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# FEAR APPEAL IN TRAFFIC SAFETY ADVERTISING: THE MODERATING ROLE OF MEDIUM CONTEXT, TRAIT ANXIETY, AND DIFFERENCES BETWEEN DRIVERS AND NON-DRIVERS

Wim JANSSENS & Patrick DE PELSMACKER
Universiteit Antwerpen & Ghent University

The impact was investigated of the intensity of a fear appeal, the valence of the medium context, and the individuals' trait anxiety and personal relevance on the responses of 197 individuals to anti-speeding advertisements. A high level of fear attracts more attention. A negative valence context leads to a more positive anti-speeding attitude. The most important moderating effect of trait anxiety is that the attitude is more positive when low-anxiety individuals are exposed to high fear appeals in a context with negative valence than in a positive context. These results were largely replicated for drivers, but not for non-drivers for whom there was only an attention-getting effect of high fear appeal. Theoretical and practical implications for anti-speeding campaigning are discussed.

Previous research on the responses to (various levels of) fear appeal are inconclusive. This may be due to potentially important moderating factors that have not been taken into account. The objective of this study is to investigate the effect of high and low levels of fear appeal on the attention to an anti-speeding message and the attitude toward speeding, and to study the moderating role of positive and negative medium context, trait anxiety, and personal relevance.

Witte (1994, p. 114) defined a fear appeal as "… a persuasive message that attempts to arouse the emotion fear by depicting a personally relevant and significant threat and then follows this description of the threat by outlining recommendations presented as feasible and effective in deterring the threat." Fear appeal can be weak or strong. A key element in the effectiveness of fear appeal is the type of processing that takes place. Two processes are commonly mentioned, i.e., a fear control process (maladaptive behaviour or message rejection) and a danger control process (adaptive behaviour or

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Wim Janssens is Assistent Professor of Marketing at the Department of Marketing, Universiteit Antwerpen. Patrick De Pelsmacker is Professor of Marketing at the Universiteit Antwerpen and at the Ghent University.

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Correspondence concerning this article should be addressed to Wim Janssens, Department of Marketing, University of Antwerp, Prinsstraat 13 (Z302), 2000 Antwerpen. E-mail: wim.janssens@ua.ac.be

message acceptance). While a danger control process is the aim of a fear appeal, a fear control process may inhibit the danger control process, because the affective reaction to the fear appeal makes respondents concentrate too much on their internal emotions, rather that cognitively coping with the danger. The extent to which these processes take place may differ as a result of the strength of the fear appeal. However, as an advertisement rarely appears isolated and people may differ in their individual dispositions, this fear and danger control process may also be influenced by other factors than the message itself. As an ad is most often embedded in a medium context which subjects also process, the influence of a medium context on processing fear advertisement should also be taken into account. Moreover, personal dispositions and characteristics are also relevant. More specifically, the subject's sensitivity to fear may moderate how fear appeal messages are processed (attention and attitude formation) in a specific context (in this study measured as trait anxiety (i.e., structural anxiety)). Finally, the processing of fear appeals may also differ in terms of the personal relevance of the issue for the subject. In the context of this study (the impact of fear appeal advertisements in anti-speeding campaigns), personal relevance was made operational by distinguishing between subjects holding a driver's license and individuals without a driver's license. A graphical representation of the framework of our study is shown in Figure 1. The specific contribution of this study is the investigation of the moderating role of medium context, trait anxiety and whether there is a difference between drivers and non-drivers.

In this research we study the impact of fear appeal on the attention towards the advertisement and the attitude towards speeding. Fear appeals are explicitly intended to draw the attention to the message and the ultimate

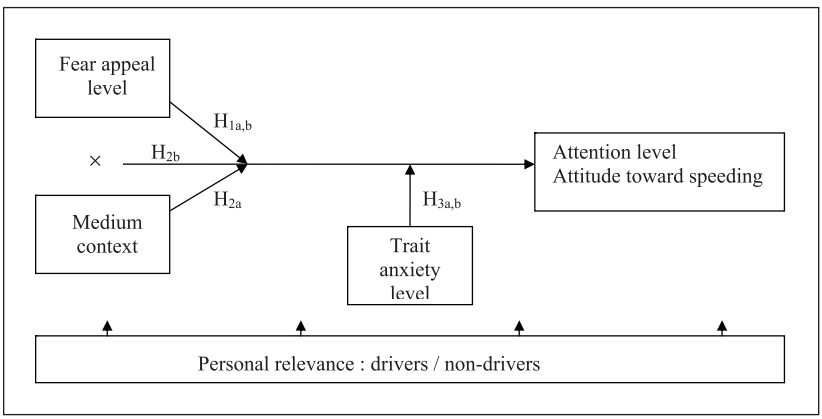


*Figure 1.*
Overview of the study.

goal of all persuasive messages (such as advertising) is to convince people to change their attitude and/or behaviour. Therefore, studying the impact of persuasive appeals in general, and fear appeals in particular, on both their attention-getting capacity and their persuasive power (attitude formation) is relevant. This approach is also consistent with traditional hierarchy-of-effects models in advertising (see, for instance, Lavidge & Steiner, 1961) in which cognitive responses such as paying attention are prerequisites to conviction (attitude formation). However, a persuasive appeal may well generate attention, but may also fail to convince people, and attitudes can also be formed in low-attention situations (e.g., the Low Attention Processing Model (Heath & Nairn, 2005)). The impact of persuasive messages on attention may therefore in some cases be different from their impact on attitude formation, and studying both adds to our understanding of how fear appeal works.

