

BACHELOR THESIS

Persuasive Public Safety Communication:

Do foreign languages and type of appeal influence perceived emotionality, attitude towards the issue of texting while driving, and behavioural intention?



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Abstract

As a result of globalisation, many people now speak more languages than just their mother tongue. However, whether emotional arousal is equally evoked in a foreign language and the native language has been a topic for linguistic researchers. This study investigated the foreign language effect on native German speakers through persuasive *texting-while-driving* stimuli. The 2x2 experiment presented posters in either German (L1) or English (L2) and with either fear or sadness appeal to 174 participants and addressed their emotionality, attitude towards the issue and behavioural intention. No significant differences were found for the factor language. However, the fear appeal aroused participants more than the sadness appeal. No effect of either factor was found for attitude towards the issue or behavioural intention. The study presents new insights for road safety advertisers as the choice of German or English is minor, while fear might arouse participants more emotionally.

Introduction

When people read, hear, or experience stimuli, they will most likely automatically form an opinion or emotional response to that stimulus. Sometimes that can happen very consciously, or other times somewhat subconsciously. Humans are reactional beings and, consequently, react to incoming information (Turner & Stets, 2005). Whether it is a pregnancy announcement, marketing about a toothbrush, or just simple dinner conversations, an attitude will be formed. Those reactions are emotional responses and help people position themselves and act upon that position. There are different ways this processing can happen. Petty and Cacioppo (1984) investigated these routes and created the *elaboration likelihood model*. According to this model, if there is sufficient motivation, opportunity and ability, the incoming information will likely be processed centrally through actively evaluating the arguments and forming an informed opinion based on that evaluation. If one of these three factors is not given, the statement will be assessed through heuristic cues, and a peripheral route will be taken.

Especially the ability to process information centrally highly depends on the medium language. Consequently, it has been found that automatic processing through the peripheral/affective route is more complex in a foreign language (e.g., Pavlenko, 2012; Caldwell-Harris & Aycicegi-Dinn, 2016). Moreover, language influences emotionality often more strongly in the native language than in later acquired languages. This phenomenon has been coined the *foreign language effect* and is found in various fields. Pavlenko (2012) explains that in a native language, a relationship between affect and cognition exists, while in a foreign language, this connection does not appear, which she called *disembodied cognition*. Other

researchers mention *emotional blunting* when referring to this reduced emotionality in a foreign language (Caldwell-Harris & Aycicegi-Dinn, 2016).

Some researchers have linked the foreign language effect to why persuasion and emotional arousal in a foreign language might not be as powerful as in the native tongue (e.g., Caldwell-Harris, 2015; Hayakawa et al., 2016; Baumeister et al., 2017). The present study further investigated this foreign language effect on emotionality in German participants who learnt English as a foreign language. Moreover, a possible difference in the persuasive effect of different emotional appeals, namely sadness or fear, was analysed. Participants were exposed to one of four outdoor advertisements dealing with the issue of *texting while driving*, and a questionnaire inquired about their emotionality, attitude towards the issue, and behavioural intention. In the upcoming literature review, the link between emotion and persuasion will be established, followed by research on foreign language effects across different domains. Furthermore, a theoretical framework of different emotional appeals will be discussed, focusing on fear and sadness appeals.

Emotion-Persuasion Link

To understand the foreign language effect, it is essential first to discuss the connection between emotion and persuasion. Researchers have studied this area for decades and established the relevance of emotionality in persuasion. Arnold (1985) found that messages are more likely to persuade if emotional arousal is established through those messages. Similarly, Jorgensen (1996) declared that appealing to emotions is an extremely powerful tool for influencing behaviour and attitudes. A later paper reviewed cancer-related messages and found that negative emotions like fear, sadness, and disgust are effective markers for these health messages to persuade recipients to adopt the proposed behavioural change (Dillard & Nabi, 2006).

Foreign language effect

The question of whether language can affect emotional arousal has been one of the focuses of researchers over the last decade. They have questioned whether a native language elicits a higher intensity of emotions than a second or foreign language. It is essential to distinguish between the two concepts as a *second language* is learned through immersing into a new culture and language. Examples here are immigration or a study abroad experience. A second language is spoken with high proficiency and on a daily basis. Conversely, a *foreign language* is learned through a classroom context, used more irregularly, and spoken less

fluently (Caldwell-Harris & Aycicegi-Dinn, 2016). This paper compares the native language (L1) and a foreign language (L2/FL) learnt in a classroom context, as most Germans learn English that way. The prevalence of English as a *lingua franca* in German society is still relatively limited. It might still be the second language learnt in order of acquisition, but the investigation focuses on the *FL* concept of languages.

Caldwell-Harris (2015) analysed certain decision-making behaviours and identified two processing systems depending on which language was used as a medium. When communication happens in a native language, *system 1* will be activated, meaning that an automatic and intuitive processing route will be pursued. Conversely, processing in a foreign language is more deliberate and reflective and is referred to as *system 2* (Caldwell-Harris, 2015). The prediction for this study is that the materials in the German (L1) language will be processed according to *system 1*. In contrast, the English (FL) materials will be processed deliberately and reflectively (*system 2*). Caldwell-Harris' (2015) framework corresponds with the ELM as *system 1* relates to the peripheral route, while *system 2* mirrors the central route of processing (Petty & Cacioppo, 1984).

Caldwell-Harris (2015) also found that people develop more robust emotional responses in their native language. Using the *episodic trace model*, she explained that early language skills are developed simultaneously with emotional regulation systems. Consequently, the emotional response to a language learnt early on is high. As the connection between affect and cognition is constantly intact, high emotionality is experienced in a native language. Moreover, if a second language is learnt through immersion, hence an emotional context, the emotionality can also become more intense than if learnt through a classroom context. Similarly, if exposure to certain concepts is higher in a second language, those concepts show a higher emotionality in that language. An example would be if a German native regularly visited a surf camp in England. All concepts evolving around surfing, the sea, etc., would have stronger emotionality in English than in German. These observations, supported by the *ETM*, further demonstrate that acquisition and proficiency influence emotionality.

Correspondingly, Caldwell-Harris and Aycicegi-Dinn (2016) proposed that concepts accrue higher emotional resonances if learnt and frequently used in an emotional context. Thus, two individuals might use the same language with similar proficiency and frequency but still show differences in emotional arousal. By investigating their participants' relation to English, it was possible to understand each participant's experience, which might have caused differences in the emotionality evoked by the foreign language.

FLE in Marketing

To further investigate whether the foreign language effect is present in a specific domain of persuasion, research has been done in marketing settings. A multi-experiment study on bilinguals and multilinguals inquired about emotionality differences depending on the language medium (Puntoni, 2009). Researchers found that L1 slogans had higher emotionality ratings than L2 slogans. Since no effect of language on the originality of the messages was found, the centrality of affect was deemed the main driver of the L1 emotional advantage in marketing messages. Moreover, it was found that low emotional arousal for L2 messages was not due to comprehension issues.

