



Promotional Tactics for Online Viral Marketing Campaigns: How Scarcity and Personalization Affect Seed Stage Referrals

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Abstract

Against the backdrop of consumers being deluged with traditional online advertising, which is increasingly manifesting in inefficient conversion outcomes, viral marketing has become a pivotal component of marketing strategy. However, despite a robust understanding about the impact of viral marketing as well as of factors that drive consumer referral engagement, we know very little about the effect of traditional promotional tactics on consumer referral decisions. Drawing on a randomized field experiment in the context of an online fashion service named StyleCrowd, we investigate the effects of scarcity and personalization, two classical promotional cues that have become ubiquitous on the web and have received only minimal attention hitherto, on actual referral behavior. Our analysis reveals that using these cues in promotional campaigns is a balancing act: While scarcity cues affect referral propensity regardless of whether a campaign is personalized or not, personalization cues are particularly effective when scarcity is absent, yet are cancelled out when scarcity is prevalent. We demonstrate that consumers' perceptions of offer value drive the impact of scarcity on referral likelihood, while consumer gratitude vis-à-vis the marketer is the underlying mechanism for personalization's influence on referral decisions.

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Introduction

The rapid adoption of the internet on a global scale has led companies such as Facebook, Twitter or You Tube to substantially enhance connectivity between consumers and companies by enabling social networks, social media and user-generated content (Ratchford 2015). For many firms, this has made the web to the primary advertising channel for reaching potential customers (e.g., via banner ads or social media ad campaigns), at the cost of deluging them with often irrelevant information. Hence, it is not surprising that consumers have come to perceive traditional online advertising as irrelevant and overwhelming in quantity (Porter and Golan 2006), which in turn

has led them to revert to channels such as word of mouth (wom) when gathering credible information about new products.

Against this backdrop, practitioners have increased their attention towards viral marketing, which refers to the process of deliberately tapping into the power of word of mouth by “using consumer communication as a means of multiplying a brand's popularity through customers spreading the brand name of a product or name of a company.” Dollarshaveclub.com, Instagram and also Pinterest, which succeeded in growing its monthly unique visitors from 40,000 to 3.2 million users in only one year, are more recent success stories that have managed to leverage viral marketing to their advantage especially in their early days (Entrepreneur 2012; Techcrunch 2011).

Research on viral marketing has focused on the consequences on firm level outcomes such as sales (e.g., Chevalier and Mayzlin 2006; Trusov, Bucklin, and Pauwels 2009) as well as individual level outcomes related to consumer decision-making (e.g., Bickart and Schindler 2001; Chevalier and Mayzlin 2006; Nambisan and

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Baron 2007). Moreover, a comprehensive amount of literature illuminates factors that lead to participation in viral marketing campaigns (Angelis et al. 2012; De Matos and Rossi 2008; Hennig-Thurau et al. 2004) and examines content characteristics that enhance virality (Berger and Iyengar 2012; Berger and Milkman 2012; Stephen and Berger 2009). However, though there is a robust literature on the antecedents of virality, minimal attention has been paid towards classical promotional tactics that may enhance consumer referrals. Hence, our research intends to fill this gap.

The goal and main contribution of this paper are to shed light on the potential of scarcity (i.e., the deliberate shortening of product or service availability and the communication thereof) and personalization (i.e., the endowment of a promotional campaign with personal references such as greetings), two prominent and established promotional tactics from the offline world (Arora et al. 2008; Miceli, Ricotta, and Costabile, 2007), in influencing consumer referral decisions and therefore to expand our understanding of the antecedents of consumer referral behavior as suggested by King, Racherla, and Bush (2014). We focus on these particular cues in the context of our randomized field experiment because research has demonstrated their influence on factors which are also considered particularly critical to consumer participation in viral marketing campaigns, namely product or information value as well as consumers' need to reciprocate (Frenzen and Nakamoto 1993; Pihlström and Brush 2008; Sundaram, Mitra, and Webster 1998). Furthermore, these tactics have become popular among well established firms like Amazon.com and nascent ventures such as Mailbox, alike when generating awareness and attracting new potential customers (Forbes 2013a,b; Nextshark 2013). However, despite their theoretical and practical relevance, extant contributions on viral marketing have so far neglected the role of these cues as catalysts of consumer referral behavior, thus leaving a gap in the literature that needs to be addressed.

This paper is organized as follows. In the next section, we review prior literature on viral marketing. We then draw on literature on scarcity and personalization to round up the theoretical foundation of our research model. The following section presents the hypotheses regarding the effects of scarcity, personalization and their interaction on consumer referral decisions, including the relevant mediators. The subsequent section describes the research methodology used within our experimental study, followed by our data analysis and the results of hypothesis testing. Finally, we then discuss our findings, implications and directions for further research.