## Threat and fear appeal in advertising: the fear control process and the impact of the level of fear

LaTour and Rotfeld (1997, p. 45) distinguished between "… the threats that aim to engender a fear response and the actual fear arousal subjects might experience." Threats embody the undesirable consequences of a specific behaviour, such as personal injury and vehicle damage, whereas fear is an emotional response to these threats. The same threat can evoke different levels of fear in different people, and different threats can also evoke different levels of fear. Stephenson and Witte (2001) distinguished four models that explain how fear appeal works: the Drive models, Parallel Response Model, Protection Motivation Theory and Extended Parallel Process Model. This last model can be seen as an extension and a summary of the former three models (Stephenson & Witte, 2001; Witte, 1994), although it is primarily based on Leventhal's (1970) Parallel Process Model. Crucial in these models is that fear appeal can lead to two kinds of evaluation: the danger control process and the fear control process. Controlling danger is a cognitive process that is initiated when people think of a specific danger and of ways of avoiding it (attitudinal, intention, or behavioural change). Controlling fear is an emotional process that occurs when people react to certain fears. When a fear control process occurs, people are concentrated on their internal, emotional answers and not on the danger itself. Thus, a fear control process can induce behaviour that hampers the acceptance of recommendations in the fear appeal, which is also termed defensive avoidance. Consequently, the model predicts that a fear appeal that evokes high levels of fear will be less effective. However, with respect to the attention catching power of fear appeals, it must be noted that increasing the fear level may lead

to a better remarkableness. Dramatic advertising executions attract the audience's attention (Elliott & Shanahan Research., 1994; Freimuth, 1985) and consequently a high fear appeal is expected to result in higher attention scores. However, the subsequent step of processing is expected to be hampered by the fear control process that is activated by that high fear appeal.

Hence, based on these processes, the following hypotheses are formulated:

H1a: A high fear appeal leads to a higher attention toward the advertisement than does a low fear appeal.

H1b: A low fear appeal leads to a more positive anti-speeding attitude than does a high fear appeal.

## The role of medium context

An advertisement rarely appears in isolation; more often, it appears in a specific medium context, such as a radio or a television program, or a newspaper or magazine article. Medium context can be defined as the characteristics of the content of the medium in which an advertisement is inserted. Some types of context are more supportive for some advertisements than others. This is attributed to priming: A specific context can serve as a prime to make consumers more susceptible to a certain advertisement, as a result of which the advertisement is processed more intensively (Herr, 1989; Yi, 1990, 1993). Advertisements that are relevant for or congruent with the mood of a recipient at a particular moment may be more easily accessed (i.e., paid attention to) and processed (i.e., lead to attitude formation). This effect is the subject of the Mood Congruency-Accessibility Hypothesis (Bower, 1981). Kamins, Marks, and Skinner (1991) explained this process with their Consistency Effects Model, which indicates that advertisements in a mood-consistent program context are more effective than those embedded in a mood-inconsistent program context. In their study they showed that this Consistency Effects Model outperformed the (confusingly termed) Mood Congruency Model of Goldberg and Gorn (1987) which recommended to use a happy context irrespective of the emotion (e.g., happy or sad) of the embedded ad (hence, irrespective of whether there is congruency or not between context and ad). Based on this Consistency Effects Model, the following hypothesis is advanced.

H2a: Fear appeal placed in a context with a negative valence leads to more attention and more positive attitudes toward speeding than fear appeal placed in a context with positive valence.

According to the consistency effect model, fear appeal in a negative context leads to more attention and more positive attitudes. On the other hand, the level of fear may interact with the context. High fear appeal in a context

with negative valence may lead to increased levels of fear control (as a result of an 'overshooting' effect), thereby leading to less accessibility (attention) and processing (attitude formation). Low fear appeal may match other negatively valenced stimuli (context) better (Leventhal, 1970). In this case, low fear appeal in a negative context may lead to more positive responses compared to high fear appeal, and compared to a situation in which a fear appeal is used in a positive context. This leads to the following hypothesis.

H2b: Low fear appeal in a context with negative valence leads to more attention and a more positive attitude toward speeding than high fear appeal in a context with negative valence and than a fear appeal in a context with positive valence.

The extent to which a context is 'suitable' for an embedded advertisement may depend on the characteristics of the individual recipient. With respect to advertisements that appeal to fear, Burnett and Oliver (1979), Burnett and Wilkes (1980), Quinn, Meenaghan, and Brannick (1992), and Tay, Ozanne, and Santiono (2000) argued that it is impossible to reach a whole target group with only one fear appeal, and that some types of fear appeal may affect some individuals more than others. A number of moderating factors may affect the way in which fear appeal and the embedding context are processed. In the next subsection, the role of the level of trait anxiety is explored; in the subsequent section, the role of personal relevance is highlighted.