Caldwell-Harris and Aycicegi-Dinn (2016) reconfirmed these findings as concepts predominantly encountered in a specific language evoke stronger emotions in that same language. The researchers concluded that the *Revised Hierarchical Model* introduced by Kroll and Steward (1994) explains this FLE phenomenon in bilinguals. This model states that languages are stored in different lexical stores in the brain, one for each language. In addition, there is a store in which all concepts reside that a bilingual knows in both languages. It is assumed that lexical links from L2 to L1 are more robust than the other way around since that is the direction in which someone learns a second language. Subsequently, concepts in an L2 can solely be accessed through the L1. That is because an individual learns all concepts in L1 during childhood, creating a solid cognitive and emotional bond between the L1 and concept stores. If a second language is learnt, no concepts are stored yet for that language. Hence, to learn an L2, the L1 store is accessed, and L2 words are translated into familiar L1 concepts. As a consequence, there is a direct link between incoming stimuli and the L1 store, while only an indirect link connects concepts with the L2 store. Because the strengths of those links between the concepts and corresponding emotions vary, there can be emotional differences in a person's response depending on which language is used. Concepts in an L1 are accessed directly through a solid link and can hence lead to immediate, intense emotional arousal. In contrast, that connection in an L2 takes longer and does not entail the same solidness in terms of emotionality.

The materials used in the present study combine marketing with public safety communication. Thus, the higher emotionality for L1 advertising materials might reappear in our results. Moreover, the *Revised Hierarchical Model* could be essential in explaining possible emotionality differences.

FLE in public health communication

While marketing is one of the more apparent persuasive communication styles, there are other areas where communication is considered informative while still having an additional goal of persuading the recipient. Public health communication has increased in importance over the last years, and researchers quickly adapted to that trend and analysed different areas.

Exploring this issue with a connection to the FLE was done by researchers only recently. Alkhamash et al. (2022) investigated if language and grammatical structure affect people's reactions to health-related dilemmas. Researchers exposed participants to fourteen hypothetical situations that dealt with health dilemmas. The language combination in this experiment was Arabic versus English, and using modifiers and quantifiers as levels for the grammatical structure. Evidence for the foreign language effect on health dilemma decisions was found, as the respondents were more willing to take action to remove harm if the dilemma was presented in their native language. It can be concluded that Alkhamash et al. (2022) findings reconfirm the foreign language effect in another domain. Health and public safety dilemmas (e.g., texting while driving) seem similar as they both require action to remove harm. Consequently, it can be predicted that similar tendencies can be found in this study.

Emotional appeals in persuasion

Now that a solid review of different effects relating to the foreign language effect has been established, it will be interesting to review research about the different emotional appeals that can be used in persuasive communication. One of the most commonly used in marketing nowadays is the emotional approach. Whether it evokes favourable attitudes, arouses viewers emotionally or accomplishes behavioural intention has been heavily investigated by researchers in different areas. Miceli et al. (2006) defined essential concepts of emotional persuasion. In general, emotional persuasion is the "persuasive intention which appeals to the recipient's emotions" (Miceli et al., 2006, p. 854). A distinction was made between persuasion through arousing someone's emotions and persuasion through appealing to expected emotions. Aristotle already analysed persuasion during his time and defined that feelings (*pathos*) are one the parts that communication can try to reach (Miceli et al., 2006, p. 855). This framework further supports the idea that emotional appeal can be effective in attitude and behavioural perceptions for many communication messages.

A later study, however, showed that emotional appeals might not always be the most effective method of persuasion (Grigaliūnaitė & Pilelienė, 2016). The researchers discussed the *Pure Affect Model* first introduced by Keshari and Jain (2014), which focuses on the potential of advertisements to evoke affective responses and certain familiarity and feelings.

Their experiment used A4 posters advertising mineral water hung on university walls. They compared rational appeals, which included information about the advertised product, with emotional appeals, which used no information but visualisations and cues to evoke positive emotional responses. The rational appeals attracted more attention from participants and were rated more relevant and explicit.

Grigaliūnaitė and Pilelienė's (2016) experimental design is critical as the *texting-while-driving* campaign materials in this study are also posters. However, the results show that rational appeals might be more effective in this specific setting of a convenience product like mineral water. Nevertheless, advertisements about texting while driving might evoke very different tendencies, as deep emotions like sadness, anger, grief, or fear might be evoked due to previous experience with the setting. To further examine emotional appeals, literature on fear and sadness appeals will be reviewed next. Texting while driving causes many accidents, leading us to believe that negative emotions might be most effective in changing participants' attitudes and intentions to change their behaviour.

Fear appeals/acquisition

Fear appeals in persuasive communication are meant to present messages to the reader, arousing fear to motivate an attitude or behavioural change. Some researchers have focused their research on fear since the 1960s. Witte and Allen (2000) introduced the *Extended Parallel Process Model (EPPM)* with three main variables: fear, perceived threat, and perceived efficacy. Perceived threat consists of two dimensions: perceived susceptibility (how likely is this going to happen to me?) and perceived severity (how harmful is this threat?). Perceived efficacy is also composed of two dimensions, perceived self-efficacy (can I perform the proposed behaviour to eliminate the threat?) and perceived response efficacy (is this proposed behaviour going to eliminate the threat?). The fear-inducing appeals are most heavily used in health communication cases like HIV, smoking, alcohol usage, skin cancer, etc., as they appear most effective there. Witte and Allen (2000) found that the more intense the fear evoked by the appeal is, the more persuasive it is. Moreover, they indicated that fear appeals might not always arouse heavy emotions but are incredibly reliable regarding their efficacy on attitude and behavioural change. Because health and public safety communication are closely related concepts, it will be predicted that fear appeals also work well in *texting-while-driving* advertisements.

García-Palacios et al. (2018) investigated fear appeals in relation to the foreign language effect. Materials were verbal instructions on tasks to be completed in a short amount

of time. They hypothesised that since foreign languages reduce emotionality, using a foreign language can negatively affect fear acquisition. Results confirmed this hypothesis as the emotional reactivity for acquiring fear was weaker in a foreign language. Physiological measurements of emotional arousals, like pupil size and electrodermal activity, were included in this study, eliminating the possible issues evoked by self-reporting. The researchers concluded that using a foreign language instead of the native tongue might reduce fear conditioning. Our results might reconfirm their findings if the fear condition arouses less emotions in a foreign than in a native language.

Negative emotions/sadness appeal

Unlike the high-arousal emotion of fear, sadness is considered a low-arousal emotion. This means there is no significant immediate impact or shock but rather a subtle feeling that is brought across (Biener et al., 2000). These researchers conducted an experiment on anti-tobacco advertisements and found that the stronger the sadness appeal, the higher the perceived effectiveness by participants. Moreover, if active smokers indicated they were planning to quit within 30 days, the sadness appeals scored relatively high in intention to change behaviour. Another researcher reviewed the literature on negative emotional appeals in advertising and why they seem to work well (Zheng, 2020). She connected sad feelings to suffering from separation, loss and failure and stated that sadness appeals evoke empathy and emotional immersion in people.

