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Persuasive location-based messaging to increase store visits: An exploratory study of fashion shoppers

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ABSTRACT

Although it appears increasingly important yet potentially challenging to attract customers to physical stores, location-based messaging, i.e., delivering mobile phone messages using data about the recipient's location when that recipient is near the sender, has been said to enable such attraction. Still, existing studies offer very limited insight into which particular location-based persuasion approach retailers should use. Drawing on persuasion theory, this exploratory study aims to investigate and compare the potential of two discrepant persuasion techniques (scarcity and social proof) to influence customers' experiences and thereby stimulate them to visit the retailer's physical store. A factorial survey design was applied to test the research model. Data were collected from a sample of actual customers of a Dutch fashion retailer ($n = 579$). The results suggest that scarcity is a more effective persuasion technique in the studied context than social proof; scarcity-focused messages appear to be experienced as more informative, more entertaining and less irritating, seem to be valued more because of this, and are thus more likely to incline customers to visit the store. We discuss these findings and their implications for theory as well as for practice.

1. Introduction

Recent years have shown substantial changes in the retail landscape, with increasing online sales putting competitive pressure on the physical channels of many retailers (Blut et al., 2018; Bolton and Shankar, 2018; Reinartz et al., 2019). While it appears to be increasingly important yet potentially challenging for retailers to attract customers to their brick-and-mortar stores (Bustamante and Rubio, 2017; cf. Pantano, 2016; Rigby, 2011), location-based messaging (LBM), that is, a mobile telecommunication system that delivers messages using data about the recipient's location when that recipient is near the sender (cf. Luo et al., 2014), has been touted to offer new possibilities to facilitate such attraction (e.g., Ketelaar et al., 2018; Lee et al., 2015).

Still, prior empirical research offers very little insight into which particular persuasion approach retailers should adopt when sending location-based messages in order to convince (potential) customers to visit the store. Previous LBM-studies (1) did not compare the effectiveness of such persuasion approaches, and (2) did not investigate the determinants of store visit behavior, but instead focused on explaining for example consumers' attitude towards location-based messages (e.g., Gazley et al., 2015), intention to purchase (e.g., Xu et al., 2009), intention to accept location-based advertising (Limpf and Voorveld, 2015), and mobile coupon redemption tendency (e.g., Wang et al., 2014). Moreover, although persuasion has been a topic of interest to scholars since antiquity and has been investigated in various other settings (see e.g., Dillard and Pfau, 2002), it is context and behavior-specific (Meyers-Levy and Malaviya, 1999; Petty and Wegener, 1998; Shu and Carlson, 2014) and as such our current knowledge of how particular ways of persuasive communication affect customers' experiences and behavior in those other settings may not be generalizable to store visit behavior, in an LBM-context.

Therefore, the aim of this exploratory, empirical study is to examine the effectiveness of discrepant persuasion techniques, as applied in practice, in terms of their ability to influence location-based message recipients' experiences and thereby stimulate them to visit the retailer's physical store. Mainly drawing on the persuasion literature (e.g., Armstrong, 2010; Seiter and Gass, 2008) and Ducoffe's (1995, 1996) well-established advertising value framework, we construct a research model centering on the impact of two of the main persuasion techniques used in practice (cf. Griskevicius et al., 2009; Kaptein and Eckles, 2012), namely the scarcity technique (i.e., sending messages that emphasize a particular limited offer) and social proof technique (i.e., sending

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messages that stress that others have behaved in a particular manner or have a specific opinion). In line with this research model, we claim that and subsequently explore empirically, by using data collected from customers of a fashion retailer, whether these two persuasion techniques differ in their effect on the value that customers derive from experiencing the message, and therefore in their impact on these individuals' intention to visit the store. Our decision to make use of a sample of customers in the fashion retail sector is supported by the fact that fashion retail (1) relies heavily upon customers' willingness to make physical store visits (Blázques, 2014), (2) demands for a high level of innovativeness, including the use of technology-driven solutions, to perform well and be competitive (Ünay and Zehir, 2012), and (3) has a combined hedonic and utilitarian nature (cf. Parker and Wang, 2016; Iftikhar et al., 2020) and thus aligns with the hedonic and utilitarian value that location-based messages can provide (cf. Yu et al., 2013; Shin and Lin, 2016). Accordingly, the use of the particular sample added to the external validity and managerial relevance of our findings.

Our research makes the following contributions. First, based on the use of a factorial survey research design, our empirical exploration generates knowledge of the relative influence of two of the most relevant persuasion techniques (i.e., scarcity and social proof) in generating message value and in driving store visit intentions in the underexplored LBM-context. Second, from a theoretical perspective, our study is intended to contribute to the body of literature on persuasion by extending and cross-validating Ducoffe's framework in that particular marketing messaging context. Third, from a pragmatic perspective, the derived insights serve as directions for fashion retailers when sending persuasive location-based messages to attract customers to their physical store.

In the subsequent sections of this paper, we will first discuss the theoretical background of our research based on the literature on persuasion. Then, we will present our research model and the underlying theoretical rationale. This is followed by a description of the research methodology and the resulting research outcomes. The most important of these outcomes and their implications for both theory and practice are then discussed. We conclude the paper with an overview of the limitations of our study and some suggestions for future research.

2. Theoretical background: persuasive communication

Persuasive communication, i.e., the exchange of messages that are "intended to shape, reinforce, or change the responses of another, or others" (Stiff and Mongeau, 2016, p. 4), is a common and important element of our daily lives (Dillard and Pfau, 2002; Petty and Briñol, 2010). Therefore, it may not be surprising that such communication has long been of interest to scholars in multiple scientific disciplines, among which are social psychology and marketing (see e.g., Meyers-Levy and Malaviya, 1999; Petty and Briñol, 2008). For instance, researchers have studied various factors concerning the message source (i.e., sender), the recipient, the message itself, and the context in which this message is received, and determined the extent to which they influence persuasion (see e.g., Petty et al., 1997; Shu and Carlson, 2014).

