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**Texting while Driving: The Foreign Language Effect in Emotional and Rational
Persuasion**

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Dr Emily Felker

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Nienke Gelderland

Abstract

English has become the lingua franca for all over the world, and the same goes for the area of persuasive communication and advertising. For many people, English has become an L2, and it is often used in advertising campaigns in large cities or international settings. The current study set out to investigate whether there is an effect of language (L1/L2) and argument type (fear appeal/rational appeal) on emotionality, attitude, and behavioural intention for road safety advertising messages about texting while driving. Participants were asked to look at English or German and fear or rational stimulus materials in a 2x2 between-subjects design experiment and fill in a questionnaire. Results of this study indicate that there was no significant effect of language or argument type on emotionality, attitude, and behavioural intention. Recommendations for further research and practical applications are presented in the paper.

Keywords: emotionality, attitude, behavioural intention, Foreign Language Effect, fear appeals, rational appeals

Texting while Driving: The Foreign Language Effect in Emotional and Rational Persuasion

According to the European Commission (n.d.), Germany had a total of 31 road fatalities per million inhabitants in 2021. While this number may not sound extreme, it is important to keep in mind that Germany had 83.2 million inhabitants in 2021 (Destatis, 2022), leading to approximately 2580 road fatalities. A “distracted driver” could mean several things, such as distraction by other passengers, calling, or texting while driving (TWD). German police caught 3100 drivers caught holding phones in 2018, even though it is illegal (Schumacher, 2018). Pires et al. (2019) found that 40% of German drivers indicated they had talked on the phone while driving recently, without using hands-free options, which was much higher than the European average of 29%. Additionally, 23% indicated TWD behaviour, similar to the European average of 24%. Allianz Centre for Technology (2018) claims that TWD might be more dangerous than drunk driving, since the former caused approximately 350 deaths in 2016, while the latter caused 256. The German interior minister mentioned that 1001 accidents were caused by distracted drivers in 2021, which is why the German government is attempting new strategies to prevent cell phone use while driving, such as penalising drivers who held phones while caught on camera (Rivers, 2022).

Another method of achieving a decline in distracted driver accidents and fatalities, is to raise awareness of these issues and convince drivers to drive safely via advertising. More and more governments are putting out campaigns against TWD, since this concern needlessly causes fatalities (World Health Organization, 2011). In Germany, there was an advertising campaign that said „Be Smart! Hände ans Steuer - Augen auf die Straße.” (English translation: Be smart! Hands on the steering wheel – Eyes on the street.), which was used in (driving) schools and intended to create awareness of the dangers of TWD (*Kampagne Warnt Vor Smartphone-Nutzung Im Auto*, 2015). There have been several studies that research advertisements to counter distracted driving (e.g., Foglia et al., 2020; Henley et al., 2018; Naletelich et al., 2022), but something that most of these studies have not yet considered, is the language of these advertisements, nor the type of arguments used. Therefore, this study can provide scientific evidence for the most optimal design of road safety campaigns concerning TWD.

Literature Review

The Foreign Language Effect

Because of globalisation and multiculturalism, it is nowadays not uncommon for people to speak, or at the very least understand, more than one language. Many people speak

English as a second language (L2) or a foreign language (FL), since English has become a lingua franca (Graddol, 1997). According to Richards and Schmidt (2002), there is a distinction between L2 and FL, since an L2 includes more immersion, as it is often learned in a context where it is necessary and outside of a classroom. Contrastingly, the term FL is generally used to indicate that the language is only taught and used inside a classroom. For this paper, “L2” will be used to denote both of these situations.

Recently, there has been an increase in research into additional languages and how they could affect attitudes and emotions, such as the Foreign Language Effect (FLE). This refers to when individuals perceive something in their L2 and make more objective decisions than when presented with similar information in their L1. Keysar et al. (2012), who conducted a study on the FLE regarding decision biases and framing, proposed that this effect could be due to an L2 producing lesser emotionally intense reactions, resulting in less bias in decision-making. A reason for that decreased emotionality could be that L1 words are acquired in early childhood, while memory and emotional regulations are developing concurrently (Pavlenko, 2005). Due to these simultaneous developments, the L1 of the child would be intertwined with emotions, granting the L1 a more affective feeling than languages learned after childhood. Another theory posits that the setting where a language is learned is relevant, since an L1 is learned through experiences and feelings, whereas an L2 is learned in a non-emotional classroom setting (Hayakawa, 2016).

The (increased) emotionality of words is especially noticeable when the words are naturally emotional, such as taboo subjects and swearwords. Dewaele (2004), who conducted a study on swearwords and taboo words with multilinguals, found that when an individual learns languages in an instructional mode, the words in that language are experienced as less emotionally intense than for words that are learned in a naturalistic manner. A study with skin conductance supported Dewaele’s (2004) arguments with empirical evidence that Turkish L1, English L2 speakers experienced more emotional arousal for swearwords in their L1 than in their L2 (Harris et al., 2003). Altarriba (2003) reinforces this idea, as they suggested that a speaker may have heard their L1 in more diverse and possibly more emotional contexts, meaning that the words are associated with more diverse and emotional feelings. Generally, these differences in emotional intensity of words appear most replicable when the speaker’s L1 is more dominant than the speaker’s L2, especially if the speaker learned the L2 later in life and is less proficient in their L2 (Caldwell-Harris & Aycicegi-Dinn, 2015; Dewaele, 2010).

For the FLE to take effect, it does not appear to matter whether the L1 and L2 words are similar in form. Puntoni et al. (2009) conducted experiments about the effect that a text may have on emotions, and they note that words that are frequently experienced in a language lead to more intense emotionality. In one study, Dutch-English-French trilingual participants were asked in English to evaluate French and Dutch marketing slogans in emotionality, and findings showed that the L1 slogans were rated as more emotional than the L2 slogans. Another experiment involved asking Dutch participants to rate the emotionality of English or Dutch cognate words, depending on the condition they were assigned to. Even though the words were similar in form, the L1 words were evaluated as more emotional than the L2 words. This could indicate that it is not the form of the word that evokes these emotions, but the language that is activated. As aforementioned, Puntoni et al. (2009) mention that words perceived more frequently in language tend to be more emotional. Since a speaker tends to be most familiar with words in their L1, it would suggest that words in a speaker's L1 would be more emotionally intense.

