compound affect variable positive affect and negative affect (1= I did not feel this at all, 7 = I felt this strongly)

<i>Type of frame</i>	<i>Type of affect-inducing image</i>	<i>Positive affect M (SD)</i>	<i>Negative affect M (SD)</i>	<i>n</i>
Gain-frame	Positive	3.24 (1.22)	3.53 (1.24)	43
	Negative	2.72 (1.12)	4.14 (1.20)	45
Loss-frame	Positive	2.98 (.96)	3.98 (1.06)	46
	Negative	2.49 (.99)	3.99 (1.27)	42
Total	Positive	3.11 (1.10)	3.77 (1.16)	89
	Negative	2.61 (1.06)	4.07 (1.23)	87

The second two-way ANOVA indicated a trend of affect-inducing image on negative affect ($F(1, 172) = 2.92, p = .089, \eta^2 = .02$). The negative affect-inducing image induced more negative affect ($M = 4.07, SD = 1.23$) than the positive affect-inducing image ($M = 3.77, SD = 1.16$). There was no main effect of type of frame (gain or loss) on negative affect ($F(1, 172) < 1$) and also no interaction effect between type of frame (gain or loss) and type of affect-inducing image (positive or negative) on negative affect ($F(1, 172) = 2.73, p = .101$). The means

and standard deviations can be found in Table 1. *H1* predicted that ABF messages with an image that matched the frame would yield stronger emotional responses (affect) toward the blood donation advertisement than ABF messages with a mismatched image would. As both interaction effects for positive affect and negative affect proved non-significant no support was found for *H1*.

H2: framed message and congruent image effects on behavioural intention compared to the baseline

A mixed ANOVA for exposure with exposure as within subject factor and type of frame (gain or loss) and type of affect-inducing image (positive or negative) as between subject factors indicated a significant main effect of exposure on behavioural intent ($F(1, 172) = 13.77, p < .001, \eta^2 = .07$). Participants displayed a higher intention to donate blood after exposure to the message ($M = 3.19, SD = 1.79$) than before exposure ($M = 2.90, SD = 1.71$). There was also an interaction effect between exposure and frame ($F(1, 172) = 5.04, p = .026, \eta^2 = .03$). After performing a split file to group for type of frame (gain-frame or loss-frame) a mixed ANOVA showed that there was a significant difference in the gain-framed condition ($F(1, 86) = 15.35, p < .001, \eta^2 = .15$) between before exposure ($M = 2.81, SD = 1.64$) and after exposure ($M = 3.27, SD = 1.76$).¹ The loss-framed condition showed no significant difference ($F(1, 86) = 1.27, p = .263$). Plots for the means can be found in Figure 2. Furthermore there was no interaction effect between exposure and affect ($F(1, 172) < 1$) and between exposure, affect and type of frame ($F(1, 172) < 1$). The means and standard deviations can be found in Table 2. *H2* predicted that ABF messages with an image that matched the frame would yield stronger behavioural intent compared to the established baseline than ABF messages without a congruent image would. As the interaction between exposure, type of frame and affect-inducing image was non-significant no support was found for *H2*.

¹ This effect also occurred after removing current blood donors ($n = 26$) from the study ($F(1, 74) = 18.52, p < .001, \eta^2 = .20$)

Figure 2. Comparison of the effects of type of framing before (baseline) and after exposure to the framed message on behavioural intent to donate blood