Many of these persuasion-related factors may prove to be relevant in LBM-settings. Still, the main factor that retailers are able to directly control in order to convince customers to visit their stores appears to be the location-based message itself. Prior research on features of persuasive messages in general indicates that such control could include determining or adapting the message topic, argument, organization and style (see e.g., Petty and Wegener, 1998; Shen and Bigsby, 2012). Before companies can actually decide on such specific aspects of persuasion, however, they will first have to determine which more general persuasion technique they will adopt to influence message recipients (cf. Armstrong, 2010; Seiter and Gass, 2008). This technique, also referred to as *persuasion strategy* (cf. Wilson, 2003), *compliance-gaining strategy* (cf. Seiter and Gass, 2008) or *influence principle* (cf. Kaptein et al., 2015), concerns the overall way in which the company intends to present information in their persuasive communication in such a manner that it will motivate message recipients to behave as desired (Armstrong, 2010). More specifically, by selecting a particular persuasion technique, the company decides which specific cues it will focus on in individual messages in order to stimulate a recipient to use a corresponding mental shortcut or heuristic rule (which is used by the recipient to lessen cognitive effort), and thereby convince this person to take a specific course of action (Griskevicius et al., 2009; Whittler, 1994). For instance, a company may try to influence customers by basing a message on the heuristic rule that if "a respected person or institution supports the message" it is more believable (Armstrong, 2010, p. 80).

The extant literature shows a wide range of persuasion techniques that, at least to some extent, have been categorized in multiple typologies (Kaptein et al., 2015; Seiter and Gass, 2008), such as those presented by Cialdini (2007), Kellermann and Cole (1994), Marwell and Schmitt (1967), and McFarland et al. (2006), and. Although such existing typologies show partial overlap, and some scholars have attempted to consolidate them for particular research settings (e.g., Ferreira and Teles, 2019), these attempts have been limited in number and a standardized set of persuasion techniques has not been established. Instead, researchers tend to use a particular subset of these techniques as a basis for their empirical studies. Such studies centering on marketing-related situations suggest that *scarcity* and *social proof* are among the most relevant persuasion techniques (cf. Griskevicius et al., 2009; Kaptein and Eckles, 2012), each involving the application of a different type of message, i.e., having a disparate focus. The scarcity technique concerns the use of messages that mainly contain informational cues (e.g., words or images) stressing overall that the availability of a particular product or service is limited (e.g., in terms of time and quantity), thereby inducing a feeling of urgency and increasing the perceived attractiveness of the product or service (cf. Aggarwal et al., 2011). The social proof technique involves the sending of messages containing mostly cues that emphasize that others, especially those who are similar to the recipient, have conducted themselves in a particular way or have a specific opinion, thereby stimulating the recipient to imitate those others (cf. Armstrong, 2010). In line with the above, these two persuasion approaches form an important element of our research model, which will be further described in the next section.

3. Research model and hypotheses

Our research model, which is shown in Fig. 1, is based on the discussed theory on persuasive communication and persuasion techniques. We specifically focus on the impact of the above-described scarcity and social proof techniques to assess to what extent these often-applied approaches and the different message focus they involve are effective in an LBM-context.

In accordance with studies of the effectiveness of persuasive communication in other settings (e.g., Li et al., 2002; Willems et al., 2017) and following existing research suggesting that intentions can be used as a proxy of actual behavior (Fishbein and Ajzen, 2010), the focal behavioral concept is *store visit intention*. We define this concept as a customer's estimate of the probability of visiting the store after having received a location-based message (cf. Fishbein and Ajzen, 2010).

The core of our model is directly based on Ducoffe's (1995; 1996) advertising value framework, consisting of the experiential antecedents *informativeness, entertainment* and *irritation,* and the consequence *message value*. Here, informativeness concerns the experienced degree to which a location-based message provides resourceful and useful information (cf. Ducoffe, 1996; Xu et al., 2009). Entertainment refers to the experienced degree to which receiving and viewing a location-based message is a fun and pleasant experience, and lifts the spirit (cf. Ducoffe, 1996; also see Verhagen et al., 2012). Irritation is the experienced extent to which a location-based message is annoying or offensive (cf. Ducoffe, 1996). Message value is conceptualized as the recipient's subjective assessment of the relative worth or utility of a location-based message (cf. Ducoffe,

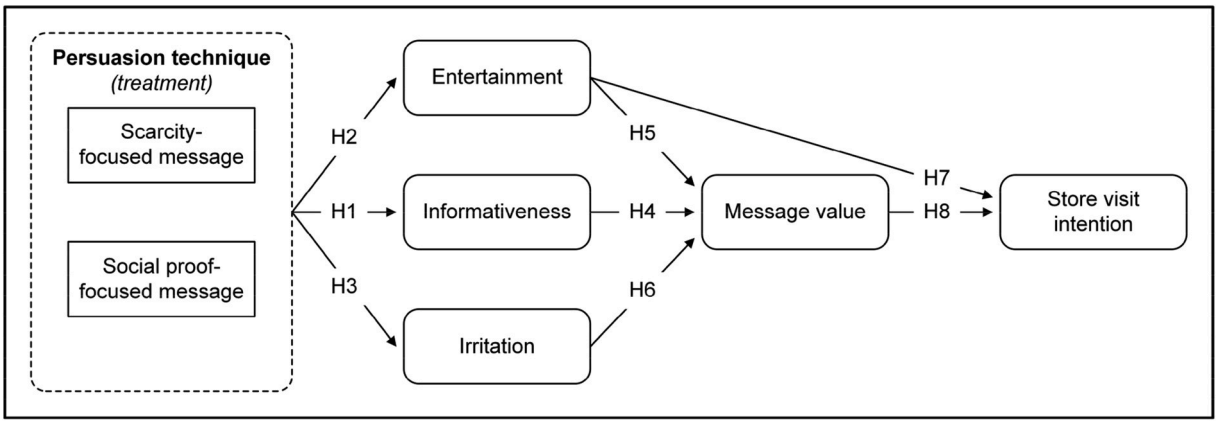

Fig. 1. Research model.

