The Effect of Congruence of Visual Gender Cues and Grammatical Gender of a Product on
Consumer Behaviour

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Bachelor's thesis (LET-CIWB351-IBC)

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31.05.2021, Nijmegen

Abstract

Grammatical gender is a system in which all nouns can be grouped by two, three, or more genders. Previous research suggests that whether an object is assigned masculine or feminine grammatical gender influences how male- or female-like the object is perceived. Research on consumer behaviour indicates that congruence between gender cues, e.g. the morphological endings of brand names and the grammatical gender of an object leads to a more positive brand attitude. Based on these findings, in the current study Germans were expected to evaluate congruence between the grammatical gender of a product and a gender cue more positively than incongruence. For native speakers of English no such effect was expected to be found, because English does not have a grammatical gender system. A questionnaire was sent to native speakers of German and native speakers of English asking them to evaluate eight fictional advertisements depicting a man or a woman with a product whose grammatical gender was either congruent with the sex of the model or not. No significant difference between the Germans and native speakers of English was found, which suggests that the influence of German grammatical gender was not strong enough to influence evaluations of advertisements. In summary, this study was not able to provide evidence for such linguistic relativity.

Keywords: linguistic relativity, grammatical gender, gender cues, congruence

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In recent decades, researchers have increasingly investigated linguistic relativity, i.e. how a person's thoughts are shaped by language. This field of research has been referred to as the "Sapir-Whorf-hypothesis", based on research by Edward Sapir and Benjamin Lee Whorf (Sapir, 1929; Whorf, 1964). Lucy (2016) distinguishes two approaches to linguistic relativity, namely the domain-centred approach and the structure-centred approach. The former focuses on domains of experience, such as the perception of colour (e.g. Davidoff, Davies & Robertson, 1999), and observes cross-linguistic differences in, for example, colour memory. The latter directs its attention to grammatical structures, such as grammatical gender (e.g. Sera, Berge, Pintado, 1994), and explores the cognitive effects these structures have on people.

Grammatical gender is a system in which nouns are classified into categories. In most languages, there are two or three grammatical genders, namely *masculine*, *feminine*, and/or *neuter* which form an agreement with, for example, determiners and articles (Corbett, 1991). In the case of German, for instance, nouns with masculine grammatical gender are classified through the article *der,* nouns with feminine grammatical gender through *die,* and neuter through *das*. From a semantic point of view, an object's grammatical gender is assigned arbitrarily. In German, for example, as Mark Twain (1880) put it: "(...) a young lady has no sex, while a turnip has (...). A tree is male, its buds are female, its leaves are neuter; horses are sexless, dogs are male, cats are female - tomcats included (...)". This grammatical feature has been the basis of much research, testing whether grammatical gender has an influence on how similar and how male- or female-like objects and concepts are perceived (Boroditsky, Schmitt, & Phillips, 2003; Phillips & Boroditsky, 2003; Segel & Boroditsky, 2001; Sera et al., 1994) and how memory and recognition (Boroditsky et al., 2003; Speed & Majid, 2019)

are influenced.

Grammatical gender can affect object similarity. Phillips and Boroditsky (2003) found that Spanish, as well as German participants, found objects to be more similar to people when the grammatical gender matched the person's sex. For example, a toaster with masculine grammatical gender was found to be more similar to a king than to a ballerina. This effect was observed even though the experiment was conducted in English and not the language the participants' had learned the grammar distinction in. This suggests that categorization according to grammatical gender is ingrained in our thought and is even active when the language defining these categorizations is not used. Moreover, the researchers were able to replicate these findings with a verbal interference task. While doing the main task, participants were asked to repeat letters aloud which were played by a computer. Grammatical gender appears to be strong enough to work subconsciously because the verbal interference task shows that language is not actively used while doing the task. In addition, the researchers taught native speakers of English the "soupative/oosative" distinction of the invented language "Gumbuzi". For example, participants learned that a pan and girls are "soupative", whereas pens and boys are "oosative". By learning that objects are grouped in the same category as males and females, the "soupative/oosative" distinction is meant to imitate grammatical gender. Again, objects and persons were judged as more similar when their gender matched. This finding in particular provides evidence that without cultural factors interfering in similarity judgment, grammatical gender has an effect on thought. A possible explanation suggested by the researchers is that unconsciously, as a mechanism to encode grammatical categorizations, the mind searches for similarities among items belonging to the respective category. Features of these items supporting the similarities defining the category, for example, masculinity, are then enhanced. This would explain why items belonging to the same grammatical gender groups are associated more with one

another.