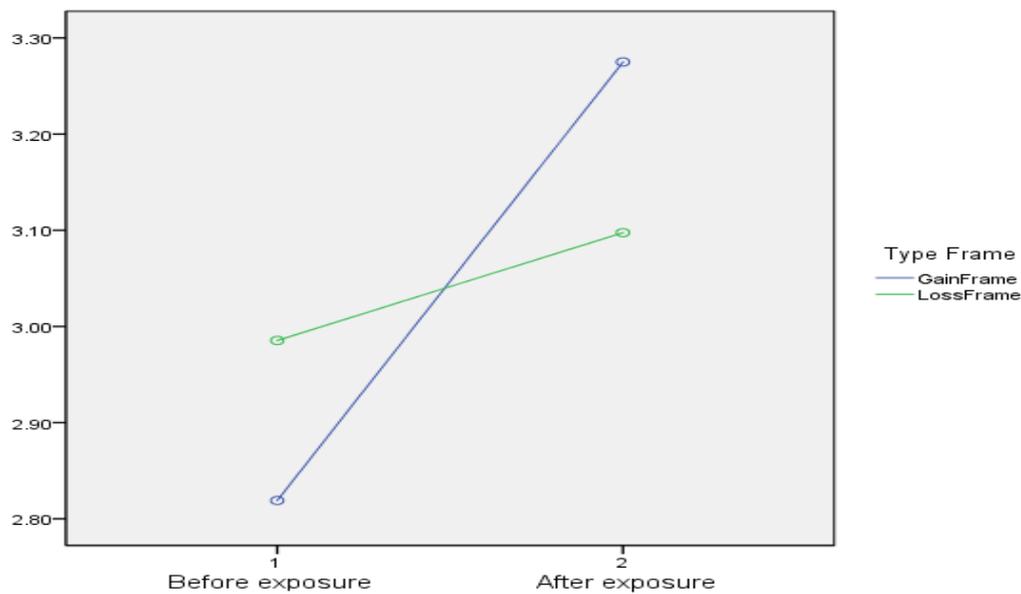


Table 2. Means and standard deviations for the interaction between variables type of frame and type of affect-inducing image on behavioural intent to donate blood within the next three months with within subject variable exposure (1= strongly disagree, 7 = strongly agree)

<i>Exposure</i>	<i>Type of frame</i>	<i>Type of affect</i>	<i>M (SD)</i>	<i>n</i>
Before exposure	Gain-frame	Positive	3.10 (1.76)	43
		Negative	2.53 (1.49)	45
	Loss-frame	Positive	3.24 (1.85)	46
		Negative	2.73 (1.68)	42
	Total	Total	2.90 (1.71)	176
After exposure	Gain-frame	Positive	3.50 (1.75)	43
		Negative	3.05 (1.76)	45
	Loss-frame	Positive	3.33 (1.83)	46
		Negative	2.87 (1.82)	42
	Total	Total	3.19 (1.79)	176

H3: loss-frame vs. gain-frame with congruent image on behavioural intention compared to the baseline

H3 predicted that the loss-framed message with a congruent affect-inducing image would yield a stronger behavioural intent compared to the baseline than the gain-framed message with a congruent affect-inducing image. After selecting cases for the framed message with congruent affect-inducing image a mixed ANOVA with type of framed message with congruent affect-inducing image as dependent variable and within-subject factor exposure was performed. As with *H2* The mixed ANOVA revealed a main effect of exposure on behavioural intent ($F(1, 83) = 6.45, p = .013, \eta^2 = .07$). After exposure ($M = 3.19, SD = 1.80$) subjects were more intended to donate blood than before exposure ($M = 2.92, SD = 1.72$). No interaction effect between type of frame with congruent images and exposure was found ($F(1, 83) = 1.42, p = .237$). As the interaction between exposure and frame with matching affect-inducing image was non-significant there was no support for *H3*. The means and standard deviations can be found in Table 3.

Table 3. Means and standard deviations for the interaction between subject variable type of frame with congruent image and within subject variable exposure on behavioural intent to donate blood within the next three months (1= strongly disagree, 7 = strongly agree)

<i>Exposure</i>	<i>Type of frame with matching affect-inducing image</i>		<i>n</i>
		<i>M (SD)</i>	
Before exposure	Gain-frame with positive affect	3.10 (1.76)	43
	Loss-frame with negative affect	2.73 (1.68)	42
	Total	2.92 (1.72)	85
After exposure	Gain-frame with positive affect	3.50 (1.75)	43
	Loss-frame with negative affect	2.87 (1.82)	42
	Total	3.19 (1.80)	85

H4: framed message and congruent image effects on attitude towards blood donation

After grouping the matched advertisements together (gain-frame with positive affect-inducing image and loss-frame with negative affect-inducing image) into one variable a one-

way ANOVA was conducted with type of frame (gain or loss) as the independent variable and the compound attitude variable rewarding as the dependent variable. The one-way ANOVA revealed a significant main effect of type of frame with matching affect-inducing image on the compound attitude rewarding ($F(1, 83) = 4.81, p = .031, \eta^2 = .06$) with the loss-framed advertisement with congruent affect-inducing image being significantly more rewarding ($M = 5.64, SD = .98$) than the gain-framed advertisement with congruent affect-inducing image ($M = 5.05, SD = 1.45$). There was no main effect of type of frame (gain or loss) with mismatching affect-inducing image on the compound attitude rewarding ($F(1, 89) < 1$). The means and standard deviations can be found in Table 4.