### The effect of trait anxiety

Spielberger (1983) defines trait anxiety as a general and long-standing stable individual difference with respect to anxiety (in contrast to state anxiety, which is a temporary anxiety condition). Hence, not every individual has the same basic level of trait anxiety. Witte (1992) observed that in a fear control process – in contrast to a danger control process – individuals react according to their fears rather than the actual danger. Thus, the same fear appeal can cause a different reaction in different individuals (e.g., Gallacher & Klieger, 1994). Regarding the dual processes of danger and fear control, it can be assumed that, for a more fearful person, a fear control process is more probable, especially when an advertisement contains a high level of fear, resulting in a lower effectiveness of a high fear advertisement (e.g., by defensive avoidance of the advertisement). However, Curtis and Locke (2005) showed that anxious people form impressions that are more affect-congruent. Moreover, anxiety research has shown that anxious people have an attention bias toward negatively valenced information (for a review, see Mogg & Bradley, 1998). This is more particularly the case when the information is not strongly negative (Beck, 1976; Bower, 1981; Bradley, Mogg, Falla, &

Hamilton, 1998). As a result, anxious people may be more attracted by a negative context and/or low fear appeals.

A three-way interaction between the level of fear appeal in an advertisement, the context valence, and the level of trait anxiety was therefore envisaged. Because of the attention bias to mild negativity (e.g., a low level of fear appeal in an advertisement, or a mildly negative context, as is the case in this study) of high trait anxiety individuals compared to low anxiety individuals, we expect more attention to and more processing of fear appeal (attitude formation) when these individuals are exposed to mildly negative cues. However, when the level of negativity is too high (e.g., a combination of negative context and a high level of fear appeal), the fear control process is expected to lead to defensive avoidance, i.e., less attention and less message acceptance or anti-speeding attitude formation. This leads to the following hypotheses.

H3a: For high anxiety individuals, a low level of fear appeal in a context with negative valence leads to more attention and to a more positive anti-speeding attitude than it does in a context with positive valence. For low anxiety individuals, a low level of fear appeal in a context with negative valence does not lead to differences in attention and attitude compared to when it is placed in a context with positive valence.

H3b: For high anxiety individuals, a high level of fear appeal in a context with positive valence leads to more attention and to a more positive anti-speeding attitude than it does in a context with negative valence. For low anxiety individuals, a high level of fear appeal in a context with negative valence does not lead to differences in attention and attitude compared to when it is placed in a context with positive valence.

Hypothesis 1-3 are tested in analysis 1.

## Differences between drivers and non-drivers

Another potentially moderating effect is the presence or absence of the personal relevance of the message with respect to the individual's behaviour and the experience of the individual. In other words, the reactions to fear appeal may be different between drivers and non-drivers. Although these two groups may be similarly exposed to traffic safety media campaigns, they may respond differently to the campaigns. Kelly and Edwards (1992) indicated that the effectiveness of a public health campaign depended on how personally relevant an audience perceived the topic. As an example, LaTour and Rotfeld (1997) cited the fact that, in an anti-smoking campaign for teenagers, the optimal fear-engendering threat may well be a focus on an affected individual's lack of success in dating, rather than a depiction of a lung cancer

operation that may not be perceived as relevant to young people. Similarly, it could be argued that fear-engendering threats based on the use of images of an accident or a seriously injured person may be more relevant for drivers than for non-drivers, because the former actually inflict the injury. Although non-drivers may be less involved with the subject, they might also be expected to pay attention to a fear appeal; this is particularly so because speeding and traffic safety are the subject of an increasing number of public and social marketing campaigns. Hence, there are reasons to expect that there can also be effects on non-drivers. However, mainly drivers are expected to change their attitude toward speeding as a result of these campaigns. Moreover, their driving experience might be expected to allow drivers to make more nuanced judgments of the fear-engendering threat, i.e., the response to the fear appeal is influenced by their driving experience.

As Alba and Hutchinson (1987) showed, experts tend to process information more deeply, while novices are more vulnerable to external information. This process description resonates with Petty and Cacioppo's (1986) Elaboration Likelihood Model: individuals who are motivated to, able to, and have the opportunity to process a message will engage in central processing; in other cases, processing will be peripheral, and the individual will be more susceptible to context. Therefore, the interaction between the level of fear appeal in an advertisement, the context valence and a recipient's trait anxiety is expected to apply to drivers more than to non-drivers. The difference between drivers and non-drivers is studied in analysis 2.

## Method

### *Stimuli*

Two types of advertisement (low and high fear anti-speeding appeals) and two types of context (newspaper pages with a negative and a positive valence) were developed. Advertising stimuli were developed from a database of pictures of traffic accidents, obtained from a Belgian surgeon. Of a total of about 250 photographs, one of the authors and a student selected 20 photographs ranging from a low level to a high (shocking) threat level. A pre-test was conducted in order to select one low and one high fear eliciting picture of traffic accidents. These 20 photographs were all presented to 20 test participants. For each participant, the pictures were randomized to avoid order and carry-over effects. Every participant was instructed to rate each picture on a seven-point scale (1 = I experience no fear at all, 7 = I experience a very high level of fear). Before responding, each participant was shown a 'seven-point-photo' (a torn arm full of blood) as a benchmark of the upper category of the mentioned 'no