1995).

Ducoffe's framework was incorporated into our model for three reasons. First, as an established conceptual structure it has commonly formed the basis of research models explaining the impact of persuasive communication-related stimuli on consumer behavior in mobile technology-mediated settings (e.g., Kim and Han, 2014; Liu et al., 2012; Tsang et al., 2004; Xu et al., 2009). Second, Ducoffe's framework includes both favorable (i.e., informativeness and entertainment) and unfavorable (i.e., irritation) factors. Therefore, its adoption enables explicitly studying both positive and negative effects of persuasive techniques, as recommended by for instance Kaptein and Eckles (2012). Third, the framework also contains affective components (i.e., entertainment and irritation). This may be especially relevant when studying the effectiveness of persuasive communication in situations characterized by a limited perceived distance between the recipient and sender since generally the intensity of and reliance on the experienced affect increases as that distance is reduced (cf. Chang and Pham, 2013; Williams et al., 2014). In the following sub-sections, we will further describe the hypothesized relationships between the aforementioned concepts.

3.1. The influence of scarcity and social proof persuasion techniques

The particular impact of applying a scarcity or social proof technique in the specific context of LBM can be explained by construal level theory (see Eyal et al., 2009; Liberman et al., 2007). According to this theory, in case of limited psychological distances (i.e., when message recipients experience a relatively short distance between themselves and an object, circumstance or action referred to in the message), this message will tend to be more persuasive if its content contains cues that the recipient generally associates with being close to someone or something (Katz and Byrne, 2013). Recipients are less likely to resist such congruent messages (Katz and Byrne, 2013) since people can construe congruent message cues more easily (Edwards et al., 2002; Hernandez et al., 2015) and hence, tend to experience the message and its content more positively (cf. Hasan, 2016; Kim et al., 2009). More specifically, as reported in prior empirical marketing studies, congruence between a persuasive message and the surrounding (media) context increases the experienced informativeness (Edwards et al., 2002; Huang et al., 2018) and enjoyment or entertainment (Kamins et al., 1991; Peters and Leshner, 2013), and is associated with a decrease in the felt irritation (Edwards et al., 2002; Martí-Parreño et al., 2013).

When customers receive a location-based message, they are typically within walking distance from the physical store that sent them the specific message. Therefore, according to extant research (e.g., Hühn et al., 2017; Katz and Byrne, 2013; Luo et al., 2014), at that time, these individuals are separated from the store by only relatively short temporal and spatial distances, and the resulting psychological distance to the store is limited. Using a scarcity technique would be more congruent with this limited psychological distance, and therefore more persuasive, than a social proof technique given the particular use of distance-related message cues involved in the application of each of these techniques. Scarcity-focused messages mainly consist of cues that signal *nearness* as they directly center on the recipient's personal gain and thus on *himself* (Aggarwal et al., 2011; Aguirre-Rodriguez, 2013). Conversely, social proof-focused messages mostly contain cues that convey *more distance* since they emphasize *others* (cf. Armstrong, 2010), i.e., people who are inherently more psychologically distant than oneself (see e.g., Eyal et al., 2009; Kim et al., 2008). In line with the above, we propose that in LBM:

H1. A scarcity-focused message is associated with a higher level of informativeness than a social proof-focused message.

H2. A scarcity-focused message is associated with a higher level of entertainment than a social proof-focused message.

H3. A scarcity-focused message is associated with a lower level of irritation than a social proof-focused message.

3.2. The experiential antecedents of message value

Message value and its three experiential antecedents (i.e., informativeness, entertainment and irritation), as introduced by Ducoffe (1995, 1996), have received support in the marketing literature (see e.g., Bracket and Carr, 2001), including the LBM-domain (see e.g., Xu et al., 2009). While the empirical findings in that particular domain are still limited, they highlight that LBM provides value to consumers when these individuals experience location-based messages as relevant and timely (i.e., informative) (e.g., Hühn et al., 2017), pleasurable and fun (i.e., entertaining) (Kim and Han, 2014), but not cognitively overwhelming and unwelcome (i.e., irritating) (Xu et al., 2009). Drawing upon these findings and following Ducoffe's (1995, 1996) theorizing, we postulate that:

H4. Informativeness has a positive influence on message value.

H5. Entertainment has a positive influence on message value.

H6. Irritation has a negative influence on message value.

3.3. The determinants of store visit intention

In line with Ducoffe's propositions (1995, 1996), both entertainment and message value have been modeled and tested in previous LBM-studies as direct determinants of consumers' behavioral responses. For instance, scholars have demonstrated direct influences of entertainment on intentions to use permission-based advertising (Richard and Meuli, 2013) and store patronage intentions (Zhu et al., 2017). In addition, previous studies have reported direct effects of message value

on the intention to use location-based advertising (Schade et al., 2018), and on information searches, message sharing, and purchases (Lin et al., 2016). Interestingly though, there are – to the best of the authors' knowledge – no publications in the LBM-domain that analyze the effects of entertainment and message value on store visit intention. Still, supported by Ducoffe's work (1995) and by existing empirical findings indicating that entertainment and message value positively affect a variety of behavioral outcomes, it appears justified to posit that:

H7. Entertainment has a direct positive influence on store visit intention.