Table 4. Means and standard deviations for the main effect of type of frame with congruence or incongruence of image on the compound attitude variable rewarding (1= unrewarding, 7 = very rewarding)

<i>Image congruence</i>	<i>Type of frame</i>	<i>M (SD)</i>	<i>n</i>
Matched	Gain-frame	5.05 (1.45)	43
	Loss-frame	5.64 (.98)	42
Mismatched	Gain-frame	5.31 (1.43)	45
	Loss-frame	5.26 (1.55)	46

A second one-way ANOVA was conducted with type of frame (gain or loss) as the independent variable and this time the compound attitude variable stressful as the dependent variable with the same grouping variable image congruence (Gain-frame with positive affect-inducing image and loss-frame with negative affect-inducing image). The one-way ANOVA revealed no main effect of type of frame (gain or loss) with matching affect-inducing image on the compound attitude stressful ($F(1, 83) < 1$). There also was no main effect of type of frame (gain or loss) with mismatching affect-inducing image on the compound attitude stressful ($F(1, 89) < 1$). The means and standard deviations can be found in Table 5.

Table 5. Means and standard deviations for the main effect of type of frame with congruence or incongruence of image on the compound attitude stressful (1= stressful, 7 = relaxing)

<i>Image congruence</i>	<i>Type of frame</i>	<i>M (SD)</i>	<i>n</i>
Matched	Gain-frame	3.86 (1.47)	43
	Loss-frame	3.73 (1.41)	42
Mismatched	Gain-frame	3.32 (1.46)	45
	Loss-frame	3.48 (1.60)	46

H4 predicted that the gain-framed message with a congruent image would yield a stronger attitude towards blood donation than the loss-framed message with a congruent image. Results revealed that participants in the loss-framed condition with matching affect-inducing image found it more rewarding to donate blood than participants in the gain-framed condition with matching affect-inducing image. There was no significant effect between gain-framed and loss-framed messages with congruent affect-inducing image on perceiving blood donations to be more stressful. No support was found for *H4* as the hypothesized effects were reversed for the compound variable “rewarding” and no effects were found for the compound variable “stressful”.

H5: Mediation effects of attitude on behavioural intent to donate blood

H5 predicted that the effects of framing with congruent images on behavioural intent would be mediated by attitude. For mediation to occur the framed message with congruent image would need to lead to higher behavioural intent among participants. As *H2* and *H3* were both not supported this is not the case and therefore mediation cannot occur. There was no support found in the analyses of *H4* that the gain-framed condition with congruent image would yield a stronger attitude towards blood donation and therefore also no mediation is occurring. As mediation is not occurring *H5* is not supported. However, it is possible to research if there is a relation between attitude and behavioural intent and therefore a bivariate correlation analysis was conducted. The bivariate correlation analysis found a significant positive correlation between the compound attitude variable “rewarding” and behavioural

intent ($r(85) = .26, p = .017$). Subjects who perceived blood donations as more rewarding were more intended to donate blood than subjects who perceived blood donations as less rewarding. There also was a significant positive correlation between the compound attitude variable “stressful” and behavioural intent ($r(85) = .34, p = .002$). Subjects who perceived blood donations as less stressful and more relaxing were more inclined to donate blood than subjects who perceived blood donations as more stressful.