fear-high fear' seven point scale. Repeated measures ANOVA post-hoc tests indicated a number of useful combinations of low and high fear pictures (i.e., two pictures differing significantly from each other in terms of fear level). The two authors and a student selected two pictures to be used in the test advertisements. For the low-fear level ($M$ = 4.85 in the pre-test), a picture was selected of a car accident with material damage and an injured person in it, but without blood. The high-fear image ($M$ = 6.30 in the pre-test) was a photo of a blood-covered face of a person lying in an intensive care unit. In each advertisement, the headline was '1500 traffic fatalities a year' and the baseline stated 'Choose your speed, choose the consequences. Every 10 km/h makes a difference'. Underneath was the recommendation to 'drive safely!' and an endorsement by the National Institute for Traffic Safety. For the newspaper content, one of the authors and a student selected good news and bad news articles from newspapers published in the five-month period before the experiment took place, taking realism into account (e.g., no articles with a specific date included or referring to a specific period, such as 'last week'). For the good news context, for instance, articles with good company news and funny stories were used. For the negative news context, articles with bad economic news, and sad news concerning, for example, diseases or natural disasters were used. For each combination of fear-appeal level and good/bad news context – four combinations – a double mock newspaper page was created, with 87.5% context (articles) and 12.5% advertisement space.

*Participants and data collection*

The participants were all students recruited in the last year of high school and the first year of university (Belgium). The study was conducted during class time. Each respondent randomly received one of the four possible combinations and a questionnaire in an envelope, which (s)he was not allowed to open at the beginning. They were told that they were involved in a test for a new newspaper, and they were instructed to look at the newspaper pages just as they would peruse an ordinary newspaper. The participants were instructed that a maximum time of three minutes was allowed. Then the newspaper pages were collected and the participants were asked to open the envelope containing the questionnaire. They were allowed as much time as they needed to complete the questionnaire. Class sizes varied form about 15 to 25 students per class and a sample size of 197 respondents was obtained.

*Manipulation checks*

Two manipulation checks were performed, i.e., advertisement fear-level, and context. First, for the advertisement fear-level, we checked whether the

two advertisements differed significantly from each other in terms of the evoked fear. We followed the single-item approach, advocated by, for instance, Rossiter (2002), Russell (1980), and Watson, Clark, and Tellegen (1988), and measured the affective as well as the cognitive reaction. The affective item 'This advertisement evokes a feeling of fear in me' was measured using a seven-point Likert scale (–3 = totally disagree, 3 = totally agree). The null hypothesis of equal means was rejected ($t(195) = –3.106$, $p = 0.002$), indicating a successful manipulation of the low-fear advertisement ($M = –0.21$, $SD = 1.47$) and the high fear advertisement ($M = 0.47$, $SD = 1.60$). The cognitive item ('This is a fear-evoking advertisement') was placed in another part of the questionnaire, i.e., away form the affective reaction measure. Here, a significant difference was also found, indicating successful manipulation (the low-fear advertisement: $M = 0.33$, $SD = 1.25$; the high-fear advertisement: $M = 1.35$, $SD = 1.02$, $t(195) = –6.3005$, $p < 0.001$). As suggested by Ajzen (2001), Bagozzi and Burnkrant (1979), and Edwards (1990), the correlation between the affective and cognitive measures was as expected, i.e., moderately positive ($r = 0.63$). Although highly significant, the difference between the score of the low and high fear appeal is relatively small. This is due to the fact that even a low fear appeal still has to be a fear appeal, i.e., evoking a minimum level of fear. Consequently, scores close to '-2' or '-3' were undesirable and not to be expected. On the other hand, we wanted to make the fear appeal realistic and therefore pictures that were too extremely shocking were avoided. Consequently, very high scores '+2' or '+3' were equally undesirable and not to be expected.

The second manipulation dealt with the context. This manipulation was checked by a three-item semantic differential (seven categories): The newspaper context evoked a positive (negative) emotional atmosphere (reversed-scaled), aroused negative (positive) feelings, was positively (negatively) emotional (reversed-scaled). An exploratory factor analysis (PCA) resulted in one underlying factor. Cronbach's alpha was 0.86, indicating acceptable reliability. A summated scale was constructed by calculating the mean of the three items. Analysis showed a significant difference between the two news contexts ($t(191.448) = 8.319$, $p < 0.001$), indicating a successful manipulation of the good-news context ($M = 0.30$, $SD = 1.04$) and the bad news context ($M = –1.07$, $SD = 1.26$).

*Dependent measures*

Two dependent variables of responses to the advertisement were measured, each consisting of a set of items measured on a seven-point Likert scale (–3 = totally disagree, 3 = totally agree). These two variables were 'attention to the advertisement' and 'attitude toward speeding'. As indicated

in the introduction, influencing the attitude of people is a major goal of any persuasive message, and drawing the attention to the message may be a relevant objective in its own right and/or an important prerequisite of attitude change.

Using more established 'attitude toward the advertisement' (Aad) scales (e.g., Holbrook & Batra, 1987) would not have been useful in this case, because they would have included items such as 'I like this advertisement', where there is a possible dual interpretation of a high score; e.g., either the participant liked the advertisement in terms of having a good feeling about it, or in the sense of thinking that it was an effective advertisement. Moreover, it would have been unrealistic to assess the likeability of advertisements containing pictures of car accidents. The focus in our research was on the level of attention that an advertisement generated. A two-item scale was used (De Pelsmacker, Geuens, & Anckaert, 2002): 'This advertisement catches my attention' and 'This advertisement is remarkable'; alpha = 0.81.