FLE in persuasion

One context in which the FLE might appear, is the field of persuasion, where there has been some research, such as Puntoni et al.'s (2009) marketing slogans. In persuasion, the Elaboration Likelihood Model (ELM) is a theory that is prevalent, proposing that persuasion can occur via two routes: the peripheral route and the central route (O'Keefe, 2008). The central route shows persuasion as occurring due to the receiver carefully and logically considering the arguments for or against the statement. The peripheral route, on the other hand, proposes persuasion as occurring due to a heuristic principle such as a receiver appreciating the colours of the advertisement. This means that when appreciation for an item is gained via the peripheral route, that appreciation is based on positive feelings associated with an item. There is less objectivity and logical assessments of the arguments involved, but instead, there is a focus on attitudes and beliefs, either towards the message or the communicator. In order for the arguments to be processed, the speaker subconsciously lets their motivation, opportunity, and ability to receive the message influence the route that the message will take. If motivation, opportunity, and ability are low, the message is more likely to be processed via the peripheral route in the receiver's mind, meaning that heuristic cues are more important. Petty and Briñol (2014) used the ELM to evaluate how emotions may influence the extent of thinking. They argued that, when much thinking is required of the receiver, emotions can affect persuasion, for instance by introducing biases or using feelings as valid arguments. When little thinking is required, emotions have also been shown to affect

processing via the peripheral route, with the attitude towards the product gaining the same valence as the evoked emotion. Therefore, the attitude towards an object can be influenced by emotions with arguments via both the central and peripheral processing routes. Since emotions can influence persuasion, it is relevant to investigate a possible difference between emotionality in an L1 and L2.

Fear appeals

As aforementioned, there are many ways and processes in which someone could be persuaded. An example of that is that a marketing tactic could appeal to rationality (using statistics as a rational appeal) or emotions (using fear, sadness, or happiness as an emotional appeal). This relates back to the ELM, since a rationality appeal would be processed via the central route, whereas an emotional appeal would be processed via the peripheral route. However, Petty and Briñol (2014) propose that the fear appeal would be more likely to be processed via the central route, due to a need for carefully processing possible consequences. A fear appeal, which focusses on emotionality and threat, can be seen as one of the highest intensity, highest emotionally arousing appeals, but there is much discussion about whether they function as they are supposed to or whether they could have the opposite effect.

Tannenbaum et al. (2015) conducted a meta-analysis with 127 studies, aiming to conclude whether fear appeals were effective at achieving their goals, such as persuasion. They found that fear appeals succeeded at influencing attitudes, intentions, and behaviours and that in their meta-analysis, there were no cases of the fear appeals backfiring. However, they do mention that these studies measured people who were shown fear appeals compared to other stimuli, which does not measure the actual fear of people. They measured whether participants perceived one stimulus as scarier than another, not whether fear was actually felt. This could explain the seemingly heavy contrast between Tannenbaum et al.'s (2015) study and Markšaityte et al.'s (2018) study, the latter of which set out to investigate whether fear appeals actually aroused fear. They conducted a study with 40 participants where they showed participant a drunk driving advertisement with the intent of inducing strong fear, medium fear, or a control advertisement. They found no significant differences in self-reported emotionality of nervousness, scaredness, tenseness and fear between the conditions after watching the video. The study casts some doubt on previous research, but it is important to note that there were only 40 participants, whereas Tannenbaum et al.'s (2015) meta-analysis included more than 100 conducted studies. Markšaityte et al.'s (2018) study does not state the L1 of the participants or the language of the questionnaire. Another meta-analysis about fear appeals found that although fear appeals actually arouse fear, there was generally no significant

difference between the control condition and the fear appeal in decreasing the undesirable behaviours (Carey et al., 2013). Participants in the fear appeal conditions were as likely as the control conditions to speed or to take driving risks, even if they seemed to have experienced fear as intended. While this meta-analysis does not mention anything about the fear appeal backfiring, it contrasts with Tannenbaum et al.'s (2015) result, as it does not show that fear appeals are effective.

García-Palacios et al. (2018), on the other hand, looked into how an L2 might affect fear acquisition, specifically to assist in clinical contexts. They used pupil size and electrodermal activity as cues for fear and found that, when presented with verbal instructions that could induce fear in their L1, participants were more likely to exhibit fear than when presented with instructions in their L2. They propose that this reduction in fear via L2 might help patients distance themselves from the stimuli. This could indicate that if the goal is to make people feel less psychologically distanced and increase the intensity of fear via a persuasive fear appeal, the L1 would support this better.

Rational appeals

Contrary to a fear appeal, a rational appeal is based on logic and reason in an attempt to persuade. In Delaney et al.'s (2004) meta-analysis about road safety advertising, they conclude that emotional appeals are more successful at reaching their intended goals than rational appeals. Studies have been conducted on the difference in efficiency of persuasion between narrative evidence, which mainly appeals to emotions, and statistical evidence, which appeals to logic and cognitive thinking. For instance, De Wit et al. (2008) asked male participants to fill in a questionnaire about HBV-vaccinations. The study included four groups (no evidence, mere risk assertion, narrative evidence, statistical evidence) and significant effects were found for the dependent variable of risk perception, but not for the other two of severity and intention. For risk perception, participants perceived the highest risk when shown narrative evidence, and the no evidence condition was perceived as higher risk than statistical evidence. A typical rational appeal would be most in line with the statistical evidence, meaning that this type had lower risk perception than narrative evidence and no evidence.