Even though many objects do not have any inherent masculine or feminine characteristics, research has shown that objects tend to be characterised as more masculine or more feminine depending on the object's grammatical gender in the speaker's individual language. This has for instance been shown by Boroditsky et al. (2003), who asked German and Spanish participants to provide adjectives to describe particular objects which had contrasting grammatical genders in the respective languages. They compared the adjectives and found that the features associated with the adjectives matched the grammatical gender of the object's name. For instance, the word *key,* which has masculine grammatical gender in German and feminine grammatical gender in Spanish, was described as "hard, heavy, jagged" by the German participants and "golden, intricate, little" by their Spanish counterparts. A second group of English participants rated how masculine or feminine the adjectives were. A correlation was found between the grammatical gender of the object in the respective language and the perceived gender of the adjectives. This shows that grammatical gender does not only influence how similar objects and human referents with the same sex are (Phillips & Boroditsky, 2003), but that it also influences how male- or female-like an object is perceived to be.

In support of these findings, Sera et al. (1994) found that native speakers of Spanish were more likely to categorize an object as more masculine/feminine and assign a male or female voice matching the grammatical gender of the objects on the pictures they were shown. This effect was enhanced when the pictures were labeled. These findings show that it is language that triggers the masculine/feminine conceptualization according to grammatical gender. The participants were told that the purpose of the study was to find whether objects, which are supposed to come to life in a new movie, should have a man's voice or a woman's voice. Consequently, the researchers showed that the conceptualization according to

grammatical gender is subconscious enough to be triggered even when no such words as "masculine/feminine" or "male/female" were used which could have given away the actual purpose of the study.

An underlying, subconscious influence of grammatical gender outside of a laboratory setting has been shown by Segel and Boroditsky (2011). They examined the gender through which abstract concepts like sin are portrayed in art, which is, for example, feminine in German (*die Sünde)* and masculine in Russian (*rpex)*. Across languages, they found that 78% of examined paintings portrayed the same gender, i.e. either a man or a woman, as the grammatical gender of the abstract concept. These findings were significant because they show that results from laboratory settings translate to observations taken from the real world.

In addition to studies about the effect of grammatical gender on how objects are conceptualised, research has investigated whether congruence between grammatical gender and stimuli such as male and female names affected people with regard to learning and memory. In Boroditsky et al. (2003), participants were taught to associate a proper name with an object (e.g. *apple* and *Patrick*). The researchers found that it was easier for the participants to remember the object-name pairs when the grammatical gender of the object was consistent with the gender associated with the name. Furthermore, Speed and Majid (2019) provided evidence that congruence in grammatical gender aids odour recognition. They found that when participants were presented with fragrances for men or women and nouns describing the smell, their memory of the fragrances was better when the grammatical gender of the words describing the fragrance matched the gender of the fragrance. For example, the fragrance for men was remembered better when it was described with *Apfel, Rhabarber, Kardamom* which are words with masculine grammatical gender in German. The researchers hypothesised that the facilitated encoding of the odours with congruent grammatical gender was a result of gender activation through the grammatical information provided by the nouns.