Attitudes toward speeding were measured by means of three items ('If you are driving safely, it is okay to exceed the speed limit'; 'If you are a good driver, it is okay to exceed the speed limit', and 'When the traffic conditions allow it, it is okay to exceed the speed limit'). A principal components analysis indicated one underlying dimension (alpha = 0.83). The scores were reversed for all items. For each of these dependent variables, a summated scale (mean of scores) was calculated and used for further analysis. Taking into account the reversed items, higher scores on each of the dependent variables indicated a more positive response with respect to the attention-getting capacity of an advertisement and the anti-speeding attitude.

*Independent measures*

There were tree independent variables in the experiment. Besides the manipulated factors – fear appeal (two levels) and type of context (two levels) – the level of trait anxiety was measured by means of the trait component of the State and Trait Anxiety Index, developed by Spielberger (1983). Respondents were required to rate 20 four-point items, and these scores were summated to obtain a Trait Anxiety Index (thus ranging from 20 to 80).

*Analysis*

Two analyses were conducted. In Analysis 1, the effects of the level of the fear appeal, the type of context, and the trait anxiety level on attention towards the advertisement and anti-speeding attitude was assessed using moderated regression analysis. In Analysis 2, the same analysis was conducted separately for drivers and non-drivers. In both cases moderated

regression analysis was used, which took the following form:[1]

Y = a + b x advertisement fear level + c x context + d x TAI
+ e x [advertisement fear level x context] + f x [advertisement fear level x TAI]
+ g x [context x TAI]
+ h x [advertisement fear level x context x TAI] + error,

where Y = two variables measuring advertisement responses (attention and attitude); advertisement fear level, a dichotomous variable (high/low fear; –1/1 coded); context, a dichotomous variable (positive/negative news, –1/1 coded); and TAI, the mean centred Trait Anxiety Index.

## Results

### *Analysis 1: the effect of the fear level of the advertisement, the news context Valence, and trait anxiety*

In this analysis, the effect of the level of fear in the advertisement, the context type and the trait anxiety of the individual were studied. The results are presented in Table 1.

For 'attention toward the advertisement', the model was significant ($F(7, 176) = 4.157$, $p < 0.001$) and showed a significant simple effect of advertisement fear level, indicating that a high fear-appeal picture ($M = 2.37$) generates a higher score than a low fear appeal ($M = 1.56$, $t(176) = 4.329$, $p < 0.001$), confirming Hypothesis 1a. The model for 'attitude toward speeding' was also significant ($7,176) = 2.317$, $p = 0.028$). In this model, no significant effect of advertisement fear level was found ($t(193) = 0.970$, $p = 0.333$). H1b is rejected. A simple effect of the context variable was found: a negative context (*M*

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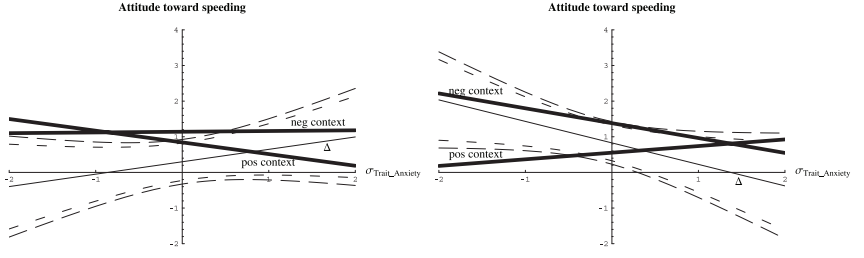
[1] Analyses 1 and 2 might have been conducted using a 2x2x2 design, in which the sample is divided into two subsamples on the basis of a median split of the interval-scaled variable 'trait anxiety'. However, Irwin and McClelland (2001) indicated that this approach can influence the statistical significance of the interaction and can decrease the statistical power in the detection of interactions. McClelland (1997) pointed out that dichotomizing a variable with a median split can be equivalent to discarding about half of the data; accordingly, he recommended using moderated regression analysis. He also suggested that, in contrast to additive regression analysis, it is important to include all components of the product terms in the regression model – even if some of those terms are nonsignificant or meaningless – to enable proper partialing of the product. In regression analysis, multicollinearity can inflate the standard errors of the regression coefficients (Jaccard, Turrisi, & Wan, 1990). Cronbach (1987) suggested centring the scale variables before forming the multiplicative term, because multiplicative terms in moderated regression analysis can cause high levels of multicollinearity. "This transformation will tend to yield low correlations between the product term and the component parts of the term" (Jaccard et al., 1990, p. 31). We also apply this approach here.