Additional analyses

To test if there also is a relation between affect and attitude a bivariate correlation analysis was conducted. After grouping the framed messages with congruent affect-inducing images a bivariate correlation analysis revealed a significant positive correlation between negative affect and the compound attitude variable “rewarding” ($r(85) = .26, p = .016$). Subjects who perceived more negative affect towards the advertisement found the idea to donate blood in the next three months as more rewarding. A bivariate correlation analysis also revealed a significant positive correlation between positive affect and the compound attitude variable “stressful”. Subjects who perceived more positive affect towards the advertisement found the idea to donate blood in the next three months less stressful. No correlation was found between positive affect and “rewarding” ($r(85) = .06, p = .613$) or between negative affect and “stressful” ($r(85) = .01, p = .955$).

Conclusion and Discussion

The present study investigated to what extent different types of billboard advertisements could influence behavioural intent to donate blood in the next three months. The four different advertisements in this study featured two types of goal-framing messages which implied either that by donating blood the participant could save a life (gain-frame) or prevent a death (loss-frame). Next to the goal-framing messages this study also included two different affect-inducing images to complete the advertisements. As this study also focused on the congruent and incongruent effects of both the goal-frame and the affect-inducing images two advertisements with images were created that matched both the gain-frame and loss-frame and two advertisements with images were created that mismatched with both the gain-frame and loss-frame. The theoretical constructs to measure the effects of the different advertisements were affect (positive and negative), attitude (rewarding and stressful) and

behavioural intent. To measure behavioural intent to donate blood as persuaded by the different advertisement a pre- and post-exposure measurement was included in the study.

Results showed that the advertisements with positive affect-inducing image was more successful to induce positive affect among participants than the negative affect-inducing image. This effect was reversed for the negative affect-inducing image although this effect only indicated a trend. This trend indicated that the negative affect-inducing image was perceived more negative than the positive affect-inducing image. It can be concluded that the positive affect-inducing image and negative affect-inducing image indeed evoke positive and negative affect as found by Chang and Lee (2010) and Randle et al. (2016). Gain-framing and loss-framing (goal-framing) had no effect on either positive or negative affect and contradicts the research by Shen and Dillard (2007) and Van 't Riet et al. (2010). A possible explanation for this result is that the framed messages used consisted of only 21 words for the gain-framed condition and 19 words for the loss-framed condition. Shen and Dillard (2007) and Van 't Riet et al. (2010) found effects of goal-framing evoking affect using framing conditions that contain far more words than used in this study. This difference in text length (more room for framing to occur) could prove significant in the effectiveness of framing to evoke affect. There also were no congruent or incongruent effects as combining the advertisement with a matching affect-inducing image to the frame or mismatching affect-inducing image did not differ significantly for evoking more positive or negative affect.

All four advertisements proved successful to persuade participants to have a higher behavioural intent to donate blood in the next three months after exposure to the advertisement than before exposure. However, it has to be noted that the behavioural intent baseline to donate blood was fairly low. Even after the increase of behavioural intent for all advertisements conforming to the advocated behaviour to donate blood was very unlikely. A possible explanation for this is that the decision to donate blood is a difficult one to make and more factors play a part in this decision-making process than researched in this study. The advertisements that featured the gain-framed message (save a life) had a positive impact on the behavioural intent to donate blood in comparison to the baseline but this effect was not found for the loss-framed message (prevent a death). This outcome is in direct contradiction to the results of the research of Chou and Murnighan (2013). In their study, the participants with the loss-framed condition were more inclined to donate blood. The differences in both

studies could be a possible explanation as the type of message (e-mail vs advertisement), length of message (long vs short) and measurement of behaviour intent (actual blood donations vs pre- and post-measurement of behavioural intent) as well as demographics (United States of America vs the Netherlands) were different. Combining the framed message with matching or mismatching affect-inducing image had no effect on behavioural intent and thus no differences were found for congruent or incongruence effects. For the effectiveness of the advertisement on behavioural intent it would not have mattered which affect-inducing image was selected for the advertisement to be persuasive as long as the message was gain-framed.