Theoretical Background and Related Literature

Viral Marketing and Drivers of Consumer Referral Behavior

Viral marketing focuses on the diffusion of product information by deliberately exploiting existing social networks to encourage people to make referrals to their friends (i.e., share news or information about a product or service) (Leskovec, Adamic, and Huberman 2007). In the context of online viral

marketing particularly, referrals relate to passing along messages received by the marketer to one's peers. In essence, one can broadly describe viral marketing via two stages (Pescher, Reichhart, and Spann 2014). In the first stage, which focuses on firm created word of mouth and is often referred to as *seeding*, companies actively send their promotional campaigns to a targeted or untargeted audience of consumers (first stage actors). In the second stage, firms rely on peer-to-peer communications among consumers (second stage actors) for the efficient diffusion of the promotional campaign in their social networks. Referrals through first stage actors are essential to success, because the ability to reach second stage actors is contingent on the referral decisions made by first stage actors.

Firms revert to viral marketing campaigns mainly for broad reach and cost effectiveness. Broad reach results from companies encouraging customers to spread the message among their peers. In turn, when these peers decide to become customers, they are also encouraged to spread the message among their peers, leading the company to benefit from referrals among consumers and thus triggering a viral loop (Porter and Golan 2006; Van der Lans et al. 2010). On the other hand, cost effectiveness roots from the notion that consumers attribute higher credibility to messages that come from their peers and therefore are more likely to be acquired via referrals than via traditional advertising (Godes and Mayzlin 2004). Lastly, customers who are acquired through referrals are found to be more loyal and therefore more profitable (Trusov, Bucklin, and Pauwels 2009).

An often cited success story of viral marketing is the online file hosting service Dropbox, which managed to implement an effective referral system that led to a surge in its customer base from 100,000 to 4 million in only 15 months. Dropbox simply encouraged referrals by offering up additional storage for customers that successfully brought on friends (Veerasingam 2014).

The emergence of social media has played an important role in making it easier and faster to implement campaigns that can go viral (Stein and Ramaseshan 2014). Companies like Facebook, Twitter or LinkedIn provide platforms that make it very simple to share information with people that reach way beyond one's immediate network. Thus, firms often implement viral marketing campaigns by building minimal landing pages on the web to convey their messages or promotional offers and then spread links to these pages over social networks to generate buzz (Forbes 2013a,b; Ries 2011).

Research on viral marketing consists of two main streams. The first stream has mainly focused on its consequences such as the impact on sales, revenue or stock prices (e.g. Chevalier and Mayzlin 2006; De Bruyn and Lilien 2008; Trusov, Bucklin, and Pauwels 2009). However, a substantial amount of research has also showed how it may affect individuals directly in terms of purchase decisions (East, Hammond, and Lomax 2008) as well as pre- and post-purchase preferences and behavior (Bickart and Schindler 2001; Gauri, Bhatnagar, and Rao 2008).

The second stream of research has dealt with consumers' drivers for participating in viral marketing campaigns. Product involvement, self-enhancement, satisfaction as well as customer

commitment have repeatedly been identified as important motivators for consumers to engage in referrals (Hennig-Thurau et al. 2004). Albeit it should go without saying that consumers' perceptions of information value would influence the likelihood of them making a referral to their peers, only recently has this relationship been substantiated empirically (Pihlström and Brush 2008). It has also been demonstrated that peoples' concerns about how their actions will affect their image in the eyes of others influence their referral decision (Zhang, Feick, and Mittal 2014). Cheema and Kaikati (2010) demonstrated that consumers' need for uniqueness, which is the desire to perceive oneself as unique but at the same time accepted as an individual member of society, has a negative influence on consumers' willingness to make referrals. Lastly, Hennig-Thurau et al. (2004) assert that social benefits are an important motivator for consumers to participate in viral marketing, which is in line with the findings of others (e.g., Berger 2013; Nahapiet and Ghoshal 1998) who claim that social capital – referred to as the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit (Nahapiet and Ghoshal 1998) – may very well be the most important reason why consumers engage in referrals. The rationale is that information, a crucial form of social capital, is the key through which people gain access to others' resources (Coleman 1988). Hence, social capital exists and governs relations among people, making the maintenance and creation of it critical to anyone's personal and professional advancement (Coleman 1988).

Despite these extensive and valuable contributions to literature, it is surprising to find that only little attention has been paid towards classical promotional tactics – i.e., tactics that have traditionally been applied in offline promotional campaigns – which may successfully affect consumer participation in viral marketing campaigns, even though previous research has pointed out that a more comprehensive understanding of the mechanisms driving referral behavior in online campaigns may simply be obtained by examining traditional promotional tactics from the offline world (Berger 2013). We therefore intend to address this research gap by examining the effects of scarcity and personalization on consumer referral behavior in a real world field study. Our focus lies on these specific promotional cues as prior research has demonstrated their link to factors which are important drivers of consumer referral engagement, namely product or information value and the need to reciprocate.