*Table 1.*
Results of moderated regression analysis, Analysis 1.

| | **Attention toward the ad. (N = 184)** | **Attitude toward speeding (N = 184)** |
|---|---|---|
| Model | 4.16*** | 2.32** |
| Intercept | 22.04*** | 8.88*** |
| Ad. fear level | 4.33*** | –0.11 |
| Context | 0.96 | 2.56** |
| Trait anxiety | –1.57 | –1.18 |
| Ad. fear level x Context | 1.11 | 1.20 |
| Ad. fear level x Trait anxiety | –1.74* | 0.17 |
| Context x Trait anxiety | 1.66* | –0.56 |
| Ad. fear level x Context x Trait anxiety | 0.46 | –2.09** |

The numbers in the columns represent *t* values (*F* values for the model) for a moderated regression analysis using the dependent variable at the top of the column, and the independent variables in the left-most column. All tests of main effects and interactions for 'attention to the advertisement' and 'attitude toward speeding' were based on *t*(176). The test for the corrected model is based on *F*(7, 176). * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$




*Fear = low* *Fear = high*

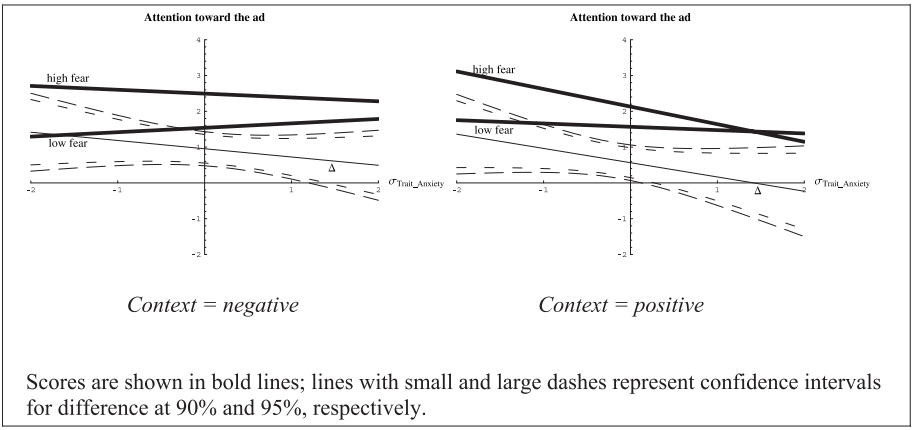
Scores are shown in bold lines; lines with small and large dashes represent confidence intervals for difference at 90% and 95%, respectively.

*Figure 2.*
The interaction effect between the level of fear appeal in advertisements x context x trait anxiety for attention toward the ad (Analysis 2).

= 1.24), generates a higher score on attitude toward speeding compared with a positive context ($M$ = .67, $t(176)$ = 2.55, $p$ = 0.011). This finding confirms Hypothesis 2a, which means that the consistency theory with respect to medium context effects is supported. No interaction between context type and level of fear appeal level was found. Consequently, Hypothesis 2b was rejected.

As expected, a significant third order effect was found, although only for 'attitude toward speeding' ($t(176)$ = –2.09, $p$ = 0.038). This effect is displayed graphically in Figure 2.

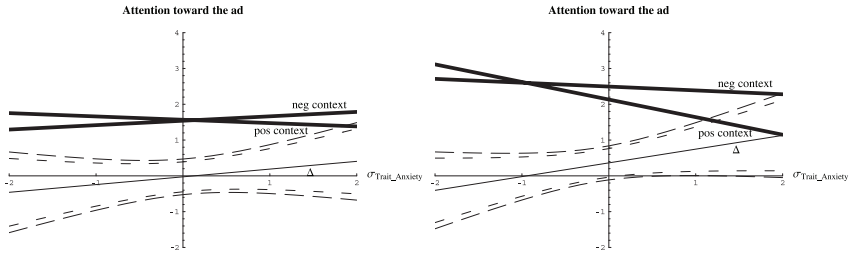
It appears that, for low-fear advertisements, a negative context tends to lead to a more positive attitude than does a positive context for high anxiety individuals, whereas the context does not lead to significantly different responses for low anxiety individuals. This confirms Hypothesis 3a. In case of high levels of fear appeal, for high anxiety individuals a positive context does not lead to a more positive attitude than a negative context, while for low anxiety individuals a negative context leads to a significantly more positive attitude than does a positive context. Hence, no support for Hypothesis 3b was found. Although no third order interaction effect was found for attention toward the ad, weakly significant second order interaction effects were found between the level of fear appeal and the level of trait anxiety, and between the context type and the level of trait anxiety. These effects are shown in Figures 3 and 4, respectively.




*Context = negative* *Context = positive*

Scores are shown in bold lines; lines with small and large dashes represent confidence intervals for difference at 90% and 95%, respectively.

*Figure 3.*
The interaction effect between the level of fear appeal in advertisements x trait anxiety for attention toward the ad (Analysis 2).




*Fear = low* *Fear = high*

Scores are shown in bold lines; lines with small and large dashes represent confidence intervals for difference at 90% and 95%, respectively.

*Figure 4.*
The interaction effect between the context x trait anxiety for attention toward the ad.

With respect to the interaction effect between the level of fear appeal and the level of trait anxiety, a high level of fear appeal leads to more positive advertisement responses than a low level of fear appeal for low anxiety individuals, whereas no difference in effectiveness was found between high and low levels of fear appeal for high anxiety individuals ($t(176) = -1.74$, $p = 0.084$). With respect to the interaction effect between context and trait anxiety, a negative news context led to more positive advertisement responses than did a positive news context, for high anxiety individuals (especially in case of a high fear situation), whereas no difference in effect was found between a positive and negative news context for low anxiety individuals ($t(176) = 1.66$, $p = 0.100$). These results indicate that the interaction between the type of context and ad fear level on the one hand and trait anxiety on the other hand is also relevant for the attention paid to fear appeal.