While a rational appeal is less emotional than an emotional appeal, it is not necessarily less persuasive over time. A study about obligatory minimum prison sentences with thematic framing (sentencing statistics, cost of prison sentences, overflowing prisons) and episodic framing (emotional story of white/black woman sentenced to prison because of drug-dealing partner) investigated emotionality and persuasion with those frames (Gross, 2008). Participants felt more sympathy, pity, and empathy when presented with the emotional

episodic frame than the objective thematic frame, showing that the statistical condition evoked less emotions. However, results indicate that participants in the thematic frame group were significantly more likely to oppose the obligatory minimum sentences than those in the control condition. This contrasts with the episodic frame, which was not significantly more opposed to the issue than the control condition. Gross (2008) also calculated a change in opinion between pre- and post-tests, resulting in a significant difference between the thematic frame and the control condition and between the episodic frame with a white woman and the control condition. This would be remarkable, since the study hypothesised that increased emotionality would result in more effective persuasiveness. This study suggests that the objective arguments were more persuasive than the emotional story, even though the episodic story was more emotional, and that the objective arguments were more persuasive over time. Combining this with research about fear appeals and other emotional appeals, it is clear that there is much contrasting evidence and debates about what type of appeal is most persuasively effective.

Current study

While there have been some studies on TWD behaviours, fear acquisition, and the FLE, it is rare to see a crossover between the three themes. Since there has been an increase of English usage around the world, and large cities are often considered international and multicultural nowadays, many advertisements are written in English. Although this might be considered international-friendly, it could also reduce the persuasiveness of those advertisements, especially if the advertisement attempts to appeal to emotion. Furthermore, while drunk driving and TWD are both subjects of road safety campaigns, TWD could be considered more socially acceptable than drunk driving. If an issue is more socially acceptable, individuals might be more likely to act on this behaviour, leading to an increased need to persuade individuals to avoid this undesirable behaviour.

The current study, therefore, aims to investigate the most effective way to persuade individuals to avoid TWD both via *argument* (rational, fear) and *language* (L1, L2). Additionally, the study intends to look at whether the effect of *language* differs depending on the argument. This leads to the following research questions and hypotheses:

Firstly, it is important to look at which argument type is most persuasive, since it is debated whether fear appeals are effective. Persuasion will be measured with *emotionality*, *attitude*, and *behavioural intention*; *emotionality* is how emotional the message feels to the participants, *attitude* is the participants' attitudes towards TWD, and *behavioural intention* is whether participants intend to avoid the behaviour. As there is much uncertainty and many

conflicting studies on the effectiveness of fear appeals, it is difficult to estimate whether a fear appeal will be more effective than a rationality appeal in the persuasiveness of the message.

RQ 1: To what extent will a fear appeal about texting while driving affect *emotionality, attitude, and behavioural intention* in comparison to a rationality appeal?

To confirm whether there is a Foreign Language Effect in this study, it is relevant to test whether participants would score significantly higher in their L1 on *emotionality, attitude, and behavioural intention* regardless of argument types. According to the theories stated in the introduction above, fear, as an emotion, is reduced in the L2, and should therefore be experienced as relatively stronger in the L1. This could indicate that arguments are more persuasive in the L1, if this persuasion is partially or purely based on emotion.

H1: Participants will experience the L1 advertisement as more emotional and persuasive than the L2.

For *argument*, it is uncertain whether fear appeals actually evoke fear (Markšaitytė et al., 2018) and whether fear, as an emotion, is seen as a valid argument for it to take the central route in the ELM, which would be more persuasive for fear appeals according to Petty and Briñol (2014). Since the rationality appeal should not evoke emotions as the fear appeal does, there should not be a difference between the L1 and L2 groups for the rational appeal, as there is little emotional intensity to increase or reduce.

H2: Fear appeals about texting while driving will be more persuasive in an L1 than in an L2, whereas there will be no L1 advantage for the rationality appeals.

This study is relevant due to it extending previous research into FLE and how it may interact with the emotionality and persuasiveness of arguments (fear or rationality). There has been much research into drunk driving (e.g., Markšaitytė et al., 2018; Tay, 2005; Teng et al., 2019a; Teng et al., 2019b;), but advertisements against TWD are not as studied yet, since texting is relatively new, whereas alcohol has existed for a long time. This study also contributes to whether fear appeals actually arouse more emotion and are more persuasive than rational appeals, which is much debated in scientific articles. In essence, the current study combines two fields of already well-researched topics: it combines the field of persuasion, also referring to the ELM, and the field of the Foreign Language Effect. By linking those two aspects, the study accounts for the FLE in the specific context of persuasion,

rather than the other contexts that have already been investigated, such as framing and decision-making.

Method

Materials

In this study, a promotion message against TWD behaviour was shown, with independent variables of *language* and *argument type*. *Language* had two levels, L1 (German) and L2 (English), and was operationalised by designing the texts in the two languages. The texts were first created in English and were then translated into German, by German native speakers. To ensure the accuracy of the German translation, an independent German native (who did not participate in the study) was asked to translate the texts back into English, whereafter a couple of slight changes were made to the German texts. The same procedure was done for the questionnaire, which was originally created in English and translated into German. The resulting texts were the ones used in this study. *Argument type* consisted of two levels as well, fear appeal and rational appeal.

The fear appeal showed participants an entirely black picture with white text, which read “Is that text worth it? It only takes one second to crash. Texting kills. Keep your eyes on the road!” The hypothetical question was intended to encourage readers to carefully consider the situation. The text was designed to inspire fear in the readers, using more “shocking” words that were intended to lead to high intensity, high emotional arousal, such as *kills* and *crash*. An exclamation mark was also used to evoke a sense of urgency and caution. The German version was similar, with the same black background and the text “Ist diese Nachricht es wert? Es braucht nur eine Sekunde zum Crash. Handy am Steuer tötet. Augen auf die Straße!”; copies of both have been added to the Appendices. The text was based on an actual advertisement from a campaign by Brake, which was aired in London in 2012, and read “Was that txt worth it? Don’t text and drive.” (Young, 2012). The text being based on a real promotional message increases ecological validity, since it is a message that could realistically be used by advertisers. To ensure that the language aspect is more dominant, the original statement was lengthened. The background of the picture was black to ensure the participants focussed on the text instead of being distracted by the image. Such a simple and minimalistic image is not uncommon in German advertising (e.g., dpa picture alliance, 2005; Hardwick, 2019).