The compound variable attitude was split into “rewarding”, which focused on how rewarding it would be to donate blood in the next three months, and “stressful”, which focused on how stressful and unpleasant it would be to donate blood in the next months. Contrary to the hypothesis of the current study, participants in the loss-framed condition with matching affect-inducing image found donating blood to be more rewarding than participants in the gain-framed condition with matching affect-inducing image. This finding is in contrast with the study of Van ‘t Riet et al. (2010) which found that a gain-framed message yielded a stronger attitude towards the advertised behaviour which they explained by means of the affect transfer hypothesis (MacKenzie, Lutz, and Belch, 1986). This theory posits that evoking positive affect in advertisements will result in a positive attitude towards what is advertised. In the present study the results can possibly be explained by the negative affect scale which correlates with the attitude scale rewarding and is comprised of compassion, sympathy, guilt, sadness and pity. The loss-framed message with the sad girl evoked more negative affect, as shown by the trend, which meant more compassion for the sad girl in the advertisement than for the happy girl and as a result it is more rewarding to prevent the death of a sad girl than save the life of a happy girl. This effect is reversed for participants who are less compassionate with the girl in the advertisement and therefore feel less rewarded for preventing her death. There was, however, no significant difference for stressful between both framed messages with matched or mismatched affect-inducing images. This can be explained by the nature of the research topic as blood donation is a painful activity and thus stressful and unpleasant for all participants as blood phobia and needle phobia are not uncommon phobia. In the United States alone it is estimated that three percent of Americans that are eligible to donate blood

decline to donate blood because of their anxiety for needles, fear of the sight of blood, fear of fainting and fear of nausea (Theimer, 2013). Therefore, it is explainable for similar scores for stressful irrespective of the different conditions used in the current study as other factors than the conditions might contribute to these scores.

As the framed messages with matching images did not yield stronger behavioural intent to donate blood than framed messages with images that did not match the frame mediation could not occur. However, a correlation was found between attitude and behavioural intent. Participants who found the idea of donating blood in the next three months more rewarding also displayed a higher intention to donate blood. A correlation was also found between stressful and behavioural intent. Participants who found the idea of donating blood less stressful were also found to display a higher intention to donate blood. While these correlations were found they are not attributable to the framed messages with congruent images and therefore the advertisements featured in this study have had no effects on these correlations, hence there is a high probability that these correlations would already exist prior to this experiment.

To answer the research question, to what extent is a framed message with a matching affect-inducing image more persuasive in altruistic behaviour framing in print advertisements than a framed message with a conflicting affect-inducing image: Gain- and loss-framed messages with matching affect-inducing images were found to not elicit stronger affect and stronger behavioural intent than gain- and loss-framed messages with mismatching affect-inducing images. The loss-framed message with matching affect-inducing image, however, was found to be more rewarding than the gain-framed message with matching affect-inducing image. No differences were found for stressful between all four conditions. Although rewarding positively correlated with behavioural intent there were no indications that the loss-framed condition with matching affect-inducing image would be more capable in persuading participants to donate blood than the other conditions.

The first goal of this study was to research if the effectiveness of goal-framing is also applicable to altruistic topics which in this case was blood donation. The results of this study suggest that the gain-framed conditions with both matching and mismatching affect-inducing image were more effective to persuade participants to donate blood compared to the

established baseline than the loss-framed conditions with both matching and mismatching affect-inducing image. Although the gain-framed condition was more persuasive than the loss-framed condition there was no control condition to measure the complete effectiveness of the established effect. Future research is needed to understand the full effects of goal-framing in altruistic behaviour framing by including a control condition without the inclusion of framing. By including a control condition (advertisements without frame), it is not only measured which type of goal-frame (gain- and loss-frame) is more effective but more importantly if goal-framing in altruistic topic is in general more effective than an advertisement without the use of a frame.

The second goal of this study was to research if images evoke affect and if affect is a mediator between the framed message and attitude and/or behavioural intent. The current study found that images evoked the predicted affect for the positive affect-inducing image and found a trend for the predicted affect for the negative affect-inducing image although affect scores were low. Positive and negative affect were not found to be mediators between the framed message with matching affect-inducing image and behavioural intent and between framed message with matching affect-inducing image and attitude. However correlations were found between negative affect and rewarding and between rewarding and behavioural intent and between stressful and behavioural intent. The current study found that donating blood was found to be more rewarding in the loss-framed condition with matching image (sad girl) when participants were more compassionate (negative affect). Although no mediation for affect was found in the current study, there were correlations between rewarding and behavioural intent and between rewarding and negative affect. Therefore, future studies could further explore the relation between these variables in new blood donation recruitment campaigns.