Later on in her paper, Zheng (2020) introduced different models to explain these phenomena happening in sadness but also fear appeals. The *Elaboration Likelihood Model* (Petty & Briñol, 2014) presents that negative emotional appeals positively influence the advertisement's effectiveness if processed peripherally. Additionally, the *Cognitive Dissonance Theory* (Festinger, 1962) states that “negative emotions induce peoples’ cognitive dissonance” (Zheng, 2020, p. 11), which creates an internal imbalance and to counter this tension, people make a mental note to change their behaviour. For example, if someone views a documentary about texting while driving and starts feeling guilty, they might make a mental note to change their behaviour to counter their unease. This model suggests negative appeals can be more effective than others, especially concerning health or public safety communication.

Gap statement and purpose

As can be seen by the literature review, many papers related to the foreign language effect have been published. Especially in advertising, the effect has been much investigated. Moreover, public health communication has been another focus, while public safety communication matters like *texting while driving* are less explored. Drunk driving and texting while driving are fatal offences and can quickly end people's lives. However, texting while driving is something many people still do (Nier, 2017), and governments, like the German one, do not have many practical regulations in place right now. It can currently be considered more of a grey area. More established communication from the government and non-governmental organisations specialising in those matters might improve the situation and initiate a change in people's attitudes about *texting while driving*.

Additionally, it is unknown whether a sadness or fear appeal would show to persuade the viewers more. Hence, the added investigation of the type of appeal, meaning comparing fear and sadness appeals, could deliver new insights. There seems to be reduced emotionality in a second language. Since emotions and persuasion are linked, attitude formation and behavioural intention could be less affected in the foreign language condition. An extension from the effect of foreign language on emotion to its effect on persuasion would be interesting to analyse.

The reason for testing native German speakers who learnt English as a second language in a classroom context is that Germans generally display less English proficiency than some other European nations (e.g., the Netherlands and Scandinavian countries) (*EF English Proficiency Index*, 2022). Consequently, it will be interesting to investigate this language combination. It is a possibility that the foreign language effect might be present in German natives because of their limited L2 proficiency and, consequently, a lower emotional resonance of the L2. Moreover, Germany has yet to be investigated concerning the foreign language effect.

This study has potential societal relevance as it increases awareness about *texting while driving* in Germany. The government has placed various posters, mostly comic-style drawings, on highways and roads to evoke awareness about *drunk driving* and *texting while driving*. In order to reach not only native-speaking Germans but also immigrants of the first or second generation, ongoing political debates have questioned whether these posters would reach a larger audience if presented in English. Since the country is in Europe's centre, many cars of non-German speakers pass through its highways, and these advertisements would reach them better if presented in English. This study aims to find an effective way to change the attitude and behaviour concerning *texting while driving* in Germany. Being an expansive automobile

nation with around 45 million citizens with valid driver's licenses (Führerscheine 2022 | Statista, 2022), a large population could be affected by the outcomes of this research study.

As for the scientific relevance, this paper tests the foreign language effect in a new domain and with a new language combination. Moreover, it not only investigates whether a foreign language evokes less emotion but also whether it affects the persuasive impact of the message. Additionally, the study provides an extension on persuasive communication focusing on public safety communication. As there has been much research on public health communication (e.g., Ahmad & Hilman, 2021; Alkhamash et al., 2022) but little on public safety communication in connection to the foreign language effect, the results of this study could provide valuable new insights. Moreover, much research has been done comparing other language combinations or focusing the investigation on immersion bilinguals (e.g., Caldwell-Harris & Aycicegi-Dinn, 2016; Puntoni, 2009). Comparing German natives with a later acquired knowledge of English through classroom contexts would be a newly investigated language architecture.

Research Questions

RQ1: Is a persuasive message about public safety communication perceived as more emotional in a native than in a foreign language?

RQ2: Is a persuasive message about public safety communication more effective in influencing attitude and behavioural intention in a native language than in a foreign language?

RQ3: Is a persuasive message about public safety communication perceived as more/less emotional depending on the type of appeal?

RQ4: Is a persuasive message about public safety communication more effective in arousing emotions and influencing attitude and behavioural intention in a native language than in a foreign language?

Hypotheses

The foreign language effect and its investigations across different domains (e.g., Puntoni, 2009; Caldwell-Harris, 2015; Caldwell-Harris & Aycicegi-Dinn, 2016; Alkhamash et al., 2022) lead us to believe that:

H1: Persuasive communication evokes stronger emotionality in a native language.

H2: Persuasive communication in a native language is more effective (attitude & behavioural intention) than in a foreign language.

Moreover, the research comparing rational appeals with emotional appeals and further focusing on emotional appeals to distinguish different approaches has presented insightful findings (e.g., Biener et al., 2000; Witte & Allen, 2000; Miceli et al., 2006; Grigaliūnaitė & Pilelienė, 2016; García-Palacios et al., 2018; Zheng, 2020), which guides us to formulate three further hypotheses:

H3: Persuasive communication with a fear appeal elicits stronger emotionality than sadness.

H4: The advantage of the native language in emotionality is greater for the fear appeal condition concerning emotionality.

Method

Materials

The research focused on large-scale posters that could be positioned on German highways for drivers to pass on their journey. Since there were two independent variables with two levels each, four posters in total were used in this study. The factor *language* had *German* and *English*, and the *appeal* had *fear* and *sadness* as levels.

The fear appeal featured a message generated based on Kareklas and Muehling (2014), who found that fear can significantly influence attitudes and behavioural intention. The essence of their materials is used and modified in terms of message, font, and visuals to suit our study more. Our posters were bold white *Verdana* text with a black background. Fear was operationalised through short, intense sentences to induce emotions like shock, fear, or panic. Moreover, a question to address the viewer was included in the operationalisation to activate the personal connection to those emotions. Hence, our fear advertisement read, “Is that text worth it? It only takes one second to crash. Texting kills. Keep your eyes on the road!”.

The sad message has similar elements to ensure that the appeals can be compared but was modified to attempt to evoke feelings like sadness, operationalised through loss and grief. The message read, “Is that text worth it? I wish my dad hadn’t sent that text, I miss him so much.”

The posters in the different languages were translations of each other to meet equivalence and validity requirements. This was ensured through independent individuals

translating the English message into German, then comparing differences, and using back translations from German to English by independent translators (see Appendix A.1 and A.2).

Subjects

A group of around 174 participants took part in the study and were recruited through social media (snowball nonprobability sampling). 224 participants initially started the study, but 50 were removed due to criteria requirements. To take part in the study, participants had to be native German speakers who are also proficient in English. Moreover, to reliably measure behavioural intention, participants needed to possess a valid driver's license (minimum age of 17 years) and own a smartphone. The participants ranged from 17 to 75 years old ($M = 28.44$, $SD = 14.12$). Age was distributed equally across conditions ($F(3, 170) = .39$, $p = .763$). Moreover, all genders were included (female: 117; male = 56; non-binary: 1) and distributed equally across conditions ($\chi^2(6) = 5.17$, $p = .522$). Education-wise, most participants chose their high school diploma (Abitur) as the highest graduation (58%), followed by an apprenticeship (14.4%), a Bachelor's degree (10.9%), a secondary school certificate (10.3%), and a Master's degree (6.3%). The level of education was also distributed equally across conditions ($\chi^2(12) = 10.85$, $p = .542$).