H8. Message value has a positive influence on store visit intention.

4. Research methodology

4.1. Research design

A factorial survey research design was adopted to collect the data since it has been said to have several benefits in terms of for example realism, validity, and replicability (for a discussion see e.g., Wason et al., 2002). Combining aspects of both experiments and traditional surveys, this research design involves (1) deliberately manipulating factors through the use of so-called vignettes, where each vignette concerns "a short, carefully constructed description of a person, object, or situation, representing a systematic combination of characteristics" (Atzmüller and Steiner, 2010, p. 128), (2) randomly assigning these vignettes to particular respondents, and (3) administering a subsequent survey to measure the focal constructs and to collect relevant socio-demographic data (cf. Atzmüller and Steiner, 2010; Vance et al., 2015).

Given that our study required the manipulation of a single factor (i.e., persuasion technique) on two levels, we developed and used two vignettes (see Wason et al., 2002). Each of these described the imaginary situation that respondents received a particular location-based message through the retailer's app on their smartphone while being within walking distance from the store. As such, each vignette had two elements, namely the focal location-based message and a description of the context in which this message was received. The two vignettes only differed in the particular location-based message described in the scenario; the contextual description was the same for either message. The used location-based messages were "Visit our store now and benefit only today from a 20% discount on a product of your choice" (scarcity-focused message) and "Visit our store now and experience the customer service that other customers rate as excellent" (social proof-focused message).

4.2. Vignette development

The aforementioned two messages and the contextual description that formed the two vignettes were developed in several rounds together with our research partner, a fashion retailer that is specialized in clothing, uses multiple channels (110 physical outlets, a webstore and their own smartphone app), and is an established player in the Dutch market. To ensure the validity and reliability of the two resulting vignettes, this development was based on (1) retailing literature suggesting business characteristics that fashion retailers would be most likely to communicate when applying LBM (see e.g., Swoboda et al., 2016), and (2) existing factorial survey guidelines. Following these guidelines, the selected type of vignette consisted of both a verbal description of the scenario and a relevant visualization (i.e., an image of a mobile phone showing the location-based message, see appendix A), since such a dual stimulus vignette could be expected to lead to more realistic responses (cf. Eifler, 2007), to make the manipulated variable obvious (cf. Wason et al., 2002), and to fit the intended participants in the study (cf. Hughes and Huby, 2004). In addition, we made the vignettes as concrete, interesting, and applicable to actual LBM-settings in the fashion retailing sector as we could, to stimulate the survey response as well as to increase the practical relevance of the research outcomes to brick-and-mortar fashion retailers (cf. Hughes and Huby, 2004; Siponen and Vance, 2010; Steiner et al., 2016). Furthermore, a between subject factorial design with randomized vignette selection was used (cf. Jasso, 2006; Steiner et al., 2016). Moreover, we saw to it that the survey questions were tailored to each of the vignettes (cf. Wason et al., 2002). Finally, a panel consisting of experts with a background in fashion retail ($n = 5$), retail research ($n = 2$), communication studies ($n = 1$), and information systems research ($n = 2$) evaluated the developed vignettes (cf. Hughes and Huby, 2004; Vance et al., 2015). More precisely, these experts established that the vignettes (including the particular location-based messages) were readable, represented the studied independent variables, were contextually valid, were realistic, and had practical relevance (cf. Siponen and Vance, 2010; Vance et al., 2015; Willison et al., 2018).

To further assess the validity of the two formulated location-based messages, a manipulation check was conducted. This was done separately from the final data collection that was intended for the empirical test of the research model (cf. Hauser et al., 2018; Perdue and Summers, 1986), using an online survey of undergraduate students enrolled in a marketing program at a Dutch university. Since existing measures for the manipulation check were missing, such measures were constructed in line with the scale development literature (e.g., DeVellis, 2012; Netemeyer et al., 2003) (cf. Perdue and Summers, 1986). Two five-point multi-item Likert scales were developed to measure the perceived extent to which a particular location-based message concerns (1) the use of the scarcity persuasion technique (*scarcity extent*) and (2) the use of the social proof persuasion technique (*social proof extent*), respectively. First, initial measurement items were generated for both scales based on the literature on these persuasion techniques (e.g., Cialdini, 2001, 2007; Griskevicius et al., 2009; Kaptein and Eckles, 2012). The two resulting scales (see appendix B) were reviewed by an expert panel consisting of six academics with a background in marketing communication and with experience in scale development. Although the results from this assessment indicated that two of the scarcity extent items (see appendix B) might need to be removed due to wording redundancy and content validity issues, it was decided to retain these two items in that phase and decide on their potential deletion after an initial item analysis using the actual manipulation check data.

Two short questionnaires, that were intended to be administered to the respondents randomly, were then developed. Each of these contained four main elements, namely (1) one of the two developed vignettes that included either the scarcity or social proof-focused location-based message, (2) the two developed scarcity extent and social proof extent scales, (3) two questions that presented a definition of the scarcity and the social proof persuasion technique respectively and then asked respondents to rate (on a five-point scale ranging from *not at all* to *very much*) the degree to which they found that the particular location-based message shown to them was based on each defined persuasion technique (cf. Parsons et al., 2019), and (4) socio-demographics-related measures (e.g., gender and age), and an attention check (cf. Kung et al., 2018). The two questionnaires were translated into Dutch using the back-translation technique (see Malhotra et al., 1996). The interpretability of this translated questionnaire was then judged by the above-mentioned expert panel and was deemed to be appropriate for actual use in the manipulation check survey.