The current study features several limitations. Firstly an important question that could have had a major influence on behavioural intent was not included in the research. Behavioural intent is not only influenced by attitude towards blood donations and affect but also by the question whether one is technically eligible to donate blood. Possible blood donors are not eligible to donate if they have tattoos, use specific medication, have blood transmittable diseases or travelled to an exotic location (American Red Cross, 2017). A simple “yes”, “no” and “do not know” question if one is eligible to donate blood would separate

participants that could donate and that could not. Eligibility to donate blood could have had an influence on the behavioural intentions of participants in this study. For example, participants that know that they are not eligible to donate blood have most likely no intention to donate blood. If this question was included in the current study, these participants could have been excluded from the study and results could possibly better reflect the effects the advertisements could have had on the behavioural intent of participants. However, the question of eligibility entails a serious ethical dilemma. This question is very personal and privacy sensitive and could imply diseases, tattoos and even sexual preferences of participants who are not eligible to donate. Future studies on behavioural intent and blood donation should assess if the benefits of the addition of this eligibility question outweighs the ethical dilemma it creates or should find a method to prevent this ethical dilemma and at the same time obtain this critical information.

Secondly, another limitation is the short time between measurement of the baseline for behavioural intent before exposure and behavioural intent after exposure to counter learning-effects. Although this effect was best countered as possible it is impossible to tell if participants benefited from learning-effects by discovering the true intent of the study or if participants could correctly remember their answers for the baseline intentions which could have a learn-effect on the behavioural intent measurement after exposure. These learn-effects could have led to socially desirable answers and thus could have influenced the results of the study. To counter the problem of learning-effects (socially desirable answers) future studies could extend the time between measurements of the baseline for behavioural intent and for post-measurement of behavioural intent and thus receive more unbiased results.

Thirdly, an important limitation is the use of within-complement goal-framing instead of pure cross-complement goal-framing which implies either a pure gain (obtain gain) by carrying out the advocated behaviour or a pure loss (suffer loss) by not carrying out the advocated behaviour (Levin et al., 1998). Within-complement goal-framing focuses on either a pure gain (obtain gain) by carrying out the advocated behaviour or an avoid loss-frame (prevent something from happening) by also carrying out the advocated behaviour. The difference between both types of goal-framing is the framing of the loss-frame. Suffering loss is far more negative than preventing loss. If the suffer loss-condition (Letting the girl die by not donating blood) would be applied to the current study as a loss-frame instead of the

prevent a loss-condition (preventing the girl from dying by donating blood) there would have been a risk that the study would be too unethical and real-world fit would be inadequate. The results found in this study are therefore only applicable to within-complement goal-framing.

Another limitation of the conditions are the affect-inducing images used. In the positive affect-inducing image the girl looks at the nurse whereas in the negative affect-inducing image the girl looks into the camera. This could have a different influence on the message-induced affect of participants as in one condition the girl makes eye-contact with the participant and in the other condition she does not. A study on the effectiveness of eye contact revealed that participants that made eye-contact, even with a picture of a person in an advertisement, rated the person in that advertisement as more friendly than if the participant made no eye-contact (Nelson, Hammerle, & Beall, 1988). Making eye-contact in one condition and not in the other could have had an effect on the scores on the affect scales. In the negative affect-inducing image conditions the girl was supposed to elicit negative affect but only a small trend was found towards that effect. Although the conducted pre-test indicated trends that the affect-induced images would indeed be found more positive or negative, this effect could have been stronger by using different images with stronger positive or negative affect. Both subjects (the girl) in these different images would look into the camera (eye-contact) or would not look into the camera (no eye-contact), as long as it would have been similar for both conditions. If both conditions would have been similar eye-contact would possibly not have influenced the scores on the affect-scales for positive or negative affect.