The age at which participants started acquiring English was inquired about to ensure that English was initially acquired in a classroom context rather than through immersion. For most participants, this was the age of eight ($M = 8.83$, $SD = 2.81$), which is when English lessons start in German primary schools. This variable was distributed equally across conditions ($F(3, 170) = 18.92$, $p = .065$). Furthermore, participants rated their English proficiency relatively high on a 7-point scale ($M = 5.05$, $SD = 1.36$). English proficiency (four items) was also deemed reliable, $\alpha = .94$ and was distributed equally across conditions ($F(3, 170) = .12$, $p = .946$). Previous driving habits were assessed through three items. Two-thirds of participants indicated having texted while driving. Moreover, over 80% had previously been on phone calls and had read text messages while driving (see complete questionnaire in Appendix A.1 and A.2).

Research Design

A 2x2 between-subjects design was used. The two independent variables had two levels each – *language* had *German (L1)* and *English (L2)*, while the variable *type of appeal* had levels of *fear* and *sadness* (see Table 1). Three dependent variables were introduced to measure

the effects of the advertisements: *emotionality*, *attitude towards the issue* and *behavioural intention*, all interval measurements (see Figure 1).

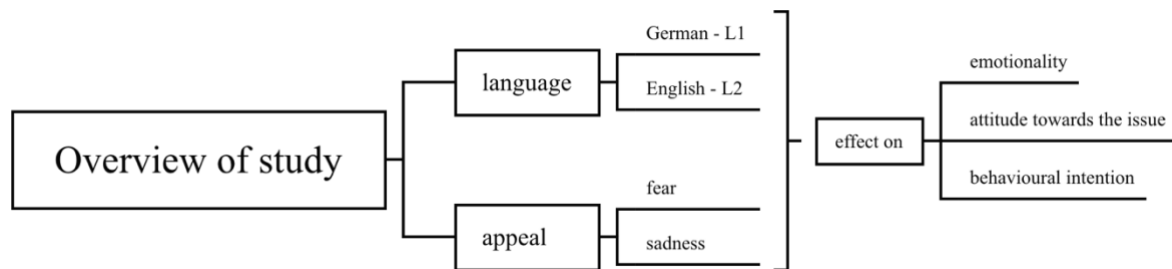


Figure 1. Research Design visualised through the architecture of conditions.

Instruments – Emotionality

To inquire about the first part of emotionality, one semantic differential scale assessed participants' general emotionality (“How did you feel while viewing the poster: emotional – unemotional”) (Puntoni et al., 2009) and two affective sliders were used for emotional arousal and pleasure/valence (Betella & Verschure, 2016). The reliability of *general emotionality*, consisting of three items, was insufficiently reliable: $\alpha = .32$. Consequently, the three items were analysed separately.

Moreover, the *specific emotionality* was measured through eight Likert scales (“While viewing this poster, to what extent did you experience these emotions? fear, panic, scared, terror, sadness, grief, loneliness, emptiness”) (Harmon-Jones et al., 2016). The reliability of *specific emotionality (fear)* and (*sadness*), consisting of four items each, was good: $\alpha = .93$; $\alpha = .82$.

Instruments – Attitude and Behavioural Intention

Attitude towards texting while driving was measured through six Semantic Differential scales (“Texting while driving is: e.g., Dangerous – Safe; Acceptable – Unacceptable”) (Benson et al., 2015). The reliability of *attitude towards TWD*, consisting of six items, was good: $\alpha = .89$. *Behavioural intention* was assessed through three items (e.g., “I intend to text while driving: “Strongly disagree – Strongly agree”) (Benson et al., 2015). The reliability of *behavioural intention*, consisting of three items, was good: $\alpha = .91$.

Procedure

The participants viewed the materials individually. The questionnaire was administered through *Qualtrics* and was introduced as an evaluation of traffic safety campaigns. Participants first answered a few questions about themselves that determined whether they met the criteria to participate in this study. These demographic and behavioural questions assessed their native language, knowledge of English, smartphone possession, and valid driver's license. If any of these questions was negated, the participant was removed from the study. Moreover, prior to exposure to the materials, driving habits were inquired about to evoke the most genuine response. The instructions given to participants were to rate posters for a new road safety campaign. Participants viewed one of the posters (random assignment) and completed the questionnaire to inquire about the three dependent variables. Debriefing happened after the experiment was conducted to ensure that participants did not know what effects were being researched. Participants were thanked for participating, and there was no reward or compensation. Most participants took around four to five minutes to complete the study.

Statistical Treatment

Multiple two-way ANOVAs with language and appeal as factors were administered to analyse the output statistically. Three ANOVAs for inquiring on *emotionality*, one for *attitude towards the issue*, and one for *behavioural intention*. Furthermore, to control for age, the start of English acquisition, and English proficiency, an independent samples t-test, and for gender and education, a Chi-Square was used.

Results

This study aimed to examine the effect a foreign language and type of appeal might have on emotionality, attitude towards the issue of *texting while driving*, and behavioural change. Four posters on TWD were generated in either German or English with a fear-inducing or sadness-evoking appeal to investigate this.

General Emotionality

As the reliability test for the general emotionality measures was insufficient, these scales were assessed individually. The descriptives for all three items can be found in Table 1. For the first question on emotionality (unemotional–emotional), a two-way ANOVA with *language* and *type of appeal* as factors was conducted. The ANOVA showed no significant main effect of language on general emotionality ($F(1, 170) < 1$) or of type of appeal on general

emotionality ($F(1, 170) = 3.43, p < .066$). The interaction effect between language and type of appeal was also statistically insignificant ($F(1, 170) = 3.46, p = .064$).

Moreover, to assess the first affective slider (emotional arousal), a two-way ANOVA with *language* and *type of appeal* as factors was completed, which showed no significant main effect of language on emotional arousal ($F(1, 170) = 1.05, p = .306$). However, the type of appeal was found to have a significant main effect on emotional arousal ($F(1, 170) = 5.41, p = .021$). As can be seen in *Table 2*, the fear appeal emotionally aroused participants more ($M = 51.87, SD = 28.29$) than the sadness appeal ($M = 41.69, SD = 25.88$). The interaction effect between language and type of appeal was statistically insignificant ($F(1, 170) = 2.73, p = .1$).

For the affective slider on pleasure/valence, a two-way ANOVA with *language* and *type of appeal* as factors was conducted, which showed no significant main effect of language on pleasure/valence ($F(1, 170) < 1$). Moreover, type of appeal was found to have no significant main effect on pleasure ($F(1, 170) = 1.37, p = .243$), and the interaction effect between language and type of appeal was also statistically insignificant ($F(1, 170) = 2.57, p = .111$).