Scarcity in Promotional Campaigns

According to economic market theory, scarcity describes a state where *ceteris paribus*, the demand for an object exceeds its supply (Kemp and Bolle 1999). Research has demonstrated that restrictions on an object's availability can have a positive effect on product preference, desirability, valuation and hence consumer decision-making (Amaldoss and Jain 2005; Inman, Peter, and Raghurib 1997; Van Herpen, Pieters, and Zeelenberg 2009).

Practitioners claim that scarcity helps to create a “hype” and are increasingly turning towards it when implementing their promotional campaigns. Take for example the success story of Mailbox, the company that managed to accumulate over one million signups for its service within only six weeks, prior to even having released its product. Mailbox simply launched a landing page with a pre-signup option that emphasized how many other users were in line in front of the current visitor on the waiting list and therefore created a feeling of scarcity among potential customers (Techcrunch 2013). Even well established firms with access to large resources have turned to scarcity tactics. For example, the online retailer Amazon only offered its new kindle tablet in a limited edition before actually making it available to the wider public (Forbes 2013a,b). In the context of online commerce, it has become very common to implement scarcity tactics by simply displaying promotional claims along the lines of e.g. “only 3 left in stock” (Amazon.com) or also “only 4 deals left” (Groupon.com).

Research suggests that scarcity evokes a state of physical agitation in which our sole focus becomes to fulfill the need in which we feel our freedom to be threatened (Brehm and Brehm 1981; Cialdini 1993). However, literature on scarcity has diverged into two distinct streams which advocate peculiar differences in the causal effects of scarcity on consumers based on the origin of diminished availability: On the one hand, supply-based scarcity due to deliberate or accidental shortages in supply and on the other hand, demand-based scarcity due to excess social demand.

Supply-based scarcity is suggested to have a positive effect on product value and therefore consumer purchasing behavior (Inman, Peter, and Raghurib 1997; Lynn 1989; Zellinger et al. 1975). More specifically, supply-based scarcity affects perceived exclusiveness, which helps consumers fulfill their need for uniqueness (Van Herpen, Pieters, and Zeelenberg 2009). According to uniqueness theory, consumers have the need to achieve moderate dissimilarity from others and one way of doing this is through self-identifying personal possessions, which means owning things that less people hold and hence are more exclusive, like e.g. the previously mentioned example of Amazon's kindle limited edition (Amaldoss and Jain 2005; Fromkin 1970; Hornsey and Jetten 2004; Snyder 1992).

On the other hand, demand-based scarcity arises primarily due to high amounts of prior purchases rather than deliberate supply limitations as in the case of supply-based scarcity (Van Herpen, Pieters, and Zeelenberg 2009). It can positively influence consumer purchasing behavior and serves as a social validation mechanism that leads consumers to make inferences about social appropriateness, good quality and high product value (Bearden and Rose 1990; Kardes, Posavac, and Cronley 2004; Worchel, Lee, and Adewole 1975). In the case of demand based scarcity, consumers do not aim at fulfilling their need for uniqueness through obtaining exclusive possessions that help them differentiate themselves from others as in supply-based scarcity. Rather, as bandwagon theory suggests, consumers strive to possess a good because people follow each other's behavior since they believe that others' choices reveal superior opportunities which they do not want to miss out on.

Furthermore, excess demand serves as social validation which leads consumers to make inferences about social appropriateness as well as good quality and high product value (Van Herpen, Pieters, and Zeelenberg 2009). Van Herpen, Pieters, and Zeelenberg (2009) explain that consumers do not necessarily have to observe the behavior of others for these effects to unfold, seeing the outcome of their actions is sufficient (e.g. empty shelves). The previously exemplified story of Mailbox, where consumers know how many people signed up before them by seeing their position on the wait list, demonstrates just how effective demand-based scarcity can be in creating a “hype”.

Overall, previous research on scarcity has mainly focused on outcomes related to consumer purchase behavior in traditional offline settings (e.g., Inman, Peter, and Raghuram 1997; Suri, Kohli, and Monroe 2007). Solely from the work of Cheema and Kaikati (2010), who analyzed the influence of consumers’ need for uniqueness on word of mouth engagement, one can infer that supply-based scarcity inhibits participation in electronic word of mouth. However, there is still little knowledge about how demand-based scarcity used within online viral marketing campaigns may affect consumer referral behavior.

Personalization in Promotional Campaigns

Personalization can be defined as the “[...] adaptation of the marketing mix to an individual customer based upon the marketer’s information about the customer” (Montgomery and Smith 2009, p. 131). Specifically, in the context of the web, it relates to the “company driven individualization of customer web experience” (Allen, Yaekel, and Kania 1998, p. 32–33).