*Analysis 2: differences between drivers and non-drivers*

Table 2 shows the results for Analysis 2. Except for the main effect of fear level on attention, the same effects as in Analysis 1 were found for drivers, but not for non-drivers. However, although a high level of fear appeal does not significantly outperform a low level of fear appeal with respect to 'the attention toward the advertisement' for the drivers group ($M_{highfear} = 2.25$, $M_{lowfear} = 1.77$, $t(81) = 1.54$, $p = 0.129$), the difference is significant for non-drivers ($M_{highfear} = 2.48$, $M_{lowfear} = 1.38$, $t(87) = 4.82$, $p < 0.001$). This means that, even for non-dri-

vers, a high level of fear appeal is better able to capture an inexperienced individual's attention than a low level, even though the content of the advertisement might be less relevant than for drivers. As far as the other effects were concerned, similar results as in Analysis 1 were obtained for drivers, but not for non-drivers. This confirms the prediction that the personal relevance of the content of an advertisement is an important factor in an individual's reaction to traffic safety campaigns. This relevance may come from the fact that drivers are the ones responsible for inflicting the hurt, whereas the non-driver is the receiver.

*Table 2.*
Results of moderated regression analysis (Analysis 2).

| | **Drivers** | **Non-drivers** | **Attention to the ad.** | |
|---|---|---|---|---|
| | **Attention to the ad. (N = 89)** | **Attitude to speeding (N = 89)** | **Attention to the ad. (N = 95)** | **Attitude to speeding (N = 95)** |
| Model | 2.01* | 1.91* | 4.17*** | 0.95 |
| Intercept | 14.18*** | 4.90*** | 17.36*** | 7.26*** |
| Ad. fear level | 1.54 | 0.07 | 4.81*** | –0.22 |
| Context | 1.02 | 1.92* | –0.13 | 1.65* |
| Trait anxiety | –1.36 | –1.55 | –1.54 | –0.24 |
| Ad. x Context | 1.49 | 0.08 | –0.13 | 1.29 |
| Ad. fear level x Trait anxiety | –2.16** | 0.66 | 0.52 | –0.74 |
| Context x Trait anxiety | 1.70* | –0.55 | –0.29 | –0.15 |
| Ad. fear level x Context x Trait anxiety | –.02 | –2.31** | 1.22 | –1.11 |

The numbers in the columns represent *t* values (*F* values for the model) for a moderated regression analysis using the dependent variable at the top of the column and the independent variables in the left-most column. All tests of main effects and interactions for drivers were based on $t(81)$. The test for the corrected model was based on $F(7, 81)$. For non-drivers, the tests were based on $t(87)$. The test for the corrected model was based on $F(7, 87)$. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

## Discussion

High levels of fear lead to more attention, but not to a better anti-speeding attitude. Hence, Hypothesis 1a was supported but no support for Hypothesis 1b was found. These findings confirm the higher attention getting power of a high fear appeal versus a low fear appeal. The fact that more attention is caught, however, does not seem to be transferred to the attitude toward speeding. For the attitude toward speeding, a simple effect of the context variable was found, showing that a negative context generates better scores than does a positive context. Hence, Hypothesis 2a is confirmed. This finding supports the consistency theory of Kamins et al. (1991). Although there

was a consistency effect, there were no indications of an interaction between context type and fear appeal, i.e., a fear appeal is best placed in a negative context, but apparently whether that was a high or low fear appeal was irrelevant (Hypothesis 2b was not supported). For attitude toward speeding, as expected, a significant third-order-interaction effect was found. It appears that, for low-fear advertisements, a negative context leads to more positive attitudes than does a positive context for individuals with high anxiety levels, whereas the context does not lead to significantly different responses for low anxiety individuals, supporting Hypothesis 3a. However, only partial support for Hypothesis 3b could be found. Although, as expected, for high levels of fear appeal, a positive context resulted in more positive attitudes for high anxiety individuals, this effect was not significant. Remarkably, for low anxiety individuals, a negative context outperformed a positive context, whereas no effect was predicted. This result may be related to the mood maintenance principle (Olsen & Pracejus, 2004; Wegener & Petty, 1994; Wegener, Petty, & Smith, 1995), in that people who experience positive affect may wish to maintain this state. This might explain why, in cases of high levels of fear appeal, a positive context leads to weaker responses to advertisements for low anxiety people than does a negative context, i.e., a high level of fear appeal diminishes the positive mood elicited by a positive context. For high anxiety people, this effect is counterbalanced, because a negative news context together with a high level of fear appeal may generate too much negative affect, resulting in a fear control process. These findings support Mogg and Bradley's (1998) finding that anxious people have an attention bias toward negatively valenced information. The present study also confirms claims by Beck (1976), Bower (1981), and Bradley et al. (1998) that this is more particularly the case when the information is not strongly negative: the combination of a negative news context and a high level of fear appeal seems to generate a strong negative affect, leading to a fear control process and a less positive attitude toward speeding.