Table 1. *Assessment of the effect of language and type of appeal on general emotionality (General Emotion: 1 = unemotional, 7 = emotional), [(Affective Sliders (AS): 0 = low arousal/negative valence, 100 = high arousal/positive valence), N = 174]*

Item	language	appeal	<i>M</i>	<i>SD</i>	<i>n</i>
General Emotion	German	fear	4.18	1.77	38
		sadness	4.18	1.76	44
		total	4.18	1.78	82
	English	fear	3.44	1.56	48
		sadness	4.41	1.77	44
		total	3.90	1.72	92
	total	fear	3.77	1.69	86
		sadness	4.30	1.78	88
		total	4.03	1.75	174
AS1 – Emotional Arousal	German	fear	45.74	30.44	38
		sadness	42.98	25.88	44
		total	44.26	27.94	82
	English	fear	56.73	25.75	48

		sadness	40.41	26.12	44
		total	48.92	27.06	92
	Total	fear	51.87	28.29	86
		sadness	41.69	25.88	88
		total	46.72	27.5	174
AS2 –	German	fear	28.16	18.74	38
Pleasure/		sadness	29.43	19.27	44
Valence		total	28.84	18.92	82
	English	fear	35.40	19.42	48
		sadness	27.20	20.12	44
		total	31.48	20.07	92
	total	fear	32.20	19.35	86
		sadness	28.32	19.62	88
		total	30.24	19.53	174

Fear and sadness emotionality

Table 2 presents all descriptives on specific emotionality. Fear emotions were analysed through a two-way ANOVA with *language* and *type of appeal* as factors. The ANOVA showed no significant main effect of language ($F(1, 170) < 1$) or of type of appeal on fear emotions ($F(1, 170) < 1$). However, the interaction effect between language and type of appeal on fear emotions was statistically significant ($F(1, 170) = 4.85, p = .029$). To further inquire, the data set was split, and individual samples t-tests were conducted for both factors separately. No significant results of this interaction effect were found in those post hoc tests.

Sadness analysis was also conducted through a two-way ANOVA with *language* and *type of appeal* as factors. The results showed no significant main effect of language on sadness emotions ($F(1, 170) < 1$). However, the type of appeal was found to have a significant main effect on sad emotions ($F(1, 170) = 12.16, p < .001$). The sadness appeal aroused relatively more sadness ($M = 3.19, SD = 1.36$) than the fear appeal ($M = 2.47, SD = 1.29$). The interaction effect between language and type of appeal was statistically insignificant ($F(1, 170) = 1.44, p = .232$).

Table 2. *Emotionality measurements of language and type of appeal on fear (fear, scared, panic, terror) and sadness (sadness, grief, loneliness, emptiness) [(1 = not at all, 7 = at an extreme amount), N = 174]*

Item	language	appeal	<i>M</i>	<i>SD</i>	<i>n</i>	
Fear Emotions	German	fear	3.16	1.69	38	
		sadness	2.58	1.44	44	
		total	2.85	1.58	82	
		English	fear	2.69	1.36	48
			sadness	3.11	1.56	44
			total	2.89	1.47	92
	Total	fear	2.90	1.52	86	
		sadness	2.85	1.52	88	
		total	2.87	1.52	174	
	Sadness Emotions	German	fear	2.70	1.32	38
			sadness	3.16	1.46	44
			total	2.95	1.41	82
English			fear	2.28	1.24	48
			sadness	3.23	1.28	44
			total	2.73	1.34	92
Total		fear	2.47	1.29	86	
		sadness	3.19	1.36	88	
		total	2.83	1.37	174	

Attitude and behavioural intention

Table 3 summarises the descriptives for attitude and behavioural intention. Attitude towards texting while driving was done through a two-way ANOVA with *language* and *type of appeal* as factors. The ANOVA showed no significant main effect of language ($F(1, 170) < 1$) or type of on attitude towards TWD ($F(1, 170) < 1$). The interaction effect between language and type of appeal was statistically insignificant ($F(1, 170) < 1$).

To analyse behavioural intention, another two-way ANOVA with *language* and *type of appeal* as factors showed no significant main effect of language ($F(1, 170) = 2.5, p = .116$) or

type of appeal on behavioural intention ($F(1, 170) < 1$). The interaction effect between language and type of appeal was not statistically significant ($F(1, 170) < 1$).

Table 3. *Assessment of language and type of appeal on attitude towards texting while driving and behavioural intention [(attitude: 1 = negative, 7 = positive), (intention: 1 = strongly disagree, 7 = strongly agree), $N = 174$]*

Variable	language	type of appeal	<i>M</i>	<i>SD</i>	<i>n</i>
Attitude	German	fear	2.17	1.44	38
		sadness	2.35	1.46	44
		total	2.27	1.44	82
	English	fear	2.18	1.31	48
		sadness	2.17	1.98	44
		total	2.18	1.25	92
	Total	fear	2.18	1.36	86
		sadness	2.26	1.33	88
		total	2.22	1.34	174
Behavioural intention	German	fear	2.64	1.63	38
		sadness	2.71	1.78	44
		total	2.68	1.7	82
	English	fear	2.17	1.36	48
		sadness	2.42	1.51	44
		total	2.29	1.43	92
	Total	fear	2.38	1.49	86
		sadness	2.57	1.65	88
		total	2.48	1.57	174

Exploratory research

As most of the investigated effects were insignificant, it was decided to redo the analysis only with a specific subset of participants (see Appendix C.1). Since the study focuses on the behaviour of texting while driving, the statistical analyses were repeated with only 63.79% of participants who indicated that they have previously performed all three TWD behaviours (from three items). However, all statistical tests were insignificant, except for the

factor appeal having a significant effect on sad emotions (see Table 8 and 9 in Appendix C.1). But since this was also found for the initial data set, it can be concluded that no significant effects were found to add to the above results.

Conclusion

This study aimed to investigate the foreign language effect in relation to public safety communication. Moreover, another component of the study was the distinction between different emotional appeals in persuasion. Consequently, a 2x2 experiment examined the foreign language effect with German and English combined with either a sadness or a fear appeal inquiring about the emotionality, attitude towards the issue of texting while driving, and behavioural intention to adopt the proposed behaviour.

Contrary to expectations, most of this experiment's tests were statistically insignificant. The first research question inquired about the effect of language on general emotionality. Since no significant effects on emotionality were found here, hypothesis one was not supported.

Investigations about the second research question about the effect of language on attitude and behavioural intention also did not present any significant effects, leading to hypothesis two not being supported. Consequently, it can be determined that no foreign language effect was found in this study.

As for the effect of appeal on emotionality (*RQ3*), an effect of appeal on emotionality was found as the fear appeal aroused participants more than the sadness appeal, which confirms hypothesis three. As for the emotionality and valence/pleasure items, no effects were found. While investigating the specific emotionality of fear, a significant interaction effect was found between language and type of appeal. Follow-up tests did not, however, present interpretable findings concerning this interaction effect on emotionality, meaning that hypothesis four was not supported by statistical evidence. The same analysis focusing on sadness emotions showed that the sadness appeal evoked more sad emotions than the fear appeal. This effect confirms that the sadness appeal was operationalised well, while the fear appeal did not significantly evoke more fear than the sadness appeal. Lastly, analysis of the last research question about a possible interaction effect between language and appeal (*RQ4*) yielded no significant effects.