Of the 164 complete responses to the survey, 17 failed the attention check. Of the resulting sample of 147 respondents, 72.8% ($n = 107$) were men and 27.2% ($n = 40$) were women. The majority of the respondents were between 19 and 22 years old ($n = 103$, 70%). An application of Hair et al.'s (1998) procedure for principal component factor analysis with varimax rotation as well as an examination of Cronbach's alphas, average interitem correlations and corrected-item-to-total correlations (cf. Netemeyer et al., 2003), confirmed that it would be appropriate to drop two scarcity extent items (see appendix B), as already suggested by the results of the

abovementioned expert panel review. Dropping these two items resulted in an extracted latent factor structure that matched the developed scarcity extent and social proof extent measurement scales. This latent factor structure was then validated through a confirmatory factor analysis using partial least squares (PLS) modeling (SmartPLS 3.0, see Ringle et al. (2015)). All relevant metrics, shown in appendix C, surpassed established thresholds and as such attested to the psychometric qualities of the developed scales.

The manipulations were checked in two ways using the two subsamples resulting from the random presentation of the two location-based messages. First, an analysis was conducted to compare the perceived scarcity extent and social proof extent of these messages, as indicated by the respondents on the two developed multi-item scales. An independent samples *t*-test (IBM SPSS Statistics 24) was done using the message type as factor (social proof message: $n = 74$; scarcity message: $n = 73$), and scarcity extent and social proof extent as dependent variables. The results indicate significant differences for each of the dependents (scarcity extent: $t(137) = -8.353$, $p < 0.001$; social proof extent: $t(144) = 11.034$, $p < 0.001$) and demonstrate that the scarcity-focused message had a significantly larger scarcity extent than the social proof-focused message (scarcity message: $M = 3.61$, $SD = 0.86$; social proof message: $M = 2.24$, $SD = 1.12$) and the social proof-focused message had a significantly larger social proof extent than the scarcity-focused message (social proof message: $M = 3.85$, $SD = 0.94$; scarcity message: $M = 2.10$, $SD = 0.98$). Subsequently, we investigated to what degree the respondents felt that the specific message presented to them was based on the two persuasion techniques as defined in the questionnaire. The results of two Wilcoxon matched-pairs signed-rank tests (IBM SPSS Statistics 24) corroborated the results of the independent samples *t*-test; the scarcity-focused message was seen as significantly more based on the scarcity persuasion technique than on the social proof persuasion technique (mean rank = 30.78 vs. 20.14; $z = -5.645$, $p < 0.001$), and the social proof-focused message as significantly more based on the social proof persuasion technique than on the scarcity persuasion technique (mean rank = 34.86 vs. 16.90; $z = -6.603$, $p < 0.001$). Overall, the results of the manipulation check provided evidence that the manipulations were sufficiently strong and that their application in the final data collection was justified.

4.3. Final data collection

The respondents in the final data collection for the empirical test of the research model included customers who had joined the research panel of our research partner, i.e., the abovementioned Dutch fashion retailer. Using this research panel instead of applying a form of probability sampling did not only make it easier to administer the survey, but also increased the likelihood that respondents could respond meaningfully to the vignettes (cf. Wason et al., 2002) for instance given that panel members already had prior experience with participating in scenario-based surveys.

In the beginning of the online survey, reflecting the objectives of this research, each respondent was confronted at random (cf. Siponen and Vance, 2010) with one of the two developed vignettes, i.e., with either the scarcity-focused or the social proof-focused location-based message. After reading the vignette, the respondents completed the online survey. As incentive, four gift coupons, each worth 25 Euro, and one gift coupon worth 100 Euro, were raffled off among all respondents.

4.4. Measurement instruments

All measures in the final data collection were taken from previously validated measurement instruments. To measure informativeness, entertainment, irritation and message value, five-point multi-item Likert scales were used. Store visit intention was measured using a five-point multi-item semantic differential scale. To assure that all used scales fitted well to the research setting, the wording of some scales was slightly adapted (e.g., we changed "the website is annoying" to "the location-based message is annoying"). The scales were translated into Dutch using the back-translation technique (see Malhotra et al., 1996). Appendix D lists all multi-item measurement scales, including the supporting references. Next to the multi-item scales, the online survey contained measures for the following socio-demographics: age, gender, frequency of visiting the store, and frequency of buying at the store.

4.5. Sample characteristics

A total of 579 respondents completed the online survey. Of the respondents, 68.4% ($n = 396$) were women and 31.6% ($n = 183$) were men. The majority of the respondents were between 36 and 55 years old ($n = 318$, 54.9%). Most respondents indicated to visit the physical outlet (s) of the retailer once per month or a couple of times per year ($n = 435$, 75.1%) and to buy at the outlet(s) a couple of times per year ($n = 410$, 70.8%). Overall, the sample characteristics show a bias towards middle-aged women, who visit and buy at the stores once per month or less.

5. Data analysis and results

Independent samples t testing and PLS-modeling were used to estimate and test our model. The t tests (IBM SPSS Statistics 24) were used to test the effects of the two types of location-based messages on informativeness, entertainment and irritation. To test the other relationships in our model we used the software SmartPLS 3.0 (Ringle et al., 2015) to apply the consistent PLS-algorithm. This algorithm was selected as it is recommended when research variables are reflective, is less subject to inflated Type I and Type II errors than the more traditional PLS-algorithm (Dijkstra and Henseler, 2015), and mimics the accuracy of parameter estimation and statistical power of covariance-based structural equation modeling (Hair et al., 2017).

5.1. Psychometric testing

We used consistent PLS to assess the psychometric properties of the measures. We first evaluated the convergent validity and reliability of the multi-item scales by computing (standardized) factor loadings, and average variance extracted (AVE), Cronbach's alpha and composite reliability values. Table 1 shows the results and includes recommended values as suggested in the scale development literature (e.g., DeVellis, 2012; MacKenzie et al., 2011; Ping, 2004). Except for the factor loading of the second entertainment item, which approaches the 0.70 value, all factor loadings, AVEs and Cronbach's alphas surpass the recommended values. Overall, this leads us to conclude that the convergent validity of the measures is confirmed. Also, the reliability of the measures is established since all AVEs, Cronbach's alphas and composite reliability results exceed the recommended values.