A number of studies investigating the effects of grammatical gender employ similar methods, for example, voice assigning tasks or object categorization tasks (e.g. Sera et al., 1994). However, one could question whether a difference in, for example, recognition in a laboratory setting translates as strongly to behavioural differences in the real world as found by the study. A real-world situation that could be affected by the grammar of a language would, for example, be consumer research. One study exploring this field was conducted by Zhang and Schmitt (1998). The researchers explored whether classifiers have an effect on the perception of object relatedness, similarity, memory, and how they were evaluated as advertisements when a classifier triggering cue was used. In Mandarin Chinese, numeral classifiers categorise nouns with regard to quantity. For example, "one book" would be ungrammatical. Instead, the classifier "*ben*" has to be included, i.e. "one *ben* book". This classification is broadly based on features of the nouns they refer to, e.g. a classifier that categorises objects into whether they are graspable or not. It should, however, be noted that classifier categories differ with regard to size and consistency. Some classifiers belong to a clearly defined category in which objects have a clear feature in common. Some belong to a category in which objects are less consistent in terms of shared features and other groups of classifiers form arbitrary categories (Gao & Malt, 2009). With this in mind, Zhang and Schmitt (1998) found that speakers of languages with classifiers perceived objects sharing a classifier as more similar than objects with different classifiers. Furthermore, participants were better at remembering objects when they shared classifiers, supposedly because objects are clustered mentally on the basis of classifiers. The researchers also investigated whether these effects were transferable to affective reactions towards advertisements. For example, an object like an umbrella with the classifier *ba,* which classifies graspable objects, was either presented with a hand holding the object or on its own. Participants evaluated advertisements with visual cues congruent with the classifiers of the objects better than advertisements for

the object without a visual cue. This study demonstrated that classifiers do not just affect memory and perceived similarity, but are also used as criteria for evaluations.

The question remains whether this congruence of visual cues and grammatical features in an advertising context also applies to other domains of grammar, in this case, grammatical gender. Many classifiers are assigned to objects based on real-world characteristics, such as the ability to take hold of an object. In contrast, in languages like French or German grammatical gender is assigned arbitrarily. Still, grammatical gender congruence might have an influence on consumer responses because of agreement. In the context of grammar, agreement describes the inflection of verb and subject for person and number, and for pronouns also to gender. In English, for example, agreement for person means that the suffix *-s* has to be added to a verb for the third-person singular, e.g. *he thinks* instead of *he think*.

Research has found that agreement has an influence on the way information is processed. This influence has been explained in terms of post-lexical effects (Jakubowicz & Faussart, 1998) as well as pre-lexical effects (Bates, Devescovi, Hernandez & Pizzamiglio, 1996). In Jakubowicz and Faussart (1998), native speakers of French were presented with phrases in which the endings of some of the words were manipulated into non-words. Participants were asked to decide whether the last word of the phrase was a real word or not. The researchers found that lexical decision response time was longer when participants were presented with gender incongruent determiners (e.g. *ma copain*) as opposed to congruent determiners (e.g. *mon copain*). The researchers concluded that the syntactic processor recognizes an incongruency and, as a consequence, requires more time to process the sentence. This results in a slower decision-making response. This in turn means, according to the researchers, that the gender information provided by for instance a determiner is compared to the gender information added by the noun, showing that agreement influences

information processing.

In support of the pre-lexical effect, research has found that a grammatical element, such as a determiner or an adjective marked for gender, triggers a specific category of possible nouns in the mental lexicon (Bates et al., 1996). This means that the mental lexicon for masculine words of a native speaker of Italian would be activated when reading the adjective *brutto* (ugly), which is morphologically marked for masculine gender in its ending. As a consequence, in the experiment by Bates et al. (1996) the masculine noun *cuore* (heart) was processed more easily than the feminine noun *pace* (peace) when succeeding the adjective *brutto*. Facilitated processing in this study meant more accurate repetition and quicker repetition of the noun preceded by an adjective. Either way, the pre-lexical, as well as the post-lexical model, come to the same conclusion: congruence facilitates message processing and incongruency inhibits processing.

Yorkston and de Mello (2005) investigated whether this effect translates to slogan evaluations in the context of consumer research. In their study, Spanish participants were presented with brand names whose endings were either morphologically congruent or incongruent with the semantic gender of the product. For example, the gender of the brand names was manipulated by adding an *-o* or an *-a* (e.g. *Aiza* (feminine) and *Aizo* (masculine)) because these morphological endings are characteristic of masculine and feminine nouns. As product categories, the researchers chose, among other things, alcoholic beverages. For example, beer (*cerveza*) has a masculine semantic gender, whereas white wine (*vino blanco*) has a feminine semantic gender. The masculine and feminine brand names were then paired with the semantically masculine and feminine products to create congruent and incongruent conditions. The researchers found that recall of congruent brand name and product gender was facilitated, e.g. *cerveza Aizo* was recalled better than *cerveza Aiza.* In addition, findings by Yorkston and de Mello (2005) provided support for the positive effects of congruence, in

this case on attitude. Brand attitude was evaluated more positively when the semantic gender of a product and the gender of the brand name were congruent. In this study, the gender cue was morphological, i.e. the endings of the noun. Whether a non-linguistic cue, for example, a visual gender cue in the form of male and female models, causes similar effects as morphological gender cues has not yet been researched.