The rational appeal showed the same black background with white text, with the text reading “Is that text worth it? Yearly, more than 300 fatalities are caused by distracted drivers in Germany. Don’t text and drive!” The rational appeal used a real statement from a study to

encourage people to consider the situation logically. No intense words were used, using *fatalities* rather than a “shocking” word. There is a slight aspect of fear in there, since it still discusses possible deaths, but the message was intended to be less emotionally arousing and less intense than the fear appeal. The German version has the same black background and the text “Ist diese Nachricht es wert? Jährlich werden in Deutschland mehr als 300 Todesfälle durch abgelenkte Fahrer verursacht. Handy weg!”; copies of both have been added to the appendices. The text of the rational appeal is based on actual data from Allianz Center for Technology (2018).

Subjects

For this study, participants were recruited via social media (WhatsApp, Instagram), so the sampling method was the snowball nonprobability method. 180 responses to the survey were analysed. A total of 248 subjects filled in the questionnaire, but some participants were excluded. 22 participants noted that German was not their native language, 11 said they have no knowledge of English, and 20 indicated that they had no driver’s license. Some subjects fell under more than one of the exclusion criteria. Responses of participants who did not fit the inclusion criteria (German L1, English L2, in possession of driver’s license and mobile phone, age above 16), were not analysed. A study from Janssen and De Pelsmacker (2007) indicates that there might be a difference in how drivers and non-drivers experience anti-speeding fear appeals, which is why participants were required to have a driver’s license. The mean age of the participants was 29.73 years ($SD = 14.40$), and their age was equally distributed across groups ($F(3, 176) < 1, p = .503$). 117 of the 180 participants (65%) identified as female, while 63 identified as male. Gender was equally distributed across groups ($\chi^2(3) = 1.73, p = .631$). For educational level, 102 participants indicated that their highest education level was high school diploma (Abitur, 57%), with 13 participants only having reached middle school (Mittlere Reife, 7%). 18 participants noted that they finished an apprenticeship (Ausbildung, 10%). In terms of university, 34 participants indicated having a bachelor’s degree (19%) and 13 had a master’s degree (7%). Education level was equally distributed across groups ($\chi^2(12) = 14.40, p = .276$). Participants’ self-rated English proficiency was slightly above average, with a mean of 4.91, 1 being the lowest score and 7 the highest ($SD = 1.32$). Participants’ proficiency was equally distributed across conditions ($F(3, 176) = 2.21, p = .09$). It is interesting to note that participants across all conditions scored an average of 5.0 or 5.1 in proficiency, except for the English rational condition, which scored an average of 4.5. When asked about prior TWD experiences, 120 participants (67%)

indicated that they had sent texts while driving, 155 (86%) indicated that they had called via phone while driving, and 149 (83%) indicated that they had read text messages while driving.

Design

This experiment consisted of a 2 x 2 between-subject design, with the two levels of *argument* and the two levels of *language*. The levels of *language* were represented by having the advertisement messages in the participants' L1 (German) or L2 (English). The levels of *argument* were represented by the fear appeal and the rational appeal.

Instruments

The questionnaire was in German to avoid the anchor contraction effect, which is when respondents give more intense responses in their L2 than they would in their L1 (De Langhe et al., 2011). Questions mentioned in this section were translated into their English equivalents for readability; the full questionnaire with German questions can be found in Appendix A. Participants were asked about their native language, age, gender, education, self-assessments of English proficiency (speaking, writing, listening, reading) and whether they had a smartphone and a driver's license. Prior TWD experiences were asked about, with the questions "I have never sent a text while driving", "I have never called while driving", "I have never read a text while driving". This indicates previous driving behaviour of the participants.

For the dependent variables, participants were asked about their *emotionality*, *attitude*, and *behavioural intention*. Three measurements were taken to measure *emotionality*. Firstly, general emotionality was tested with a 7-point scale with the German translation of "How did you feel when you saw the advertising poster?" and the anchors "Emotionless – emotional". As a second measure, participants were shown an affective slider that measured emotional arousal with two emoticons as anchors, one tired or sleepy face and a very shocked or awake face (based on Betella and Verschure, 2016). The question was "Rate your emotional state when looking at the advertising poster by moving the sliders". A score of 0 indicated no fear, while a score of 100 indicated much fear. Finally, fear was measured with four items on a 7-point Likert scale with the question "To what extent do you have these feelings when you look at the advertising poster?" and the anchors of "Not at all – Extremely so". The items were "fear, panic, dread, scared" (based on Harmon-Jones, Bastian, & Harmon-Jones, 2016; Markšaitytė et al., 2018). The reliability of the scale was excellent: $\alpha = .91$.

Attitude was measured with six items on a 7-point semantic differential scale, starting with the statement "A mobile phone at the wheel is...". The six items consisted of "dangerous – safe, useful – useless, good – bad, regrettable – gratifying, stressful – stress-free,

acceptable – unacceptable” (based on Benson, McLaughlin & Giles, 2015; Lewis et al., 2008). The reliability of the scale was good: $\alpha = .89$.

Behavioural intention was measured with questions on a 7-point Likert scale, with the anchors of “Strongly disagree – Strongly agree”. The questions were “In the future, I expect to drive with a mobile phone at the wheel”, “It is likely that I will drive with a mobile phone at the wheel” and “In the future, I intend to drive with a mobile phone at the wheel” (based on Benson, McLaughlin & Giles, 2015). The reliability of the scale was found to be excellent: $\alpha = .91$.