Discussion

Possible explanations for findings

Unlike what most researchers found for the foreign language effect, our study did not yield any significant results on the effect of language on emotionality, attitude TWD, or

behavioural intention. Caldwell-Harris (2015) argued that processing in a native language would happen intuitively, whereas foreign languages are processed more deliberately. Due to the experimental setting, our participants may have processed every message, independent of the language, more intentionally and reflectively, accordingly to *system 2* (Caldwell-Harris, 2015). Thus, participants might have taken the central route for both languages (Cacioppo, 1984). This would explain why there were no significant differences in emotionality. As most participants rated their English proficiency relatively high, it could also be that they might associate emotions with the English language, even if learnt in a classroom context (Caldwell-Harris & Aycicegi-Dinn, 2016). Most of these experiments looked at isolated English terms instead of the material design presented in this study. That might have also affected why emotionality differences were so low. Puntoni et al. (2009) investigated slogans more similar to our messages. However, their study was on immersed bilinguals and multilinguals with a different relation to languages than our participants, who learnt English in classroom contexts. Other researchers focused on health dilemmas and found similar effects to other researchers, which our findings do not align with (Alkhamash et al., 2022). It was predicted that public health and public safety communication present similar tendencies, which was not the case. One possible explanation could be that participants already had strong opinions about TWD (Nier, 2017), which would explain why their attitude or behaviour intention would not have been as affected by language.

As for the effect of appeal on general emotionality, it was found that the fear poster emotionally aroused participants more intensely than the sad poster. Since fear is a high-arousal emotion, it creates more general emotionality than low-arousal emotions could. These effects could also be explained through the *EPPM* (Witte & Allen, 2000). As participants might have evaluated the fear appeal in the same way the model proposes by evaluating perceived threat and susceptibility, it could have made participants more emotional. Moreover, Biener et al. (2000) defined sadness as a subtle feeling with no immediate shock, which would explain why the sadness appeal was less emotionally arousing.

Furthermore, the sadness poster was identified as more sad than fearful. In contrast, the fear poster did not evoke more fear than sadness in participants. One possible explanation is that since fear is a high-arousal emotion and sadness a low-arousal emotion, it could be that a bold text-only poster might only give strong enough cues to evoke low-arousal emotions. Meanwhile, fear might need an even more intense layout, font or keywords and is more challenging to identify than sadness (Zheng, 2020).

As fear and sadness did not present significant differences in attitude and behaviour, and as this combination has not been studied before concerning these dependent variables, it can be assumed that both appeal types can be similarly persuasive, even if fear was more emotionally arousing and sadness evoked stronger sad emotions. Miceli et al. (2006) assumed that emotional appeals could be the most effective for persuasive purposes. Since both fear and sadness are negative emotional appeals, they could be equally effective. Moreover, Zheng (2020) illustrated that negative emotions connect to feelings of loss, separation, or anxiety and are effective in attitude formation and behavioural change.

Limitations and Recommendations

This study presented some limitations to be considered in future research about FLE. Firstly, some participants considered the posters too long to be placed on highways. Future researchers should shorten the message to improve the connection to real-world scenarios. Furthermore, in retrospect, the questions about general emotionality could have been formulated better, and the emojis as scale ends could have added a word describing the depicted emotions. Moreover, since Cronbach's alpha was too low for the general emotionality items, it could have been an indication that more or different questions might have improved the reliability of the items, which may have impacted the results. Since the foreign language effect was found by multiple researchers (e.g., Puntoni, 2009; Caldwell-Harris & Aycicegi-Dinn, 2016), and our study has been one of the first where this effect was not present, it could have been that there was indeed a difference in emotionality, but the questions touched the wrong spots in our participant sample.

Another significant limitation was that the whole *texting-while-driving* situation was not defined and explained enough for participants to know which different habits fit under the TWD umbrella. A possible solution for future research would be first to describe the proposed behaviour in the introduction and then add more questions to the section on previous TWD habits (e.g., "I have never checked social media while driving", "I have never taken a picture while driving"). This would have clarified the investigated behaviour to participants and may have affected attitude and behavioural intention. Also, since "texting while driving" and the German version "Handy am Steuer" are not literal translations of each other but rather the concepts that are used in either language to describe the general behaviour of using a phone while driving, the different conditions may have also understood the concepts differently. Future researchers could further define the behaviour and find almost identical terms.

Additionally, narrowing down the age range of participants might have affected results as it can be assumed that people in one generation (e.g., *millennials* or *Gen Z*) are more similar. As our participants started at age 17 and ranged up to 75, the validity might have been compromised, and finding consistent tendencies may have been more difficult.

Another limitation was that the materials, especially the sad appeal, might only reach some participants on an emotional level. During research design meetings, we Bachelor students discussed different ways to operationalise the posters. Versions with the ‘best friend’ and the ‘mother’ or using multiple people were discussed, but all were excluded because some participants might not identify with a particular relationship. Since “best friend” in German always has a gender, some people might not have a female or male best friend. For mothers, it was deemed difficult since there is a certain stereotype of women being bad drivers. Consequently, the father was chosen, which might still not apply to every participant, but most people can probably identify with the emotional connection. Further researchers could conduct some pre-tests inquiring about emotional connections to different versions of a poster and, depending on their answer, be directed to the version with which they can identify. Moreover, it was not inquired about participants’ prior attitudes toward TWD, so it is unclear whether the posters changed these attitudes. Consequently, this would be another item range to add to future studies. For this study, it was chosen not to add these considerations due to the scope of the Bachelor thesis and consent about these additional pre-tests adding more work than benefit. However, there were undoubtedly some trade-offs by not including these (e.g., no effects found on attitude formation), which future researchers might want to investigate further.

This experiment's proposed situation was placing posters on highways. Consequently, if seen in real-time, participants would have been in a car situation and only had a chance to view the poster for less than five seconds. This setting was not replicated for the experiment as participants could do the study anywhere and had endless time to view the poster. Consequently, the intuitive processing which would have happened in a car situation was not reproduced in the study. This could have decreased the foreign language effect as both language conditions were processed centrally through *system 1*, which could have affected emotionality, attitude, and behavioural intention (Caldwell-Harris, 2015). By letting participants only view the poster for a few seconds (max. ten seconds) or by even creating a short video that visualises the participants driving past that poster, this issue could be addressed in the future.

Further possibilities for future research could be to investigate possible explanations of the findings of this study. For instance, it could be addressed why attitude and behavioural intention did not yield significant results by conducting more pre-tests or offering open

questions. Moreover, new language pairs could be examined as Germans' English proficiency may have been too high. In contrast, French and English might present different results as the English proficiency of French people is lower (*EF English Proficiency Index, 2022*). Another interesting new approach would be examining differences between written and spoken stimuli, as auditory modality might intensify the foreign language effect because there might be more emotion on the side of the message.