The methodological approaches to investigating the effect of grammatical gender on how objects are categorised have to date focussed on the attribution of male or female voices to objects (Bassetti, 2007; Forbes, Poulin-Dubois, Rivero, & Sera, 2008; Sera et al., 1994), assigning male or female names to objects (Boroditsky et al., 2003; Koch, Zimmermann, & Garcia-Retamero, 2007; Phillips & Boroditsky, 2003), comparing adjectives participants associate with objects (Boroditsky et al., 2003), measuring memory (Boroditsky et al., 2003; Speed & Majid, 2019), or reaction time (Jakubowicz & Faussart, 1998). Although much research has paid attention to the theoretical influence grammatical gender has on thought, to our knowledge little research has been conducted on the implications this has for real-world scenarios. For example, it is unclear whether the congruence of grammatical gender and gender cues has an effect on the evaluation of advertisements and the memory of advertised products.

So far, research on the effect of congruence of gender cues and objects in consumer research has focused on morphological cues, i.e. the ending of brand names. To date, we do not know whether congruence effects also translate to non-linguistic cues in an advertising context. A way in which knowledge about the effect of gender congruence in consumer behaviour through non-linguistic cues can be complemented is by employing visual gender cues, e.g. by portraying a product with masculine grammatical gender together with a man as the congruent condition or a woman for the incongruent condition. In order to observe an effect, the evaluations and memory of native speakers of a language with grammatical gender

(in this case German) have to be compared to the evaluations and memory of participants whose native language does not have grammatical gender (in this case English). The purpose of the current study is to identify to what extent the attitude of consumers towards advertisements and purchase intention, as well as recall of the advertised products, are influenced when the visual gender cue in the advertisement is congruent or incongruent with the grammatical gender of the object.

RQ: To what extent does the congruence of visual gender cues and the grammatical gender of objects in German advertisements affect the attitude of consumers towards the advertisement, their purchase intention and their product memory?

As German is a language with grammatical gender (masculine, feminine, and neuter), we expect Germans to subconsciously categorize objects as more masculine or feminine depending on their grammatical gender, which would lead to a positive evaluation and better recall of the congruent condition. In practice this means that when shown a picture of a man as a non-linguistic gender cue with an object with masculine grammatical gender, the participants' evaluation and recall of the object should be enhanced.

Hypothesis 1: Native speakers of German should have a more positive attitude towards the advertisement, show a higher purchase intention and have better product memory in the congruent condition than the incongruent condition.

English does not have grammatical gender, which is why it is expected that in the current study the native speakers of English would not be susceptible to the incongruence or congruence of the visual cue.

Hypothesis 2: For native speakers of English no significant difference should be observable between the congruent and incongruent conditions in terms of attitude towards the advertisement, purchase intention, and product memory.