Composite means and standard deviations were calculated for all scales.

Procedure

The questionnaire was sent to German participants via social media (WhatsApp, Instagram), asking them to fill it in. The messages were posted in groupchats or other communities that the researchers were in on these social media. Participants were not rewarded for their participation. The questionnaire firstly asked for consent to record the answers and participants were told they can stop at any time. The study’s first questions were about the exclusion criteria (German native language, English knowledge, in possession of driver’s license and smartphone, age above 16). Participants were asked about their prior driving experiences. Hereafter, participants were presented with one of the four possible advertisements (English rational, English fear, German rational, German fear) and were asked to read it. Having read the advertisement, they were not allowed to go back to a previous page. After reading the advertisement, they were asked questions about their *emotionality*, *attitude*, and *behavioural intention*. Finally, participants were asked about their demographic details of age, gender, education level, age of English acquisition, and English proficiency. At the end of the questionnaire, participants were thanked for their participation and were told they can close the page. The duration of the survey was approximately 10-15 minutes.

Statistical treatment

Cronbach’s α was calculated for *emotionality* (fear), *attitude*, and *behavioural intention*. Five two-way ANOVAs were conducted in IBM SPSS 27 to calculate the main effects and interaction effects of *language* and *argument type* on *behavioural intention*, *attitude*, and *emotionality* (general emotionality, arousal, fear). Two additional ANOVAs were conducted for the exploratory analyses (see Exploratory analyses).

Results

Emotionality

Emotionality was calculated in three separate ways, namely general emotionality, emotional arousal, and fear. Firstly, a two-way ANOVA with general emotionality in function of *language* and *argument* showed no significant main effect of *language* on general emotionality ($F(1, 176) = 2.96, p = .087$). There was no significant main effect found of *argument* on *emotionality* ($F(1, 176) < 1, p = .715$), nor a significant interaction effect between *language* and *argument* ($F(1, 176) = 2.21, p = .139$). Descriptive statistics for *emotionality* are shown in Table 1.

Emotionality was also measured with an affective slider, as shown in the questionnaire in Appendix A. A two-way ANOVA with factors *language* and *argument* did not show a significant main effect of *language* on emotional arousal ($F(1, 176) = 2.03, p = .156$), nor a significant main effect of *argument* on emotional arousal ($F(1, 176) < 1, p = .803$), nor a significant interaction effect between *language* and *argument* ($F(1, 176) = 2.13, p = .146$).

Lastly for *emotionality*, a two-way ANOVA with *language* and *argument* as factors surprisingly did not show a significant main effect of *language* on fear ($F(1, 176) = 2.15, p = .144$) or for *argument* on fear ($F(1, 176) < 1, p = .347$). A significant interaction effect for *language* and *argument* was not found ($F(1, 176) < 1, p = .428$).

Table 1 Means and standard deviations for *emotionality* measurements in function of language and argument

Emotionality measurement	Language	Argument	<i>M</i>	<i>SD</i>	<i>n</i>
General emotionality (1 = emotionless, 7 = emotional)	German	Fear	4.20	1.72	41
		Rational	3.93	1.32	43
		Total	4.06	1.52	84
	English	Fear	3.44	1.56	48
		Rational	3.87	1.70	48
		Total	3.66	1.63	96
	Total	Fear	3.79	1.67	89
		Rational	3.90	1.52	91
		Total	3.84	1.59	180
Emotional arousal	German	Fear	45.66	29.92	41

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(0 = not scared, 100 = very scared)		Rational	50.30	23.48	43	
		Total	48.04	26.75	84	
		English	Fear	56.73	25.73	48
			Rational	50.17	23.52	48
			Total	53.45	24.75	96
		Total	Fear	51.63	28.14	89
			Rational	50.23	23.37	91
			Total	50.92	25.78	180
Fear	German	Fear	3.16	1.65	41	
(1 = no fear, 7 = much fear)		Rational	2.80	1.11	43	
		Total	2.97	1.40	84	
		English	Fear	2.69	1.36	48
			Rational	2.66	1.42	48
			Total	2.67	1.38	96
		Total	Fear	2.90	1.51	89
			Rational	2.72	1.28	91
			Total	2.81	1.40	180

Attitude

The fourth two-way ANOVA with *language* and *argument* as factors did not show a significant main effect of *language* on *attitude* ($F(1, 176) < 1, p = .735$), or *argument* on *attitude* ($F(1, 176) < 1, p = .449$). There was no significant interaction effect found between *language* and *argument* ($F(1, 176) < 1, p = .981$). Results for the ANOVAs of *attitude* and *behavioural intention* can be found in Table 2.

Behavioural intention

A two-way ANOVA with *language* and *argument* as factors did not show a significant effect main effect of *language* on *behavioural intention* ($F(1, 176) = 1.22, p = .271$). *Argument* did not show a significant main effect on *behavioural intention* ($F(1, 176) < 1, p = .850$). No significant interaction was found between *language* and *argument* ($F(1, 176) = 1.73, p = .190$).

Table 2 Means and standard deviations for *attitude* and *behavioural intention* in function of language and argument (1 = negative, 7 = positive)

Dependent variable	Language	Argument	<i>M</i>	<i>SD</i>	<i>n</i>
Attitude	German	Fear	2.26	1.49	41
		Rational	2.10	1.27	43
		Total	2.18	1.38	84
	English	Fear	2.18	1.31	48
		Rational	2.04	1.25	48
		Total	2.11	1.27	96
	Total	Fear	2.22	1.39	89
		Rational	2.04	1.25	91
		Total	2.14	1.32	180
Behavioural intention	German	Fear	2.74	1.62	41
		Rational	2.39	1.40	43
		Total	2.56	1.51	84
	English	Fear	2.17	1.36	48
		Rational	2.44	1.83	48
		Total	2.31	1.61	96
	Total	Fear	2.43	1.50	89
		Rational	2.41	1.63	91
		Total	2.42	1.57	180

Exploratory analyses

Since no significant results were found, exploratory analyses were conducted to see if it could be an issue that participants who mentioned they had never used their phone while driving before were also included in the current study. For this analysis, a subset of participants was taken, which excluded participants who had never sent a text on their phone while driving according to their prior driving experience. This subset consisted of 120 participants.