Personalization has existed long before the internet. Early discussions revolved mainly around segmentation and targeting (Peterson, Blattberg, and Wang 1997) and the first practical examples related to simply addressing people by name in mailings and surveys (Cox III, Anderson, and Fulcher 1974). However, the Internet has helped advance personalization in that it has made it easier than ever to tailor communication and offerings to consumers (Thorbjørnsen et al. 2002). Hence, the scope of application has grown from personalized greetings in communicating with consumers to, for example, tailored recommendations and offers in e-commerce and electronic news (Arora et al. 2008). Furthermore, it has become very common for firms of all sizes to tap into personalized communication in their promotional campaigns. For example, they have built landing pages and provided interested consumers with personalized links and campaigns which could be shared with their friends and followers after registering for the service. As soon as three of his/her friends registered, the consumer would get early access to the service (Ries 2011; Smashmagazine 2011). Other campaigns draw on personal information which consumers provide in subsequent interactions to improve customer satisfaction by building a more personal interaction, for example, by addressing them by name (e.g., EyeEm).

Research on personalization has predominantly focused on three particular aspects. The first aspect is implementation methodologies that deal with how information is learnt about

consumers (i.e., active or passive information collection) and may then be used to tailor communications and offerings (e.g., Dahan and Hauser 2002; Mobasher, Cooley, and Srivastava 2000; Montgomery and Srinivasan 2002; Rossi, McCulloch, and Allenby 1996). The second aspect of research relates to personalization’s value to consumers and companies, such as higher customer satisfaction as well as increased profits (Arora et al. 2008; Miceli, Ricotta, and Costabile, 2007; Vesanen 2007). Lastly, more recent research has dealt with the boundary conditions of personalization, suggesting that the benefits of personalization need to exceed its costs to achieve a positive outcome for the consumer and the firm. More specifically, this means that the value generated for consumers (e.g., higher satisfaction) must be greater than the perceived costs related to the intrusion of their privacy (Ansari and Mela 2003; Montgomery and Smith 2009; Simonson 2005; White et al. 2008).

From a relationship marketing (RM) perspective, the practice of personalization helps interlink customers and marketers and build relationships (Imhoff, Loftis, and Geiger 2001; Simonson 2005; Vesanen 2007; Vesanen and Raulas 2006). Therefore, personalization can be viewed as a RM investment. Literature has demonstrated that such RM investments influence consumer behavior and may result in superior seller performance (Moorman, Zaltman, and Deshpande 1992; Morgan and Hunt 1994; Sirdeshmukh, Singh, and Sabol 2002). Although traditionally trust and commitment are claimed to mediate the effect of such RM investments on seller performance, more recent findings by Palmatier et al. (2009), while controlling for these two factors, show that in fact consumer gratitude is a more significant mediator. The suggestion is that RM investments cultivate consumer feelings of gratitude, which in turn lead to gratitude-based reciprocal behaviors that result in an achievement of outcomes desired by the firm (Palmatier et al. 2009). Gratitude is a short-term state (Ben-Ze’ev 2001) and it is reciprocity’s emotional core (Emmons and McCullough 2004). It arises when people feel themselves to be recipients of an “intentionally rendered benefit” (Emmons and McCullough 2004, p. 9) and leads to a psychological pressure to return the favor. This behavior is distinct from responses resulting from normative pressure (i.e., the norm of reciprocity), which is based on the notion that you have to help someone if they have helped you (Perugini et al. 2003). Instead, reciprocal behaviors in the case of RM investments are the response to an individual’s emotions and feelings of gratitude (Palmatier et al. 2009).

Despite the considerable amount of research on personalization and its ubiquity within marketing communication in different forms, be it via personalized greetings or recommendations, to our surprise we still know little about its influence on consumer referrals of online promotion campaigns.

Research Model and Hypothesis Development

We derived our research model by adopting the word of mouth framework introduced by De Matos and Rossi (2008), which consists of the three sequential stages Manipulations → Antecedents → WOM-activity. In line with this overarching

framework, and as depicted in Fig. 1, our research model sheds light on (1) the (main and direct) effects of scarcity and personalization on consumer referral propensity (H1/H3), (2) the role of offer value and consumer gratitude in mediating the preceding effects (H2/H4), and (3) the joint effects of scarcity and personalization on consumer’s referral propensity (H5).