The present study focused on framing effects in advertisements with images on behavioural intent whereas numerous other studies primarily focus on textual framing only. The results indicated an effect of the textual gain-frame in the advertisement on behavioural intent but found no effects of framing evoking affect. The study of Van 't Riet et al. (2010) found that behavioural intent in the gain-framed condition was mediated by affect. This contradiction in results could be found in type of framing with the difference being short framing in an advertisement versus longer and more extensive framing in text only conditions which could be a requirement for framing to evoke affect. Future studies should investigate under which circumstances (short frame vs long-frame) and (advertisement vs text-only) framing evokes affect and if affect mediates between framing and behavioural intent. These

differences in results between the current study and the study of Van 't Riet et al. (2010) brings about the topic of generalisability. The results of the current study are found for these conditions, with these particular pictures and textual framing, and all findings are contributed to these conditions. Results may differ when different pictures and different texts are used within the same constructs of this study. Therefore, it is important for future studies to replicate to some degree the constructs of this study to validate these findings.

The finding that the gain-framed condition was more effective in persuading participants to donate blood compared to the baseline indicates that gain-framing was more effective in the current study with the altruistic topic of blood donation than loss-framing. Past research on this altruistic topic found that loss-framing was more effective in persuading behavioural intent (Chou & Murnighan, 2013). As both studies featured within-complement goal-framing this contradicting result is only applicable to this specific field of research and future research should focus on cross-complement goal-framing to measure the effects of a more negative framed loss-frame in altruistic topics. An example for a cross-complement goal-framing research in an altruistic topic would be a combination of the current study with affect-inducing images and ABF-framing with the topic of becoming a post-mortem organ donor. The important difference with the current study would be the framing of the loss-frame as it could be framed as leaving patients on the donor list indefinitely by not becoming an organ donor (cross-complement loss-framing) instead of preventing patients from dying by becoming a post-mortem organ donor (within-complement loss-framing).

The current work expands on goal-framing theory by introducing altruistic behaviour framing where it explored the effects of goal-framing on affect, attitude and behavioural intent in an advertisement campaign focused on persuading the participant to conform to the advocated behaviour not for the benefit of the participant but for the benefit of the one in need (the girl) which can be seen as an altruistic act. The current study found evidence that the gain-framed advertisement was more persuasive to elicit behavioural intent to donate blood. This finding contradicts the current literature on altruistic studies with within-complement goal-framing. By combining both affect-inducing images and goal-framing in a blood donation advertisement, the current exploratory work adds to a better understanding of the effects of altruistic framing and the interaction between framing and images on attitude and behavioural intent and adds new insights to the goal-framing research field.

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Appendix 1: Concept art of the four different conditions

Condition A: Gain-framed message with a positive affect-inducing image (happy)

Figure 1. Doctor giving check up with stethoscope (Monkey Business Images, 2017)

Door haar ziekte heeft Lisa elke maand nieuw bloed nodig.



**Met elke bloeddonatie kunt u het leven
redden van een patiënt zoals Lisa.**

Word ook bloeddonor en red vandaag nog levens.



Sangue
Bloedvoorziening

Condition B: Loss-framed message with a positive affect-inducing image (happy)

Figure 2. Doctor giving check up with stethoscope (Monkey Business Images, 2017)

Door haar ziekte heeft Lisa elke maand nieuw bloed nodig.



**Met elke bloeddonatie kunt u voorkomen
dat een patiënt zoals Lisa sterft.**

Word ook bloeddonor en voorkom onnodige sterfte.



Sangue
Bloedvoorziening

Condition C: Gain-framed message with a negative affect-inducing image (sad)

Figure 3. Doctor giving check up with stethoscope (Monkey Business Images, 2017)

Door haar ziekte heeft Lisa elke maand nieuw bloed nodig.



**Met elke bloeddonatie kunt u het leven
redden van een patiënt zoals Lisa.**

Word ook bloeddonor en red vandaag nog levens.



Sangue
Bloedvoorziening

Condition D: Loss-framed message with a negative affect-inducing image (sad)

Figure 4. Doctor giving check up with stethoscope (Monkey Business Images, 2017)

Door haar ziekte heeft Lisa elke maand nieuw bloed nodig.



**Met elke bloeddonatie kunt u voorkomen
dat een patiënt zoals Lisa sterft.**

Word ook bloeddonor en voorkom onnodige sterfte.



Sangue
Bloedvoorziening