However, for the ANOVAs conducted for *attitude* and *behavioural intention* with the factors of *language* and *argument*, still no significant results were found. The results are reported below. Means and standard deviations are not included due to insignificant results.

The two-way ANOVA of the subset with *language* and *argument* as factors did not show a significant effect main effect of *language* ($F(1, 116) < 1, p = .723$) or *argument* ($F(1, 116) < 1, p = 1$) on *attitude*. No significant interaction was found between *language* and

argument ($F(1, 116) < 1, p = .959$). The two-way ANOVA of the subset with *language* and *argument* as factors did not show a significant effect main effect of *language* ($F(1, 116) < 1, p = .596$) or *argument* ($F(1, 116) < 1, p = .967$) on *behavioural intention*, nor was there a significant interaction found between *language* and *argument* ($F(1, 116) = 2.57, p = .112$).

Conclusion and Discussion

This study set out to investigate whether there was an effect of language or argument type in road safety campaigns, and whether *language* or *argument* could affect how persuasive the arguments are with regards to *emotionality*, *attitude*, and *behavioural intention*. The study asked German natives to evaluate English or German, fear or rational appeals.

In terms of relevant findings, there is little to point out. None of the effects in this study were significant, and it is therefore rather complicated to draw conclusions about them. The answer to RQ1 is then that there was no significant difference between a fear appeal and a rational appeal in terms of *emotionality*, *attitude*, and *behavioural intention*. This is in contrast to studies that have found a significant difference in emotionality or persuasion between emotional appeals and fear appeals, such as Gross (2008) and Tannenbaum et al. (2015). This finding is in agreement with Markšaityte et al. (2018), who similarly found no increased fear or emotionality for their fear appeals. Unexpectedly for H1, participants did not evaluate the L1 advertisement as significantly higher in *emotionality*, *attitude*, and *behavioural intention* than the L2 advertisement. Contrary to expectations, the findings also do not support the first part of H2: fear appeals did not appear to be significantly more persuasive in the L1 than in the L2. Because no significant differences were found between the L1 and L2 conditions for the rational appeals, the second part of H2 can be supported, which was that there would be no L1 advantage for the rational appeal. Findings from this study oppose findings from previous studies that have found an effect of the FLE in advertising, such as Puntoni et al. (2009). In their study, Puntoni et al. found a significant effect of language on emotionality for their advertising slogans, but they only included one item to measure emotionality, in contrast to the current study's multiple measurements. The current study's multiple measures for *emotionality* might have led to confusion or fatigue for the participants. For instance, by the time that they would have reached the last question of the third measurement, they would already have had more than five other questions about their emotionality, so they might have filled in an answer that did not correctly reflect their emotionality. Furthermore, due to how these items were measured, they could not be combined, nor could a composite mean have been created in a reliable way. Additionally, it

would have been difficult to explain why the results for the fear emotionality were significant, but general emotionality was not significant.

It is rather surprising that this study has not found any significant results, but there might be several reasons for this. For the variables of *attitude* and *behavioural intention*, there could be a case of social desirability bias with the participants: participants might be aware that TWD is not socially acceptable or desirable, and therefore give an answer that is more in line with society's expectations, namely that they would not text and drive. This would be clearly shown if the data was heavily skewed towards a negative attitude for TWD, which is slightly reflected in these results, as the means for *attitude* and *behavioural intention* are all around a 2 on a scale of 1-7, where 7 is positive. This does not account for insignificant results for *emotionality*, since that should not be influenced by social expectations. Besides the possible social desirability bias, the participants' views on the issue of TWD might be too entrenched to be changed by features like language and appeal. If participants have already made up their minds, a short billboard on the side of the road would be unlikely to change this attitude.

Another explanation for the lack of significant results might be that the FLE functions differently depending on the context, since it could be influenced by the cognitive processes that are activated in different situations. Perhaps the FLE does not appear or only appears very weakly in road safety campaign contexts. Puntoni et al. (2009) showed the FLE in isolated contexts for advertising slogans, whereas the current study contextualised the materials as road safety campaign materials. This context-dependency could be linked to the reasons for the occurrence of the FLE. Some possible explanations behind the FLE are that a speaker's L1 is learned during childhood, when emotions are developing concurrently (Pavlenko, 2005), or that an L1 is learned through experiences that concern feelings and emotions, whereas an L2 is often learned in a classroom (Hayakawa, 2016). Both explanations indicate that an L1 is learned during childhood, so it could be the case that children do not pay attention to road safety campaigns, so that context would not be as connected to the L1 or as ingrained in a child's mind as other contexts would be. Advertising slogans, such as those from Puntoni et al. (2009), might be perceived by children unwittingly since advertising is very prevalent in today's society.

There are several possible limitations for this study, such as the lack of pretesting, the lack of a picture, the length of the messages, and the size of the dataset. Firstly, there was no pretesting done to ensure that the materials were functional, because there was no time or opportunity found to do so. While much attention was paid to the English – German

translations of the advertisements, there was no pretesting to check that the fear appeal was evoking more fear than the rational appeal. While the rational appeal was intended to evoke some fear, it was supposed to evoke less fear than the fear appeal, and the fear was supposed to be less intense and less emotionally arousing. The results indicate that the fear appeal did not evoke more intense emotions, nor more fear specifically, than the rational appeal. Even if the FLE was not found in this study, the fear appeal should have evoked more emotions and more fear than the rational appeal, as it was especially designed to do so. For this study, the materials did not contain any fear-inspiring imagery, only a black background with white text. While this was intended to ensure that the focus was on the text, and it was not an unusual manner of advertising in Germany (e.g., dpa picture alliance, 2005; Hardwick, 2019), a “scary” picture might have supported a fear-inspiring message.