The Effect of Demand-based Scarcity on Consumer Referral Behavior

Literature suggests that scarcity triggers an automated thought-process which limits our ability to think clearly (Cialdini 1993) and ultimately leads to higher product valuations due to the fact that people generally value things that are harder to attain more (Inman, Peter, and Raghubir 1997; Van Herpen, Pieters, and Zeelenberg 2009; Worchel, Lee, and Adewole 1975). It evokes a state of physical agitation in which our sole focus becomes to fulfill the need in which we feel our freedom to be threatened (Brehm and Brehm 1981). Although the emphasis in extant literature has been on reactions to reinstating this freedom in the context of purchasing behavior, we argue that under conditions of high scarcity, consumer referrals are an equally legitimate reaction.

Prior research has found that people (senders) share information with their peers (recipients) for social capital (Berger 2013; Coleman 1988; Nahapiet and Ghoshal 1998). Hence, it is likely that people who strive to build social capital by sharing information with their peers may be influenced in their referral decision by the perceived value of the information at hand. Thus, we argue that making an offer in a promotional campaign more scarce is likely to evoke a thought-process which can lead to higher valuations (Van Herpen, Pieters, and Zeelenberg 2009; Worchel, Lee, and Adewole 1975) of the offer and therefore also of the value of the information being shared. This in turn will increase the likelihood of a referral, as freedom is threatened in the sense of foregoing the possibility of sharing valuable information and therefore reaching the goal of building social capital. Our suggestions are in consonance with previous research that has revealed a positive relationship between perceived information value and consumer referral behavior (De

Matos and Rossi 2008; Pihlström and Brush 2008). Based on this logic, one would infer that the higher a sender’s expectations of building social capital are the scarcer the offer of the promotional campaign being shared is, because the recipients from the sender’s social network will recognize a relatively larger investment on his/her behalf when the message being shared is scarcer and therefore perceived to be more valuable (Coleman 1988).

It is important to note that consumers will have secured the offer for themselves before sharing it (e.g., like in the case of Mailbox by securing a position in the wait list), which is the way such campaigns are normally designed in practice. Thus, they need not worry about losing out on their own consumption opportunity. Capitalizing on this information advantage to build social capital therefore becomes a logical and important motive.

In sum, we expect that senders value the information they are sharing with their peers as higher when the offer in a promotional campaign is relatively scarcer due to social demand. At the same time, the very nature of the offer being so limited is likely to impose direct pressure on them to share the offer, as the information might become obsolete as time passes. Conversely, promotional campaigns with low scarcity due to social demand will appear less valuable because senders will not feel the pain of losing opportunities to build social capital within their network to the same extent. Hence, we expect that

H1. Consumers will be more likely to make the decision to refer a promotional campaign with high compared to low demand-based scarcity.

H2. Consumers’ perceptions of offer value will mediate the effect of demand-based scarcity on their referral propensity.

The Effect of Personalization on Consumer Referral Behavior

Personalization on the web can lead to increased purchase intentions or other goals desired by the marketer (Ansari and Mela 2003; Arora et al. 2008; Miceli, Ricotta, and Costabile, 2007). A key precondition is that consumers perceive foregone privacy and utility derived from personalization to be well balanced and therefore not too intrusive (Montgomery and Smith 2009; Simonson 2005; White et al. 2008). We argue that receiving personalized messages from a company (e.g., a special offer for a new product, service or feature) on the one hand and giving up some personal information on the other hand strike such an optimal balance when consumers have either already shown interest by pre-registering for a company’s service or when they have previously interacted with the same company in the context of other services and thus a relationship exists between the consumer and the marketer (e.g., consumers that have been using Amazon for ordering books and videos for years and now receive an offer regarding a new service, for example, video screening).

In these cases, privacy concerns oftentimes take a back seat and the benefits of personalized messages come to the fore. Addressing consumers by name then helps cultivate perceptions of them being the intentional recipient of “benevolence”,

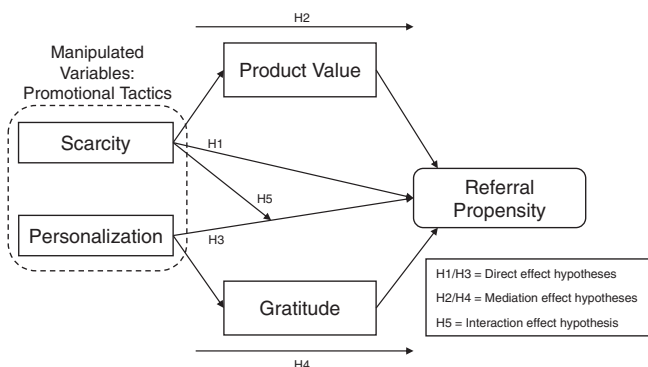


Fig. 1. Research framework.

an essential precondition for gratitude to arise (McAdams and Bauer 2004). Therefore, we argue, consistent with previous empirical findings (Palmatier et al. 2009), that when a relationship between the marketer and the consumer pre-exists, personalization by name will arouse feelings of gratefulness because consumers will recognize a relationship investment by the marketer. These feelings in turn will increase consumers' need to engage in positive, gratitude-based behaviors and therefore result in a higher likelihood of compliance with subsequent requests made by the marketer (Goei and Boster 2005; McCullough et al. 2001).