Implications and generalisations

Since none of the hypotheses concerning language were confirmed, this study does not present new insights into the foreign language effect. However, the FLE was found in other studies (e.g., Puntoni, 2009; Caldwell-Harris & Aycicegi-Dinn, 2016; Alkhamash et al., 2022) showing that there can be differences in participant's reactions depending on which language is used to communicate to them. This study could thus imply that public safety advertisers can use German (L1) or English to create TWD posters, which has high societal benefit as both native German drivers and international drivers could understand the posters.

As for the investigations of type of appeal, some differences were found, which lead us to generalise that fear appeals generally arouse participants more emotionally than sadness appeals, which might be explained through the concepts of high-arousal emotions (e.g., fear, anger, etc.) and low-arousal emotions (e.g., sadness, calmness, etc.). If it is assumed that the materials were operationalised well to represent fear and sadness, another generalisation could be that sadness emotions are easier to evoke through a text-only poster. In contrast, fear emotions seem harder to arouse through this type of poster. As for attitude and behavioural intention, it could be implicated that the appeal is irrelevant to the effect of TWD posters. Thus, if public safety advertisers create these posters, they could use both approaches to affect attitude and behavioural intention equally. For a theoretical impaction, it could be assumed that fear evoked more general emotions but did not affect attitude or behavioural intention. Consequently, the link between emotion and persuasion was weaker in this study.

This study's results prove to be highly important to road safety campaigns. Moreover, while linking back to the societal relevance of this study, TWD posters can create specific emotionality in participants and, if operationalised well by advertisers, might even affect texting while driving perceptions and behaviours on German roads.

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Appendix

Appendix A.1 – Questionnaire in English

Selective control variables

Are you a native German?	Yes	No
Do you speak English?	Yes	No
Do you own a valid driver’s license?	Yes	No
Do you own a smartphone?	Yes	No

Prior TWD experiences

I have never texted while driving	Yes	No
I have never called while driving	Yes	No
I have never read a text while driving	Yes	No

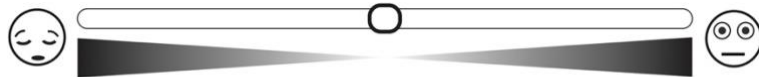
Emotionality

Emotional Intensity

How did you feel while viewing this poster?

unemotional 1 2 3 4 5 6 7 emotional

Affective Sliders



While viewing this poster, to what extent did you experience these emotions?

	1	2	3	4	5	6	7
	not at				quite a	very	at an extreme
	all	slightly	somewhat	moderate	bit	much	amount
fear							
panic							
scared							
terror							

 sadness

 grief

 loneliness

 emptiness

Attitude towards TWD

Texting while driving is...

Dangerous	1	2	3	4	5	6	7	Safe
Useful	1	2	3	4	5	6	7	Worthless
Good	1	2	3	4	5	6	7	Bad
Unpleasant	1	2	3	4	5	6	7	Pleasant
Stress-free	1	2	3	4	5	6	7	Stressful
Acceptable	1	2	3	4	5	6	7	Unacceptable

Behavioural Intention

I expect to text while driving.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
-------------------	---	---	---	---	---	---	---	----------------

It is likely that I will text while driving.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
-------------------	---	---	---	---	---	---	---	----------------

I intend to text while driving.

Strongly disagree	1	2	3	4	5	6	7	Strongly agree
-------------------	---	---	---	---	---	---	---	----------------

Demographics

How old are you? Own answer

What gender do you identify most with? Female Male Non-binary Other

What is your highest acquired level of education?

Secondary School Certificate	High School Diploma	Bachelor
Master's	PhD/Doctor	Apprenticeship
		no degree

When did you start learning English? Own answer

Please indicate how fluent your English is in the following areas:

(1) speaking	very bad	1	2	3	4	5	6	7	very good
(2) writing	very bad	1	2	3	4	5	6	7	very good
(3) reading	very bad	1	2	3	4	5	6	7	very good
(4) listening	very bad	1	2	3	4	5	6	7	very good

Appendix A.2 – Questionnaire in German

Kontrollvariablen zum Aussortieren

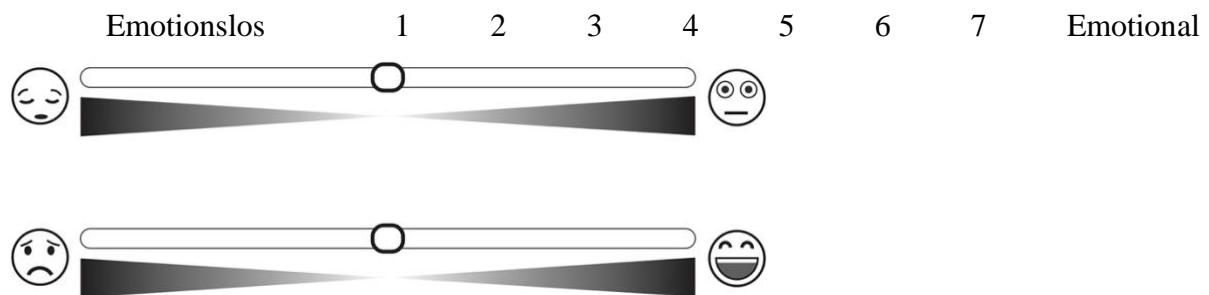
Ist Deutsch Ihre Muttersprache?	Ja	Nein
Haben Sie Englischkenntnisse?	Ja	Nein
Besitzen Sie einen gültigen Führerschein?	Ja	Nein
Besitzen Sie ein Smartphone?	Ja	Nein

Erfahrungen mit Handy am Steuer

Ich habe noch nie eine Nachricht beim Autofahren verschickt.	Ja	Nein
Ich habe noch beim Autofahren telefoniert.	Ja	Nein
Ich habe noch nie eine Nachricht beim Autofahren gelesen.	Ja	Nein

Emotionalität

Wie haben Sie sich beim Ansehen des Werbeplakats gefühlt?



In welchem Maß haben Sie beim Betrachten des Werbeplakats diese Gefühle verspürt?

1 2 3 4 5 6 7

	überhaupt nicht	ein wenig	etwas	mittelmäßig	relativ viel	sehr viel	extrem viel
Angst							
Panik							
Furcht							
Schrecken							
Traurigkeit							
Trauer							
Einsamkeit							
Leere							

Stellung gegenüber Handy am Steuer

Handy am Steuer ist...

Gefährlich	1	2	3	4	5	6	7	Sicher
Nützlich	1	2	3	4	5	6	7	Nutzlos
Gut	1	2	3	4	5	6	7	Schlecht
Bedauerlich	1	2	3	4	5	6	7	Erfreulich
Stressfrei	1	2	3	4	5	6	7	Stressig
Akzeptabel	1	2	3	4	5	6	7	
Unakzeptabel								

Verhaltensabsicht

Ich erwarte in Zukunft mit Handy am Steuer zu fahren.

Trifft gar nicht zu 1 2 3 4 5 6 7 Trifft voll zu

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

Trifft gar nicht zu 1 2 3 4 5 6 7 Trifft voll zu

Ich beabsichtige in Zukunft mit Handy am Steuer zu fahren.

Trifft gar nicht zu 1 2 3 4 5 6 7 Trifft voll zu

Demografische Details

Wie alt sind Sie? eigene Angabe

Mit welchem Geschlecht identifizieren Sie sich am meisten?