Moreover, it could be possible that the text in the advertisements were too short to activate the FLE. While there was no picture used as background so as not to distract the readers and keep their full attention on the text, the messages consisted of approximately 20 words, whereafter an entirely German questionnaire followed. The shortness of the message in combination with the following German text could have led to a reduced effect of the FLE. In fact, the questionnaire can be seen as an instance of code-switching, which is when a speaker switches between two languages. Research has shown that in cases of code-switching, the FLE is not activated: instead, participants reported similar feelings in the L1 and code-switched conditions, whereas the FLE was found for the L2 condition (Driver, 2022). For the current study, that could mean that the materials were not experienced as an L2 situation, but more as a code-switching situation. Then, the FLE would not be activated, as the code-switching situation would behave as an L1 situation.

Furthermore, it appeared that there was some confusion about the *behavioural intention* and *attitude* questions, partially due to the prior driving experience items. Some participants noted that they were unsure what was meant with “texting while driving”, since the prior driving experiences also included more general phone use such as calling. This meant that, when the *attitude* and *behavioural intention* questions asked about “using a mobile phone while driving”, they were not certain what phone usage would be included in this question. They might have interpreted the question to exclude their behavioural intentions or attitude towards solely reading a text message, which was intended to be included. Therefore, participants might have, for example, thought that they would not send a message while driving, but they would still read a text, meaning that the behavioural intention towards sending a text while driving was low, but behavioural intention for reading a text while

driving was high. In the future, prior driving experience could be asked as, for example, “Have you ever used your phone while driving? (Consider reading a text message, sending a text message, calling, etc)”.

The participants in this study were intended to be L2 English speakers, so any participants who did not speak English, were excluded from the dataset. However, this was based on a self-assessment of the participants’ proficiency, rather than a more objective method, such as the LexTALE test from Lemhöfer and Broersma (2012). It was also noted, for example, that one participant had ticked the box “I speak English” and then continued to assess themselves as having the lowest score (1 out of 7) in all four English skills, leading to the idea that they, in fact, were not proficient in English. That leads to the conclusion that some participants might not have fully understood the English materials, and if that was the case, the responses might not have reflected their feelings and opinions.

While this study could never have fully disproven the existence of the FLE, it seems precarious to conclude that this study gives evidence against the existence the FLE, since there were no statistically significant results, and the materials might not have been optimised. However, it is important to note that, while the manipulation of the argument type might not have been successful, there was still a language component, and there were no significant differences detected between the two languages per argument type, or in total, either. The findings of this study could indicate proof that the occurrence of the FLE is much rarer than expected or occurs more regularly in other frames or situations than advertising (specifically road safety campaigns).

In the future, studies could try to replicate a study as this, with pretesting to ensure that the materials function as intended. Additionally, a replication of a similar study could benefit from an increase in participants, since a bigger sample size could make it easier to find a significant difference if there is only a small effect. For a next study, the study could also show the materials for a very short period of time, as this would more closely resemble driving on the highway. When driving on a highway, elements like billboards would only be visible for short periods of time due to the speed of a car. This quick visual would also likely lead to a different mental decision process than when a visual is shown for a lengthened period. To connect this to the ELM, the arguments presented in the current study might only have been processed via the central processing route, because the participants could look at the materials for a long time. This extended duration would mean that the arguments could have been considered more logically, rather than with heuristic cues. If the materials had been shown for a shorter period of time, it might have pushed the participants’ mental processing

towards the peripheral route, since they would not have a long time to consider the arguments. According to Petty and Briñol (2014), emotions could affect individuals' attitude via both ELM processing routes, but it could be the case that the FLE is more effective via the peripheral route than the central processing route.

This study draws from, combines, and adds to two separate bodies of research, namely persuasive communication in advertising and the Foreign Language Effect. Since this study did not find supportive results for different effects of appeal type, the study indicates that multiple appeal types might be equally persuasive, so a fear appeal and a rational appeal might both be used to reach the intended goals of the sender. The results of this study also imply that language (L1/L2) is not as relevant as might be assumed in the context of road safety campaigns. Due to an increasing number of internationals in Germany, it is relevant to be aware of whether there is a difference between how a persuasive message is received in an individual's L1 or L2. If an advertising agency wanted to reach as large of an audience as possible, it might be better to choose English as the language of the advertisement, especially as English proficiency seems to be increasing worldwide.

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Appendices

Appendix A: Entire questionnaire, including one stimulus material



Einleitung der Studie

Danke, dass Sie an unserer Studie teilnehmen möchten.

Wir sind fünf 'International Business Communication' Studenten an der Radboud Universität in den Niederlanden. Im Rahmen unserer Bachelorarbeit untersuchen wir Kampagnen gegen die Nutzung vom Handy am Steuer.

Das Ausfüllen des Fragebogens dauert etwa 5 bis 10 Minuten. Es gibt keine falschen Antworten.

Die Teilnahme an dieser Studie ist anonym. Sie haben das Recht, den Fragebogen jederzeit abzubrechen, ohne einen Grund dafür angeben zu müssen.

Für mögliche Fragen oder Anmerkungen kontaktieren Sie gerne Lina Martens (lina.martens@ru.nl).

Zustimmung zur Teilnahme an der Studie

Ich habe die oben genannten Informationen gelesen und verstanden. Ich stimme der Teilnahme an dieser Studie zu.

Ich stimme der Teilnahme dieser Studie nicht zu.

THE FOREIGN LANGUAGE EFFECT IN EMOTIONAL AND RATIONAL PERSUASION

Ist Deutsch Ihre Muttersprache?

Ja

Nein

Haben Sie die grundlegenden Englischkenntnisse?

Ja

Nein

Besitzen Sie einen gültigen Führerschein?