In our research context, the effectuated gratitude will lead to a greater likelihood of complying with referral requests. In this situation, consumers' focus lies on the marketer (i.e., the firm providing the promotional offer) rather than the receivers of the referral. Tying into the results of several prior offline studies, Joinson and Reips (2007) for example showed a significant positive effect of addressing recipients by name on response rates in web based surveys.

It is most certainly a valid counter argument to suggest that consumers would be hesitant to share a promotional campaign with their peers if they need to worry about losing out on the opportunity themselves. However, as suggested earlier, in the context of such promotional offers, consumers normally have secured the offer for themselves prior to making the decision of referring it to their peers. Similarly, we believe that personalizing a promotional campaign through addressing the consumer by name will have no attenuating effect on consumers' perceptions of the offer's relevance to their peers. First, to the knowledge of the consumer, the shared offer which their peers receive will be without the personalized greeting. Second, as previously suggested, the consumer's primary focus lies on reciprocity based on gratitude towards the firm and not on the referral recipients. Hence, there is no reason why consumers should judge the relevance of the offer to their peers with more or other scrutiny compared to when personalization cues are absent.

In sum, we thus suggest that personalized campaigns are likely to lead to higher referral likelihood due to consumers' need to engage in gratitude-based reciprocal behaviors. Specifically, we expect that gratitude vis-à-vis the marketer will mediate the relationship between personalized messages in promotional campaigns and consumer referral propensity. On the contrary, we would expect comparatively lower referral likelihood when promotional campaigns are not personalized. Accordingly, we hypothesize that

H3. Consumers will be more likely to refer a personalized than a not personalized promotional campaign.

H4. Consumers' gratitude vis-à-vis the marketer will mediate the effect of personalization on consumer referral propensity.

The Interaction Effect of Scarcity and Personalization on Consumer Referral Behavior

H1 and H3 propose that personalization and scarcity both encourage consumer referrals independently from one another:

On the one hand, scarcity moves the gains of the individual sharing the information into the focus, namely potentially built social capital, which is higher when an offer is generally less accessible and therefore more valuable. On the other hand, we hypothesized that personalized promotional campaigns, due to their benevolence-creating effects, cultivate feelings of gratitude with consumers, leading to a higher likelihood of them complying with requests to refer a promotional campaign to their peers. When the two cues are combined and employed together however, we expect that the effect of personalization will be overridden by scarcity.

As mentioned earlier, scarcity messages effectuate a state of arousal and lead to a thought process which results in more favorable valuations (Cialdini 1993). However, research has also found that scarcity actually increases the motivation for cognitive processing (Brannon and Brock 2001; Inman, Peter, and Raghbir 1997) and that increasing levels of arousal are associated with a progressive decrease in the range of information cues used to form judgments (Clee and Wicklund 1980; Ordóñez and Benson 1997). Therefore, the increase in arousal through scarcity leads to consumers paying more attention to task relevant cues, and hence favors systematic processing of relevant information (Suri, Kohli, and Monroe 2007). In the case of our study, we therefore propose that scarcity urges consumers to assess the value of the offer (task, cognitive processing) and that this happens at the neglect of cues which are less relevant in performing this valuation (i.e., personalization). Consequently, the neglect of personalization also undermines affective processing which cultivates the previously described feelings of gratitude, therefore wiping out the effects of personalization on consumer referral decisions. Thus, we would expect recipients who are confronted with a promotional campaign that entails both cues to be less likely to process the personalization cue and build gratitude towards the marketer.

As such, we predict that scarcity (i.e., particularly higher levels of scarcity) will attenuate or even wipe out the effect of personalization on consumer referral behavior, leading us to the following hypothesis:

H5. Scarcity will moderate the relationship between personalization and consumer referral behavior such that it will attenuate or even cancel out personalization's effect on consumer referral propensity.

Empirical Study

Experimental Design and Procedures

We cooperated with the online media company *ecomedia*¹ from Germany to conduct a randomized field experiment. Its true identity cannot be revealed due to confidentiality agreements. *ecomedia* is a mid-sized media holding operating more

¹ *ecomedia* is a pseudonym.