To test the discriminant validity of the measures, we followed

Table 1
Convergent validity and reliability indicators.

Construct (number of items)	Factor loadings	AVE	Cronbach's alpha	Composite reliability
Informativeness (5)	0.76, 0.92, 0.96, 0.80, 0.71	0.70	0.92	0.92
Entertainment (5)	0.88, 0.68, 0.83, 0.75, 0.81	0.63	0.90	0.89
Irritation (3)	0.96, 0.97, 0.80	0.83	0.93	0.93
Message value (3)	0.92, 0.88, 0.86	0.78	0.92	0.92
Store visit intention (4)	0.95, 0.94, 0.92, 0.91	0.86	0.96	0.96
Recommended value	*0.70*	*0.50*	*0.70*	*0.70*

Henseler et al. (2015, p. 128) who, driven by substantial criticism of the Fornell-Larcker criterion and of the assessment of cross-loadings, presented the heterotrait-monotrait (HTMT) ratio of correlations between constructs as an alternative criterion. The HTMT-values between the constructs as displayed in Table 2 show that none of the values surpasses the conservative criterion of 0.85 (Henseler et al., 2015), hereby providing evidence of the discriminant validity of the measures.

Finally, we decided to test for common method bias by making use of the full collinearity test as suggested by Kock and Linn (2012). For each of our five research constructs, we estimated a model in SmartPLS (consistent PLS, 500 iterations) in which we modeled the construct as dependent variable and the other four constructs as independents. A study of the variance inflation factor (VIF) scores between the constructs showed that there were no VIF-scores exceeding the conservative value of 3.3 for the five estimated models (highest VIF informativeness model: 3.19; highest VIF entertainment model: 2.92; highest VIF irritation model: 3.30; highest VIF message value model: 2.64; highest VIF store visit intention model: 2.39). As such, absence of common method bias was established.

5.2. Structural model

We then estimated our structural model by taking two steps. First, we ran three independent samples t tests using the location-based message type as factor (scarcity: $n = 319$; social proof: $n = 260$), and informativeness, entertainment and irritation as dependent variables. The results demonstrate significant differences for each of the dependents (informativeness: $t(502) = -14.262$, $p < 0.001$; entertainment: $t(516) = -7.168$, $p < 0.001$; irritation: $t(507) = 8.045$, $p < 0.001$) and show that the respondents perceived the scarcity-focused message as significantly more informative (scarcity message: $M = 4.13$, $SD = 0.89$; social proof message: $M = 2.94$, $SD = 1.08$), entertaining (scarcity: $M = 3.22$, SD = 0.96; social proof: $M = 2.59$, $SD = 1.11$) and less irritating (scarcity: $M = 2.21$, $SD = 1.12$; social proof: $M = 3.04$, $SD = 1.33$). The results imply that hypotheses 1, 2 and 3 were supported.

Second, we tested the remainder of the structural model by running consistent PLS (500 iterations; consistent PLS bootstrapping with 500 subsamples). Together, informativeness ($\beta = 0.19$, $p < 0.001$), entertainment ($\beta = 0.50$, $p < 0.001$) and irritation ($\beta = -0.20$, $p < 0.001$) explained 62.5% of the variance of message value. Furthermore, entertainment ($\beta = 0.22$, $p < 0.01$) and message value ($\beta = 0.58$, $p < 0.001$) explained 58.6% of the store visit intention variance. Overall, these results support hypotheses 4, 5, 6, 7 and 8.

5.3. Additional testing

To gain additional insights into the mechanisms connecting location-based persuasion techniques to store visit intention, we decided to perform two additional tests. The objective of the first of these tests was to explore an extended model by adding two more relationships: a direct influence of informativeness on the store visit intention and a direct influence of irritation on the store visit intention. The logic behind this extension comes from recent empirical findings suggesting that both advertising message informativeness (see e.g., Alalwan, 2018; Ozcelik and Varnali, 2019; Shareef et al., 2019) and irritation (see e.g., Redondo and Aznar, 2018; Ozcelik and Varnali, 2019) may directly predict behavioral outcomes. A demonstration of such effects in our study would be of interest as it would imply that persuasive location-based messages that are informative and low in irritation may contribute to store visit intentions in a more direct way than initially thought. To investigate this eventuality, the alternative model was run in SmartPLS 3.0, using the same algorithm and settings as before. The results show an insignificant effect of informativeness on the store visit intention ($\beta = -0.05$, $p = 0.265$) and a significant effect of irritation on the store visit intention ($\beta = -0.27$, $p < 0.001$). When comparing the extended model with the original model in terms of the beta values and the amounts of explained variance, no differences regarding the influences of informativeness, entertainment and irritation on message value are apparent. A comparison of the effects on the store visit intention reveals that the amount of variance explained is slightly higher for the extended model (62.4%) than for the original model (58.6%), whereas the influences of entertainment and message value remain significant but are slightly lower in magnitude (message value: $\beta = 0.51$, $p < 0.001$; entertainment: $\beta = 0.13$, $p < 0.05$). Overall, the additional testing re-confirms the selected nomological structure as derived from Ducoffe's (1995) advertising value conceptualization, while at the same time suggesting a direct path from irritation to store visit intention as a valuable extension.