Method

Materials

  The independent variable "congruency" with two levels (congruent and incongruent) was operationalised through fictional advertisements in which the German grammatical gender of the object was either congruent with the person portrayed with it or not. In total, based on the number of items Speed and Majid (2019) used, eight products were presented. As research has shown that the associated gender of an object is linked to the gender of the stereotypical user of the object (Allison, Golden, Mullet & Coogan, 1980; Clarke, Losoff, Dickenson, & McCracken, 1981; Leinbach, Hort, & Fagot, 1997; Mullen, 1990), the objects chosen in this study were everyday objects, used by both men and women (i.e., without any gender stereotypes). This was ensured through a pre-test, in which 20 native speakers of English were presented with 20 objects and asked to evaluate how masculine or feminine the objects were. The participants were recruited online. Their age ranged from 18 to 35 ($M =$ 22.7, $SD = 4.44$) and gender was distributed equally with ten male and ten female participants. They were mostly enrolled at university, with one participant in high school. For the questionnaire, every item was evaluated by two scales. The scales ranged from 0 'not masculine at all' and 'not feminine at all' to 100 'very masculine' and 'very feminine'. The items were not shown as pictures but solely represented in written form. Based on the results of 20 paired-samples t-tests, eight objects were chosen (see Appendix) whose means did not differ significantly: pumpkin (t (19) = -1.18, p = .251), soap (t (19) = -1.05, p = .307), pen (t (19) = 1.29, p = .213), pot (t (19) = .649, p = .524), pan (t (19) = -.49, p = .631), coffee (t (19) = -375, p = .712), toothpaste (t (19) = -1.11, p = .282), toothbrush (t (19) = -.811, p = .428). English speakers were chosen in order to account for a possible influence of grammatical gender on the perception of masculinity and femininity.

  Other than the man or the woman only the object was shown without any text in the

form of brand names or slogans. Furthermore, the colours chosen were kept neutral in order to account for confounding gender cues. The images presented to the participants were similar with regard to layout, lighting, and angles. For example, a pen that has a masculine article in German (*der Stift*) was in one version of the questionnaire presented by a man (congruent condition) and in the other version by a woman (incongruent condition). In the two versions of the questionnaire which participants were randomly assigned to, the participants did not see the same product twice. They saw either the gender-congruent or the incongruent version of a product. However, within the list of products in each version both the incongruent as well as the congruent condition was displayed.

Subjects

In this study, the independent variable "language" with two levels (German and English) was operationalised by recruiting native speakers of English and native speakers of German to fill in the questionnaire. The native speakers of English were mainly other researchers who were rewarded for participating in the current study by a response to their study in return. The native speakers of German were recruited through convenience and snowball sampling. They were either friends and family or asked for their help via social media.

Based on a calculation with G*Power, for a medium effect size of 0.5 (Cohen's dz), the total number of participants should have been 108 (54 in each language group). In total, 70 German participants and 73 native speakers of English were recruited. However, because of incomplete data it was only possible to include 64 responses of the native speakers of English and 60 responses of the native speakers of German.

Among the Germans, 38 (63.3%) were female and 22 (36.7%) were male. Their age ranged from 17 to 58 ($M=23.78$, $SD=7.16$). In terms of their highest educational level, 42 have completed their A-levels, ten their bachelor's degree, five vocational training, two

secondary school, and one person has completed a master's degree. Other than German, 39 spoke English at a CEFR level above B1. Languages spoken in addition to those two languages were: French, Dutch, Russian, Polish, and Spanish. Five people did not give a clear answer to the question.

Among the native speakers of English, 46 (71.9%) were female and 18 (28.1%) were male. Their age ranged from 16 to 62 (M=25.81, SD=9.84). In terms of their highest education, 24 have completed their bachelor's degree, three have completed their A-levels, two have completed their associate's degree, ten had their high school diploma, nine had their master's degree, one completed middle school, ten stated that they had a university degree and four that they had a college degree. One answer was not identifiable. Fifteen out of the 64 participants spoke more than one language, among others: Russian, Polish, Czech, German, French, Italian, Greek, French, Korean, Cantonese, Mandarin, and Romanian.

An independent samples t-test showed no significant relation between age and gender (t (122) = .07, p = .943), as well as age and native language (t (122) = -1.32, p = .19). A chi-square test showed no significant relation between gender and native language ($\chi2$ (1) = 1.03, p = .309). This means that gender and age were distributed equally across both language groups and age was distributed equally across gender groups.

Design

The study was conducted as a 2x2 mixed design with native language as a between-subjects variable with the two levels: German and English, and congruence as a within-subjects variable with two levels: congruent and incongruent. In other words, the participants saw either the gender incongruent version of the advertisement or the congruent version but not both for one object. Within the questionnaires, however, gender congruent and incongruent objects were displayed.