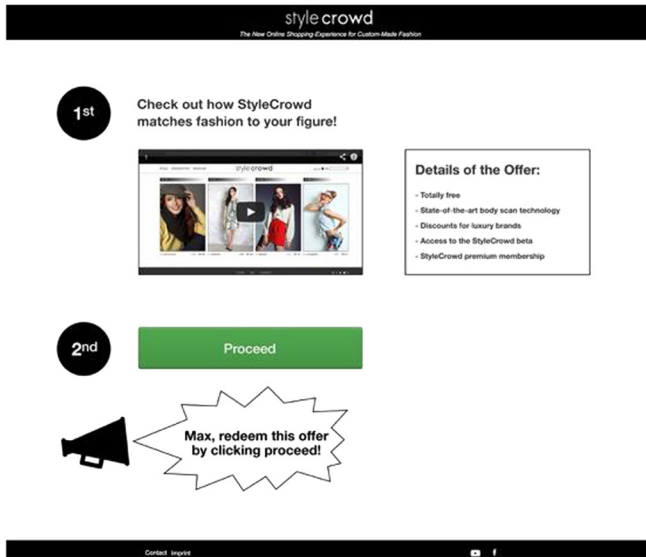


Fig. 2. Main campaign landing page (no scarcity, personalized condition).

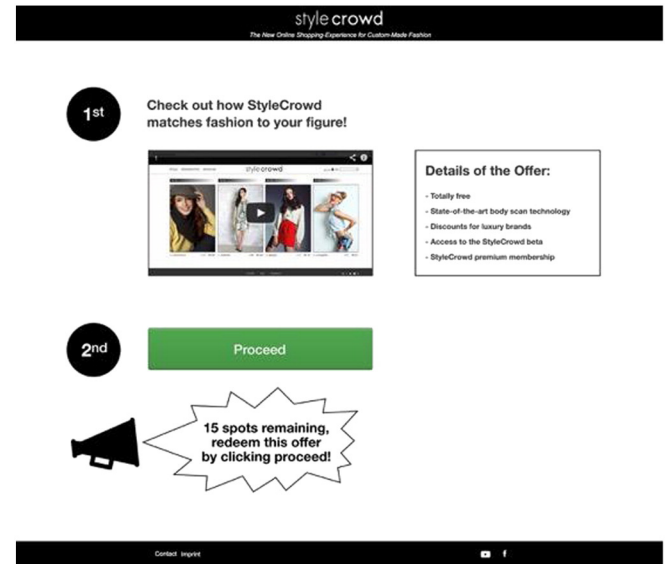


Fig. 3. Main campaign landing page (high scarcity, non-personalized condition).

than 15 different e-commerce platforms. We agreed to conduct our study based on a new online service named StyleCrowd, which gives individual style recommendations based on body characteristics, including the option to directly shop these recommendations at significant discounts. StyleCrowd at the time was in its pre-launch phase and heavily drew on viral marketing campaigns to collect consumer feedback and gain market traction.

We employed a 3 (scarcity: none vs. low vs. high) \times 2 (personalization: presence vs. absence) between-subjects, full-factorial design. All three treatments of scarcity were combined with personalized and non-personalized cues on the main campaign landing page, resulting in a total of six experimental conditions (see Figs. 2 and 3 for two examples). The landing page promoted the new online service with a special offer, which allowed participants to secure early access and substantial discounts on the platform as well as premium membership for free. Aside from details about the offer, the main campaign landing page contained a video that explained the business idea, a proceed button, as well as a promotional statement (our manipulation) which altered in terms of scarcity (no, low, high) and personalization (personalized, not personalized) levels.

Consistent with the sampling and procedures in previous randomized field experiments (e.g., Burtch, Ghose, and Wattal forthcoming; Tucker 2014), *ecomedia* sent email invitations to existing customers asking them to participate in the current study. Those who opted to participate could click a web link in the email to start the process. Subjects were randomly streamed to different cells of our experimental design. Since the names and e-mail addresses of *ecomedia*'s customers were accessible, they could be used for manipulating the personalization cues.²

² With our non-/personalization treatments, we thus study situations in which online consumers are prepared to be addressed by name such that privacy concerns can be expected to be low.

The experiment proceeded in three major steps. First, before being forwarded to the main campaign landing page and being randomly assigned to one of the six experimental conditions, participants received the instruction to explore the promotional campaign of a new online service called StyleCrowd and to give feedback. After checking out the campaign website, all participants were asked to press a "Proceed" button (see Figs. 2 and 3). Second, after tapping the proceed button, participants were forwarded to a webpage and prompted to refer the offer to their friends via a share button that, when triggered, gave them the opportunity to log into their Facebook network or enter e-mail addresses of friends. Opting into this option thus resulted in a direct distribution of StyleCrowd's promotional campaign to their peers. This brief referral process ended with routing participants to a web page with the post-experimental questionnaire. Participants could also opt out via a non-share button³ and were then directly forwarded to the site with the post-experimental questionnaire. In the last step, a post-experimental questionnaire asked participants to respond to questions measuring offer value, gratitude, control variables, manipulation checks, and several other variables (see Manipulations and Measured Variables). On the last page of the survey, subjects were debriefed and thanked for their participation.