Although the use of a sample of real customers of an actual retailer contributes to the external validity of our study, the characteristics of this sample in terms of age, gender, frequency of visiting the store, and frequency of buying at the store could have had a confounding effect on the outcomes of our modeling (cf. Hausman and Siepke, 2009). Therefore, the second additional test was intended to assess this potentiality empirically. A MANCOVA (IBM SPSS Statistics 24) was run using the treatment in our study (scarcity-focused message versus social proof-focused message) as factor, entertainment, informativeness and irritation as dependents, and age, gender, frequency of visiting the store, and frequency of buying at the store as covariates. The results show significant main effects for the treatment (Wilks' $\Lambda = 0.724$, $F = 72.603$, $P < 0.001$), whereas non-significant main effects were found for age (Wilks' $\Lambda = 0.996$, $F = 0.737$, $P = 0.530$), gender (Wilks' $\Lambda = 0.993$, $F = 1.306$, $P = 0.271$), frequency of visiting the store (Wilks' $\Lambda = 0.994$, $F = 1.144$, $P = 0.331$), and frequency of buying at the store (Wilks' $\Lambda = 0.988$, $F = 2.251$, $P = 0.081$). We then looked at the univariate results. In line with our initial model testing, the univariate results confirm that the scarcity-dominant message has a stronger positive influence on entertainment ($F = 52.342$, $P < 0.001$) and informativeness ($F = 199.815$, $P < 0.001$) and a stronger negative influence on irritation ($F = 93.404$, $P < 0.001$) than the social proof-dominant message. Then, to test for confounding effects for the remainder of our model, we ran a moderation test in SmartPLS 3.0 using the same settings as reported in the above. In the test, we extended the remainder of our model structure by adding age, gender, frequency of visiting the store, and frequency of buying at the store as moderators to each of the hypothesized relationships and, following recent insights in PLS-based moderation testing (Becker et al., 2018; Matthews et al., 2018), estimated it by using the two-stage approach for the analyses. The outcomes show that none of the modeled moderating effects were significant, and also that no significant direct influences of the moderators on the dependent variables were found. In sum, the results of this second additional test show that the examined sample characteristics did not have significant confounding effects, which increases the generalizability of our findings.

Table 2
HTMT-ratio of correlations.

	Informativeness	Entertainment	Irritation	Message value	Store visit intention
Informativeness	1				
Entertainment	0.67	1			
Irritation	0.64	0.54	1		
Message value	0.76	0.63	0.63	1	
Store visit intention	0.66	0.51	0.66	0.75	1

6. Discussion

6.1. Key findings

The objective of this empirical, exploratory study was to assess and compare the effectiveness of the location-based message persuasion techniques scarcity and social proof in generating message value and triggering customers' intentions to visit physical fashion stores. The results of our analyses lead to several key findings that serve the fashion retailing sector. First, our data show that the message emphasizing scarcity outperforms the message emphasizing social proof by being more informative, more entertaining and less irritating, which, following the outcomes of our predictive validity testing, is highly relevant given that informativeness, entertainment, and irritation appear to significantly contribute to overall message value and store visit intentions. Second, when considering the high amounts of explained variance, the overall determined influence of informativeness, entertainment and irritation on message value and on the store visit intention can be labelled as rather strong. Third, in terms of relative importance of the three sources of location-based message value, the found magnitudes of the beta values show that entertainment is the strongest determinant of message value in this empirical investigation, followed by irritation and informativeness. Regarding the store visit intention, our additional testing shows that irritation is the strongest direct determinant in our study, followed by entertainment. Informativeness was found to have no significant influence on store visit intention.

6.2. Theoretical implications

In this exploratory study, we empirically tested a research model that has two main theoretical underpinnings, namely persuasion theory (e.g., Griskevicius et al., 2009; Whittler, 1994) and Ducoffe's (1995, 1996) advertising value model. The results of our empirical testing chiefly yield three related theoretical implications regarding persuasion in LBM-settings, a particular domain on which prior research, given the context-specific nature of persuasion (e.g., Kaptein and Eckles, 2012; Meyers-Levy and Malaviya, 1999), sheds insufficient light. First, predicated upon persuasion theory and construal level theory, the findings suggest that different types of persuasion techniques (i.e., scarcity and social proof) have a disparate potential to increase the willingness of location-based message recipients to visit a fashion retailer's physical store. More specifically, the results seem to imply that the more congruent a message is with the limited physical and temporal distance between recipients and the store, the more it will lead to an informative, entertaining, and non-irritating experience, and therefore to increased message value and store visit intentions. Accordingly, by conducting this study, we answer the call for empirical research to explain the effectiveness of context-specific persuasion approaches in mobile messaging settings (see Katz and Byrne, 2013).

Second, our findings concerning the impact of informativeness, entertainment and irritation appear to underline the relevance of using these three sources of message value as dependent variables when determining the effects of different persuasive location-based messages. As such, our study corroborates the predictive potential of Ducoffe's (1995, 1996) value model when applied in an LBM-context to explain store visit intentions, and adds to the relatively small number of studies in the upcoming field of LBM-effectiveness (e.g., Gazley et al., 2015; Lee et al., 2015).

Third and finally, the results of our additional model testing show that, next to entertainment, also irritation may influence store visit intention over and above message value. This finding adds to other studies in which Ducoffe's model was modified by directly relating multiple experiential antecedents to behavioral variables (e.g., Dar et al., 2014; Lee et al., 2016; Shareef et al., 2019), and seems to imply that extensions of this model in terms of the specified relationships could increase its nomological validity still further.