Instruments

Based on Hoeken et al. (2003), purchase intention was measured using four seven-point semantic differentials. The items 'very wise'-'not very wise', 'very smart'-'not very smart', 'very good'-'not very good', 'very positive'-'not very positive' were preceded by the phrase 'Purchasing this product seems..'. Furthermore, two five-point Likert-scales were added with the phrases 'I would consider buying this product', 'If I needed a (...) I would definitely buy this (...)'. Based on Hornikx and Hof (2008), two seven-point semantic differentials with 'I would not recommend to my friends'-'I would recommend to my friends', and 'really is something for me'-'really is nothing for me' which were preceded by 'This product...' complete the assessment of purchase intention. The overall reliability for 'purchase intention' comprising three scales was poor: α = .577 (for the German version acceptable α=.714). When deleting the item 'I would not recommend to my friends'-'I would recommend to my friends' of the scale "This product…", Cronbach's alpha was excellent: α = .957 (for the German version excellent: α=.965).

Based on Hoeken et al. (2003), the dependent variable attitude towards the advertisement was measured with four seven-point semantic differentials with the items 'interesting'-'not interesting', 'attractive'-'not attractive', 'appealing'-'not appealing', which were preceded by 'I think this advertisement is…'. These scales were complemented by the items 'distinctive'-'not distinctive', 'exciting'-'dull', 'enjoyable'-'not enjoyable' based on Spears and Singh (2004). The reliability of 'attitude towards the advertisement' comprising six items was excellent: α=.932 (for the German version excellent: α=.932). In addition, the background variables gender, age, education level, and other languages spoken at a CEFR level above B1 were measured. Lastly, recall was measured. Participants were asked to name the products they remembered from the advertisements.

All the scales were developed through the back-translation method in order to ensure that the questionnaires in German and English were equal. First, the questionnaire was

translated to German by a native speaker of German. The German version was then translated back to English by a professional translator. The two versions were then compared and revised.

Procedure

The participants filled in the questionnaire through Qualtrics. The questionnaire contained 8 fictional advertisements, representing both the incongruent, and the congruent condition. After filling in the consent form, participants were told that the images they were about to see were supposed to be included in advertising campaigns and that the objects presented on the images were the products to be advertised. Based on Zhang and Schmitt (1998), the participants were asked not to focus on the aesthetic aspect and creativity of the image itself, but instead rate the idea of using this image as part of an advertisement. After this initial introduction about the alleged purpose of the study, participants were presented with one image per page with the rating scales underneath. After all the objects had been evaluated, one page was devoted to questions about background information, i.e. age, gender, language proficiency and education. On the last page, participants were asked to list the products from the advertisements that they were able to remember.

Statistical treatment

In order to answer the research question, three mixed analyses of variance were conducted covering the main effect of language, the main effect of congruence, and the interaction effect between the two variables for attitude towards the ad, purchase intention and recall.

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Results

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A mixed analysis of variance showed a significant main effect of language on purchase intention F (1, 122) = 3.95, p = .049). Native speakers of English (M = 4.22, SD = .12) indicated a higher purchase intention than native speakers of German (M = 3.89, SD =

3.67). However, there was no significant main effect of congruence (F (1, 122) = .293, p = .589) in terms of purchase intention (see table 1). Furthermore, there was no significant interaction between the participants' native language and congruence with regard to purchase intention (F (1, 122) = .116, p = .734).

A mixed analysis of variance (see table 1) showed no significant main effect of language on attitude towards the ad (F (1, 122) = 2.06, p = .154). Furthermore, there was no significant main effect of congruence (F (1, 122) = .016, p = .899) in terms of attitude towards the ad. In addition, there was no significant interaction between the participants' native language and congruence with regard to attitude towards the ad (F (1, 122) = .00, p = .999).

With regard to product memory, 68.4% of participants were able to remember six or more of the eight products. In the congruent condition, 73% remembered three or all four of the products and in the incongruent condition, 72,3% remembered three or all four products. A mixed analysis of variance (see table 1) showed no significant main effect of language on recall (F (1, 122) = 2.84, p = .095). In addition, there was no significant main effect of congruence (F (1, 122) = .09, p = .771) on recall and no significant interaction between the participants' native language and congruence with regard to recall (F (1, 122) = 1.25, p = .266).