Weiblich Männlich Nicht-Binär Andere

Was ist Ihr höchster Schulabschluss?

Mittlere Reife (Fach)-Abitur Bachelor Master
 PhD/Doktor Lehre/Ausbildung Kein Abschluss

In welchem Alter haben Sie angefangen Englisch zu lernen? eigene Angabe

Bitte geben Sie Ihre Englischkenntnisse in den folgenden Bereichen an.

(1) Sprechen

Sehr schlecht 1 2 3 4 5 6 7 Sehr gut

(2) Schreiben

Sehr schlecht 1 2 3 4 5 6 7 Sehr gut

(3) Lesen

Sehr schlecht 1 2 3 4 5 6 7 Sehr gut

(4) Hören

Sehr schlecht 1 2 3 4 5 6 7 Sehr gut

Appendix B.1 – TWD Posters

English + Fear	English + Sadness
<p>Is that text worth it? It only takes one second to crash.</p> <p>Texting kills. Keep your eyes on the road!</p>	<p>Is that text worth it? I wish my dad hadn't sent that text, I miss him so much.</p> <p>Please don't text and drive!</p>
German + Fear	German + Sadness
<p>Ist diese Nachricht es wert? Es braucht nur eine Sekunde zum Crash.</p> <p>Handy am Steuer tötet. Augen auf die Straße!</p>	<p>Ist diese Nachricht es wert? Ich wünschte, mein Vater hätte diese Nachricht nicht geschrieben, ich vermisse ihn so sehr.</p> <p>Bitte leg das Handy weg!</p>

*Appendix C.1 – Exploratory Research Output of Statistical Tests***Table 4.** *Two-way ANOVA output on general emotion (emotional – unemotional)*

Source	Type III Sum				
	of Squares	df	Mean Square	<i>F</i>	Sig.
Corrected Model	14.199 ^a	3	4.733	1.462	.229
Intercept	1819.176	1	1819.176	561.993	< .001
language	.497	1	.497	.153	.696
appeal	9.067	1	9.067	2.801	.097
language * appeal	4.184	1	4.184	1.293	.258

Error	346.300	107	3.237
Total	2193.00	111	
Corrected Total	360.559	110	

a. R Squared = .039 (Adjusted R Squared = .012)

Table 5. *Two-way ANOVA output on affective slider 1 (emotional arousal).*

Source	Type III Sum of Squares	df	Mean Square	<i>F</i>	Sig.
Corrected Model	5651.375 ^a	3	1883.792	2.332	.078
Intercept	228355.333	1	228355.333	282.653	< .001
language	1879.131	1	1879.131	2.326	.130
appeal	1517.451	1	1517.451	1.878	.173
language * appeal	2082.059	1	2082.059	2.577	.111
Error	86445.436	107	807.901		
Total	324770.00	111			
Corrected Total	92096.811	110			

a. R Squared = .061 (Adjusted R Squared = .035)

Table 6. *Two-way ANOVA output on affective slider 2 (valence/pleasure).*

Source	Type III Sum of Squares	df	Mean Square	<i>F</i>	Sig.
Corrected Model	896.717 ^a	3	298.906	.739	.531
Intercept	100739.834	1	100739.834	249.015	< .001
language	158.481	1	158.481	.392	.533
appeal	256.392	1	256.392	.634	.428
language * appeal	460.569	1	460.569	1.138	.288
Error	43287.139	107	404.553		
Total	146559.00	111			
Corrected Total	44183.856	110			

a. R Squared = .020 (Adjusted R Squared = -.007)

Table 7. *Two-way ANOVA output on fear emotionality (fear, panic, scared, terror).*

Source	Type III Sum				
	of Squares	df	Mean Square	<i>F</i>	Sig.
Corrected Model	5.442 ^a	3	1.814	.816	.488
Intercept	906.729	1	906.729	407.661	< .001
language	.003	1	.003	.001	.970
appeal	.024	1	.024	0.11	.918
language * appeal	5.404	1	5.404	2.429	.122
Error	237.992	107	2.224		
Total	1147.313	111			
Corrected Total	243.434	110			

a. R Squared = .022 (Adjusted R Squared = -.005)

Table 8. *Two-way ANOVA output on sadness emotionality (sadness, grief, loneliness, emptiness)*

Source	Type III Sum				
	of Squares	df	Mean Square	<i>F</i>	Sig.
Corrected Model	20.116 ^a	3	6.705	3.416	.020
Intercept	871.284	1	871.284	443.876	< .001
language	.726	1	.726	.370	.545
appeal	16.554	1	16.554	8.434	.004
language * appeal	2.103	1	2.103	1.071	.303
Error	210.030	107	1.963		
Total	1112.750	111			
Corrected Total	230.146	110			

a. R Squared = .087 (Adjusted R Squared = .062)

Table 9. *Descriptives of analysis on sadness emotionality (sadness, grief, loneliness, emptiness)*

language	appeal	<i>M</i>	<i>SD</i>	<i>n</i>
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German	fear	2.65	1.50	24
	sadness	3.15	1.55	31
	total	2.93	1.53	55
English	fear	2.21	1.23	29
	sadness	3.26	1.30	27
	total	2.71	1.36	56
total	fear	2.41	1.37	53
	sadness	3.20	1.42	58
	total	2.82	1.45	111

Table 10. *Two-way ANOVA output on attitude towards texting while driving.*

Source	Type III Sum of Squares	df	Mean Square	<i>F</i>	Sig.
Corrected Model	.508 ^a	3	.169	.100	.960
Intercept	620.795	1	620.795	365.862	< .001
language	.000	1	.000	.000	.992
appeal	.478	1	.478	.282	.597
language * appeal	.031	1	.031	.018	.893
Error	181.557	107	1.697		
Total	810.750	111			
Corrected Total	182.065	110			

a. R Squared = .003 (Adjusted R Squared = -.025)

Table 11. *Two-way ANOVA output on behavioural intention.*

Source	Type III Sum of Squares	df	Mean Square	<i>F</i>	Sig.
Corrected Model	4.212 ^a	3	1.404	.550	.649
Intercept	1054.007	1	1054.007	412.769	< .001
language	1.535	1	1.535	.601	.440
appeal	.221	1	.221	.087	.769
language * appeal	2.501	1	2.501	.980	.325

Error	273.225	107	2.554
Total	1333.222	111	
Corrected Total	277.437	110	

a. R Squared = .015 (Adjusted R Squared = -.012)

Appendix D.1 – Statement of own work

Statement of own work

Sign this *Statement of own work* form and add it as the last appendix in the final version of the Bachelor's thesis that is submitted as to the first supervisor.

Student name: Lina Martens _____
 Student number: s1060331 _____

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- b. I also declare that I have only submitted text written in my own words
- c. I certify that this thesis is my own work and that I have acknowledged all material and sources used in its preparation, whether they be books, articles, reports, lecture notes, and any other kind of document, electronic or personal communication.

Signature: Lina Martens

Place and date: Kevelaer, 08.06.2023 _____