Ja

Nein

Besitzen Sie ein Smartphone?

Ja

Nein

Sind Sie älter als 16 Jahre?

Ja

Nein

Ich habe noch nie eine Nachricht beim Autofahren verschickt.

Trifft zu

Trifft nicht zu

Ich habe noch nie beim Autofahren telefoniert.

Trifft zu

Trifft nicht zu

Ich habe noch nie beim Autofahren eine Nachricht gelesen.

Trifft zu

Trifft nicht zu

Stellen Sie sich vor, Sie sehen dieses Werbeplakat am Straßenrand. Bitte schauen Sie sich das Plakat aufmerksam an und beantworten die nachfolgenden Fragen.

Ist diese Nachricht
es wert? Es braucht
nur eine Sekunde
zum Crash.

Handy am Steuer
tötet. Augen auf die
Straße!

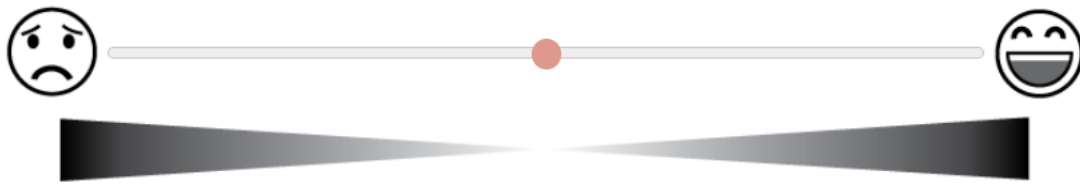
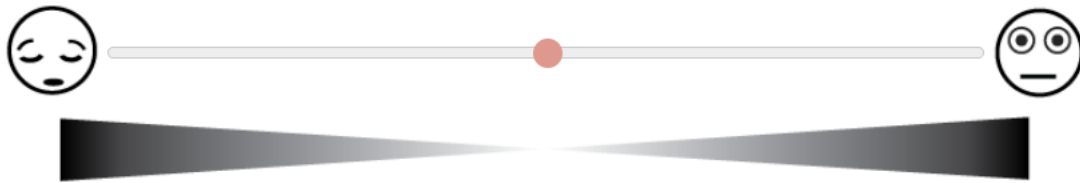
Wie haben Sie sich beim Ansehen des Werbeplakats gefühlt?

Emotionslos Emotional

Bewerten Sie Ihre Emotionslage beim Ansehen des Werbeplakats indem Sie die Regler verschieben.

THE FOREIGN LANGUAGE EFFECT IN EMOTIONAL AND RATIONAL PERSUASION

Bewerten Sie Ihre Emotionslage beim Ansehen des Werbeplakats indem Sie die Regler verschieben.



In welchem Maß haben Sie beim Betrachten des Werbeplakats diese Gefühle verspürt? (1 = überhaupt nicht, 7 = extrem viel)

	1	2	3	4	5	6	7
Angst	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Panik	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Furcht	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schrecken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Traurigkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trauer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Einsamkeit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leere	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

¹ Please note that this study was part of a larger experiment and not all questions were deemed relevant for the current study. The other study concerned sadness appeals, and questions and data relating to sadness were excluded for this study, as this study compared rational and fear appeals. Therefore, the second slider was not analysed.

² The last four items of this question (*Traurigkeit*, *Trauer*, *Einsamkeit*, *Leere*) are not analysed in the current study for the reason mentioned at [1].

Handy am Steuer ist...

Gefährlich	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sicher
Nützlich	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Nutzlos
Gut	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Schlecht
Bedauerlich	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Erfreulich
Stressfrei	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Stressig
Akzeptabel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Inakzeptabel

Ich erwarte in Zukunft mit Handy am Steuer zu fahren.

Trifft gar nicht zu Trifft voll zu

Es ist wahrscheinlich, dass ich in Zukunft mit Handy am Steuer fahre.

Trifft gar nicht zu Trifft voll zu

Ich beabsichtige in Zukunft mit Handy am Steuer zu fahren.

Trifft gar nicht zu Trifft voll zu

Bitte geben Sie Ihre Englischkenntnisse in den folgenden Bereichen an.

(1 = sehr schlecht, 7 = sehr gut)

	1	2	3	4	5	6	7
Sprechen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schreiben	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lesen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hörverstehen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

THE FOREIGN LANGUAGE EFFECT IN EMOTIONAL AND RATIONAL PERSUASION

Wie alt sind Sie?

Mit welchem Geschlecht identifizieren Sie sich am meisten?

Weiblich	Männlich	Nicht-Binär	Andere
----------	----------	-------------	--------

Was ist Ihr höchster Schulabschluss?

Kein Abschluss	Mittlere Reife	(Fach-)Abitur	Leere/Ausbildung	Bachelor	Master	PhD/Doktor
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In welchem Alter haben Sie angefangen Englisch zu lernen?

Appendix B: All four stimulus materials

Ist diese Nachricht
es wert? Es braucht
nur eine Sekunde
zum Crash.

Handy am Steuer
tötet. Augen auf die
Straße!

German fear appeal

Ist diese Nachricht es
wert? Jährlich werden
in Deutschland mehr
als 300 Todesfälle
durch abgelenkte
Fahrer verursacht.

Handy weg!

German rational appeal

Is that text worth it?
It only takes one
second to crash.

Texting kills. Keep
your eyes on the
road!

English fear appeal

Is that text worth it?
Yearly, more than 300
fatalities are caused
by distracted drivers
in Germany.

Don't text and drive!

English rational appeal

Appendix C: Statement of own work

CIW English

Statement of Own Work

Student name: Nienke Gelderland

Student number: s1031492

Course code and name: SCRSEM2: Bachelor Thesis

Lecturer: Dr Emily Felker

Number course group: Theme 7

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Signed:

A handwritten signature in black ink, appearing to be 'N. Gelderland', written over a circular scribble.

Date: 08/06/2023