Table 1

Means and standard deviations across language and congruence conditions for attitude

towards the advertisement, purchase intention, and product recall

	German		English	
	n=60		*n*=64	
	congruent	incongruent	congruent	incongruent
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
attitude towards the advertisement	5.06 (1.25)	5.05 (1.09)	4.76 (1.28)	4.75 (1.29)
purchase intention	3.89 (1.02)	3.90 (.97)	4.19 (.92)	4.25 (1)
product recall	3.03 (.90)	3.17 (.92)	2.89 (1.06)	2.81 (1.01)

Conclusion and discussion

The purpose of this study was to examine the effect of grammatical gender on attitude

towards advertisements, purchase intention and recall of the products advertised. Findings for

attitude towards the advertisement and purchase intention suggest that congruence between a

product's grammatical gender and a non-linguistic gender cue do not lead to a more positive

evaluation. This is not in line with previous research. Zhang and Schmitt (1998) found that a

non-linguistic cue matching the grammatical feature of a word, in their case the grouping

characteristic of the classifier, led to better evaluation of an advertisement. A possible

explanation for the deviation in findings of the current study could lie in the fact that

grammatical gender, unlike classifiers, is a grammatical feature that is assigned arbitrarily.

For example, the classifier *ba* entails that objects are graspable. This led participants to evaluate advertisements with arms holding the object more positively. In contrast, a pen does not signify anything masculine other than its grammatical gender, which might lead to the assumption, as demonstrated by this study, that this is not strong enough to influence a consumer's evaluation of an advertisement.

Findings for recall appear to provide evidence that congruence between an object's grammatical gender and a non-linguistic gender cue does not facilitate recall. This is not in line with previous research either (Boroditsky et al., 2003; Speed and Majid, 2019; Zhang and Schmitt, 1998). A possible explanation for the deviation in findings could be the ceiling effect. As many participants were able to recall most of the products, it is difficult to discriminate among subjects. In Speed and Majid (2019), for example, the ceiling effect was not present, because remembering fragrances is more difficult than remembering everyday items. Possibly, including more objects in the study or more questions in between the recall question and the advertisements would have provided different results.

Furthermore, Speed and Majid (2019) proposed that a language's number of grammatical genders might influence how strong the effect of grammatical gender is, which might be another explanation for the findings of the current study. Speed and Majid (2019) found that the ingredients of male fragrances were identified more clearly when in French, the nouns describing the fragrances had masculine grammatical gender, and in German when the nouns describing the fragrances carried feminine grammatical gender. This provides reason to believe that the effect of grammatical gender has different effects across languages, which might be due to the number of grammatical genders. An explanation was proposed by Vigliocco, Vinson, Paganelli, and Dworzynski (2005). They introduced the Sex and Gender Hypothesis, which states that when acquiring a language with grammatical gender, a link is established between the grammatical gender of a noun (the linguistic feature of masculinity

and femininity) and human gender (the conceptual feature of male and female). This entails that words carrying the same grammatical gender are perceived as more similar because they carry the same associations of being 'more female' or 'more male'. When initially acquiring a language with grammatical gender, this link is created through nouns referring to humans and the referent's sex. For example, in German *die Mutter* (mother) refers to females and has feminine grammatical gender. This association is then extended to, for example, animals that have a gender but for which there is no particular correspondence between the grammatical gender of the noun referring to the animal and its sex. For example, a giraffe in German is *die Giraffe* with feminine grammatical gender. Not all giraffes are female but the association is made more easily because there are male and female giraffes. Once the association between grammatical gender and sex is established, it is applied to other nouns, for example, objects, which do not have a sex. The Sex and Gender Hypothesis posits that different languages have different effects in terms of grammatical gender. For romance languages that have two grammatical genders, for example, the grammatical gender of nouns that refer to humans and the sex of the human which the noun is referring to often match. However, in German, there are three grammatical genders, and the neutral grammatical gender *das* is also used for nouns referring to humans, e.g. *das Mädchen*, the girl. This, as Vigliocco et al. (2005) propose, makes the effect of grammatical gender on the perception of how male- or female-like an object is weaker, which could explain the results of the current study.