Although no third order interaction effect was found on the attention toward the ad, the ad fear level and the medium context appeared to interact weakly significantly with trait anxiety, again indicating a moderating role of trait anxiety. For low anxiety individuals a high level of fear appeal leads to more attention to an advertisement than does a low level of fear appeal. On the other hand, no difference in attention level was found between a high or low fear appeal for high anxiety individuals. With respect to the interaction between context and anxiety, it was shown that for high anxiety individuals a negative news context leads to more attention than does a positive news context (especially in a high fear situation). However, there was no difference in attention between a positive and negative news context for low anxiety individuals. These results indicate that the interaction between the type of

context and trait anxiety is important in evaluating the attention paid to a fear appeal. These results add to the discussion about the fear appeal level that is most effective and point out that a high fear appeal is able to generate more ad attention, but only for low anxiety people.

Moderating effects of trait anxiety on fear appeal were previously suggested by e.g., Boster and Mongeau's (1984) and rejected by Witte and Morrison (2000). Our results support this moderating effect. With respect to medium context effects, our findings mitigate the outcomes that are expected from the Consistency Model of Kamins et al. (1991). The recommendation that fear appeals are better placed in a negative news context, only yields for high anxiety people because of their attention biases toward negativity. For low anxiety people no difference in effectiveness of a positive or negative context was found. The results significantly hold for drivers, but not for non-drivers, indicating the importance of personal relevance and experience (Kelly & Edwards, 1992; LaTour & Rotfeld, 1997).

## Conclusions, implications, and suggestions for further research

The results support our hypotheses that trait anxiety, medium context, and personal relevance play a significant role in the effectiveness of fear appeal. In particular, the findings with respect to the attention bias toward negativity for anxious people nuances the results of previous research into the impact of low or high levels of fear appeal to change risky behaviour. A low level of fear appeal – operationalized by means of a mild threat – may be an adequate appeal for anxious people. For these people, embedding advertisements in a medium context containing (mildly) negative news may serve as a good prime for fear appeals because of the effect on attentional bias. However, our results show that a strong combination of negativities (i.e., a high level of fear appeal in a negative news context) may result in less positive attitude effects of advertisements, probably due to a fear control process. In other words, trait anxiety appears to be a moderating factor influencing the amount of negativity that can be tolerated before the undesirable fear control mechanisms take off by respondents when evaluating fear appeals. These results shed new light on the debate on consistency theories with respect to medium context effects. The preferred context depends on the level of fear appeal that is embedded, and the level of trait anxiety of the target population. For instance, there appears to be an attentional bias toward this negativity for high anxiety respondents; however, for these respondents a maximum combination of negativity, i.e., a high level of fear appeal in a negative context, reduces the positive impact of the advertisement on attitude. These processes appear to apply significantly more to drivers than to non-drivers. No doubt, influenc-

ing relevant attitudes (and ultimately also behaviour) is by far the most important objective of public campaigns. Therefore, the anti-speeding attitude consequences of our study are more important than the results with respect to mere attention-getting. However, just drawing attention (as in the case of non-drivers) may be a first and necessary stage in the process of convincing people, and are therefore also relevant.

Our results add to the debate on the appropriateness of using fear appeal in public campaigns or social marketing. As indicated by Hastings, Stead, and Webb (2004), campaigners should be careful using the results of fear-appeal research that has been conducted mainly in a laboratory setting. In real-world settings, there are possible risks such as the triggering or worsening of chronic heightened anxiety. Although our research was also experimental, its incorporation of the context of advertisements into the methodology was a step toward a greater ecological validity, as fear appeal advertisements are typically embedded in a medium context. Campaigners must be aware of the fact that, depending on the personality characteristics of the target groups, the effectiveness of different types of fear appeal may be different, depending on the medium context in which the advertisements appear. Consequently, identifying a more precise profile of each target group should be an important aim of subsequent research. Rather than focusing solely on specific sociodemographics, it might be better to gain insight into more specific and relevant personality profiles, including trait anxiety and the level of personal relevance and experience. This information can then be linked to sociodemographic profiles. The results are also relevant to the refinement of techniques of campaign pre-testing. Depending on the characteristics of the target group, the type of context and the type of advertisement, different results as to the effectiveness of the pre-tested campaigns may be obtained.

Further research should examine the moderating effects of various levels of anxiety on the effectiveness of more different levels of fear appeal, to further refine these findings. This study was based on self-reported levels of perceived threat and evoked fear. An interesting extension of our research would be to attempt to use physiological measures of emotional reactions to validate our findings. Further research could also measure other types of cognitive and affective reactions to fear appeals such as anger and disgust and investigate their moderating role. Another suggestion is to include driver's actual behaviour and driving record as dependent variables or as an alternative measure of relevance or experience. The implications of this study for marketing and advertising warrant an extension of this investigative technique to other media, other contexts, and other types of fear appeal. This means that, besides trait anxiety, other personality traits may be of relevance when investigating other contexts. In most medium contexts, for instance, the emotions at issue are mixed. The extent to which individuals can cope with

duality or mixed emotions may be a relevant personality trait that can be further explored. In any case, the results confirm the idea that no single type of fear appeal will be equally effective in all circumstances.

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