6.3. Practical implications

For fashion retailers making use or intending to make use of LBM, the results of our study have several implications. First, these results appear to indicate that the selected persuasion technique determines how a location-based message is experienced by customers. More precisely, in our study, the scarcity-dominant message was experienced as more informative, more entertaining and less irritating, and was therefore valued more than the social proof-dominant message. This suggests that fashion retailers aiming to send valued location-based messages that increase the store visit intention and thus induce store visits, would benefit more from applying a scarcity technique than from applying a social proof technique. Furthermore, following the theoretical rationale in this study, fashion retailers should be aware that the effectiveness of a particular LBM-persuasion technique does appear to depend on the extent to which that technique is congruent with the typical limited physical and temporal distance between recipients and the store. Fashion retailers could not only make use of this knowledge when deciding between adopting a scarcity or a social proof technique to attract store visitors, but also when evaluating the potential of other persuasion techniques that are sometimes used in practice (see e.g., Cialdini, 2007). Finally, when considering the relative importance of the three experiential antecedents of message value, entertainment and irritation seem to be the most relevant direct and indirect determinants of store visit intention. Fashion retailers could capitalize on this finding by making location-based messages as entertaining and non-irritating as possible, for example by adapting the message content to the individual recipient's interests and lifestyle (Kim and Han, 2014).

6.4. Limitations and future research

This exploratory study is subject to five main limitations. First, it centered specifically on the fashion retail sector. It remains to be seen whether our research findings can be generalized to other retail sectors such as books, supermarkets, home and decoration, consumer electronics, jewelry, and optics. It is conceivable that the particular retail sector affects customers' motivation to examine retailer-related information and customers' use of stimuli as a basis for this information (cf. Fernández et al., 2018; Swoboda et al., 2016), and that customers therefore experience location-based messages differently depending on the retail sector in which LBM is applied. Accordingly, and given the apparent importance of stimulating physical store visits for retailers in multiple sectors, we advise other researchers to replicate our study in discrepant retail sectors. In case of such replications, it would seem prudent to establish whether our specific formulation of the scarcity and social proof-focused, location-based messages would need to be adapted to the particular other retail sector prior to the data collection. After all, we tailored the messages to ensure that they were representative of persuasive LBM actually applied by fashion retailers in practice given (1) the discussed context-specific nature of persuasion and (2) the importance of balancing the rigor of academic studies with their practical relevance (see e.g., Benbasat and Zmud, 1999; Knights and Scarbrough, 2010).

Second, although our additional testing showed no significant confounding effect of age, gender, frequency of visiting the store, and frequency of buying at the store, two other sample characteristics might have had such an effect on our research outcomes. One of these two characteristics is the Dutch cultural background of all respondents. As suggested in previous studies (e.g., Seiter and Gass, 2008), the effectiveness of particular persuasion techniques could depend on the cultural background of the message recipients. For example, the impact of a social proof technique might be weaker in individualistic national cultures (e.g., in the Netherlands (Bagozzi et al., 2003)) since individuals tend to conform less to others in these cultures (Cialdini and Trost,

1998). Another sample characteristic that had the potential of confounding the results is respondents' involvement with the product category. Since the sample consisted of members of the fashion retailer's research panel, they could have been more involved with fashion products than regular fashion shoppers. Prior research has shown that consumers' involvement with the particular items sold in a retail sector influences their experience of marketing stimuli, for instance moderating the impact of contextual factors on irritation (Demoulin and Willems, 2019). Hence, some caution in generalizing our research findings seems warranted. Future research could further investigate the impact of national culture and involvement on persuasive LBM based on probability samples from multiple countries with dissimilar cultures.

Third, similar to prior empirical studies, we focused on a subset of potential persuasion techniques, namely scarcity and social proof. While, as was described in section 2, these two persuasion approaches are among those most relevant, other techniques may also be useful to retailers when conducting LBM. Therefore, we encourage other scholars to assess the relevance and effectiveness of various discrepant persuasion techniques (see e.g., Cialdini, 2007; Kellermann and Cole, 1994) in future LBM-studies.

Fourth, since extant research offers extremely limited insight into how to persuade customers to visit a store using LBM, in this exploratory study we focus on persuasion techniques and not on more specific, content-related aspects of persuasion (i.e., format, argument wording, organization or style) given that in practice those content-related aspects concern details that are likely to be decided on only after a company has established a fitting persuasion technique (cf. Armstrong, 2010). Hence, although we took great care to ensure that the content of the two messages used in our empirical investigation are realistic and representative, our research does not shed light on how *varying* the content of a particular scarcity-focused or social proof-focused message would impact the persuasiveness of each of these two types of messages. For example, it is conceivable that the effectiveness of a scarcity technique in an LBM-context depends on the extent to which the value represented by the particular message is directly quantified in that message (see e.g., Roehm and Roehm, 2011). Answering related research questions could form an interesting avenue for future research.

Fifth, although using a research design involving vignettes appeared an appropriate research method given that LBM has not yet been adopted on a large-scale in the retailing industry and therefore remains a hypothetical communication method for most retailers and consumers (cf. Atzmüller and Steiner, 2010), basing the data collection on imaginary situations could have somewhat decreased the external validity of our findings (Steiner et al., 2016). To address this potential limitation of our study, other researchers could replicate it in real-life settings, involving the genuine sending of location-based messages by retailers. Such a data collection in a real-life setting could then also focus on actual store visits instead of on store visit intentions as a key dependent variable. After all, while intentions can be used as a proxy of actual behavior, they cannot be equated (Fishbein and Ajzen, 2010). Whether a recipient of a location-based message will indeed visit the retailer's physical store is likely to depend on more than merely the message value and its experiential antecedents. For example, customers may initially want to visit the store after reading the location-based message, but due to changes in the environment in which they receive the message (e.g., not being able to find a parking spot after having read the message while still being in the car), the relative urgency of visiting the store may decrease and they may decide not to visit the store at that moment after all. Consequently, it would be valuable if future studies investigated to what extent scarcity and social proof persuasion techniques ultimately induce *actual* store visits.

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Appendix A. Supplementary data

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