Another explanation could be the fact that German lacks phonological indicators of grammatical gender, unlike, for example, French (Hopp, 2013). Lyster (2006) found that the grammatical gender of 80% of French nouns can be predicted through suffixes. For example, words ending in *-elle* can be expected to have feminine grammatical gender. Similarly in Spanish, 96.3% of nouns with the suffix *-a* have feminine grammatical gender and 99.8% of nouns with the suffix *-o* have masculine grammatical gender. In contrast, in German,

grammatical gender can neither be predicted as reliably based on semantics, nor based on phonology. This might lead to a diminished effect on the part of grammatical gender, because the nouns themselves provide fewer indicators of grammatical gender which could trigger a gender association. In contrast, when confronted with the French word ending in *-elle,* the association with femininity might be higher because not only the inherent grammatical gender of the word indicates femininity, but also a phonological cue within the word triggers this association. This is supported by findings of Sera, Elieff, Forbes, Burch, Rodríguez, and Dubois (2002), who compared how native speakers of English, Spanish, French, and German categorised inanimate objects through voice assigning tasks. They found that German speakers, unlike speakers of French and Spanish, did not classify objects according to their grammatical gender.

It should be noted, however, that other previous research has been able to find an effect of grammatical gender among Germans (Boroditsky et al., 2003; Phillips & Boroditsky, 2003; Segel & Boroditsky, 2011; Speed and Majid, 2019). Comparing those studies to the current study, the differences in findings with regard to the effect of grammatical gender among Germans could be explained by the limitations of the current study. Even though a pre-test was conducted in order to account for semantic gender as a confounding variable, many factors have been shown to influence perception of masculinity and femininity. For example, research (Bem, 1981; Leinbach et al., 1997; Mullen, 1990, Sera et al., 1994) suggests that there are multiple features influencing the conceptualisation of masculinity/femininity. Among other things, roundness and angularity, whether an item occurs naturally or was made artificially, whether it is dense or not dense, or whether it is stereotypically used by males or females. With regard to the objects used in the current study, the pumpkin is round and occurs naturally, which could have led to a more female association. A pot, on the other hand, is artificially made, which could have triggered a male

association. These aspects may therefore have had an influence on how the participants evaluated the advertisements. Indeed, Sera et al. (1994) found that the natural/artificial classification influenced the results of the voice assigning task of native speakers of English, as well as Spanish speakers. Findings by Mullen (1990) suggest that natural objects are perceived to be more female and artificial objects are perceived to be more male. When in the study by Sera et al. (1994) the conceptual classification (natural/artificial) did not match the grammatical gender classification (feminine/masculine), the classification on the part of Spanish speakers did not follow a pattern. The current study employed natural objects (e.g. a pumpkin) as well as artificial objects (e.g. a pot) but the items were not counterbalanced. Furthermore, some of the objects, e.g. a pumpkin or a pen, usually do not appear in advertisements, which might have lead participants to question the purpose of the study. The combination of objects, as well as the reoccurring two models might have also contributed to skepticism towards the alleged purpose of the study.

Based on the limitations of the current study, future research could investigate whether an effect of grammatical gender on advertisement evaluations and product memory can be observed for languages with only two grammatical genders, e.g. French, instead of three grammatical genders. Furthermore, future research could conduct more elaborate pre-tests in order to be able to carefully choose the objects used as stimuli for the purpose of accounting for confounding gender cues, e.g. roundness or angularity. In addition, future studies should pay more attention to making the advertisements look more like realistic advertisements in order to prevent participants from questioning the purpose of the study.

This study contributes to the understanding of the influence of grammatical gender on consumer behaviour. The findings of the current study could be taken into account by marketers when contemplating whether to adapt an advertisement to local needs, not just through the national language but also through visual elements, or whether one advertisement

fits across cultures. As German is the official language in Germany and Austria, but is also spoken in countries like Switzerland, adapting advertisements for native speakers of German would pay off if grammatical gender congruence were to have an effect on the response to an advertisement. However, judging by the findings of this study, adapting the visual gender cues to the grammatical gender of the product does not enhance attitude, purchase intention, or product recall.

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Appendix

List of fictional advertisements used in the main questionnaire

Gender congruent advertisements

Gender incongruent advertisements

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: Vivienne Elizabeth Fenwick

Student number: s1020243

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