Manipulations and Measured Variables

We followed Highhouse, Diab, and Gillespie (2008) and Barone and Roy (2010) to devise our manipulation of

³ We equalized the presentation format of the share and non-share buttons, thus controlling for design and saliency effects.

scarcity. Scarcity was manipulated by displaying the remaining availability of spots for the offer in a speech bubble (see Figs. 2 and 3) and specifying that it is to be redeemed on a first-come-first-serve basis. Our manipulation of personalization was based upon Porter and Whitcomb’s (2003) salutation manipulations, distinguishing between promotional claims that include (exclude) participants’ first name. For a complete overview of all conditions and the embodiments of our manipulations, please view Fig. 4.

To develop the stimuli for our studies, we conducted a pre-test in which 30 participants (56% females, $M_{age} = 24.6$) ranked the scarcity and personalization levels of our treatments. The manipulation check of scarcity showed that participants ranked the high scarcity condition as significantly scarcer than the low scarcity ($F(1, 29) = 7.05, p < .001$) as well as the control condition ($F(1, 29) = 19.80, p < .001$). Furthermore, we measured consumers’ perceptions of demand/ popularity as well as exclusiveness to ensure that our scarcity manipulations were perceived to be based on excess demand rather than supply limitations. Hence, we obtained popularity perceptions by adapting three items from Van Herpen, Pieters, and Zeelenberg (2009) and exclusiveness perceptions by adapting three items from Franke and Schreier (2008). The observations revealed that consumers truly perceived the offer in the high scarcity condition to be more in demand (more popular) than that in the low ($F(1,29) = 4.989, p < .05$) as well as no scarcity condition ($F(1,29) = 20.044, p < .001$). Participants’ assessment of the offers’ exclusiveness also did not significantly differ between the high and low ($F(1,29) = 1.94, p > .1$) as well as the high and no scarcity conditions ($F(1,29) = 2.932, p > .1$). Lastly, participants ranked the personalized condition compared to the control condition as more personalized ($F(1, 29) = 11.62, p < .001$).

Our dependent variable (i.e., propensity to refer), in line with Stein and Ramaseshan (2014), was measured as a binary variable (referred vs. not referred) based on actual referral behavior during the field experiment. In consonance with Moe and Fader (2004), who measured purchase propensity in the context of website visits, we describe referral propensity as the

probability of making a referral by defining a point estimator based on:

$$P(\text{referral in Group } Z) = \frac{\sum_{k=1}^n x_k}{n}$$

where Z refers to one of the six subgroups or conditions (e.g. no Personalization & Low Scarcity), n denotes the total amount of participants in the respective subgroup and x_k is a dichotomous variable which equals 1 when a participant made a referral and 0 if not.

Via clickstream data, we collected the number of clicks on the share/non-share buttons in the different experimental conditions. The mediators offer value and gratitude (vis-à-vis the marketer) were measured by adapting items from Suri and Monroe (2003) as well as Palmatier et al. (2009) respectively. In addition, the following control variables which have been identified as the most salient referral motives in extant literature were selected largely based on theoretical considerations: information privacy concern, product (i.e., fashion) involvement, market mavenism, need for uniqueness, perceived information relevance to others and image-impairment concerns. A 7-point Likert scale was adopted for all measures with anchors ranging from strongly disagree (1) to strongly agree (7). Information on all constructs and items can be found in Table 1 of Appendix A.

Confirmatory factor analysis results showed that all scales exhibited satisfactory levels of convergent validity. Moreover, discriminant validity requirements were met (Fornell and Larcker 1981), as each scale’s average variance extracted (Awad and Krishnan 2006) exceeded multiple squared correlations. Since all latent variables displayed adequate internal consistency, they were averaged to form composite scores for subsequent statistical analyses. The construct correlation matrix is depicted in Table 2 of Appendix A.

As manipulation checks, besides rating perceived scarcity (i.e., “The offer advertised in the promotional campaign is scarce”), perceived popularity/ exclusiveness and personalization (“I felt personally addressed by the promotional campaign”)

		<u>Scarcity</u>		
		No	Low	High
Personalized	No	redeem this offer by clicking proceed!	100 spots remaining, redeem this offer by clicking proceed!	15 spots remaining, redeem this offer by clicking proceed!
	Yes	Max, redeem this offer by clicking proceed!	Max, 100 spots remaining, redeem this offer by clicking proceed!	Max, 15 spots remaining, redeem this offer by clicking proceed!

Fig. 4. Experimental conditions (Max as placeholder name).

on a 7-point Likert scale, participants were asked two closed questions in the post-experimental questionnaire: (1) Have you been addressed by name on the main campaign landing page? [Yes or No], and (2) How many free spots were indicated to be remaining when you viewed the campaign landing page? [Unlimited, 100, or 15 spots].

Sample Description, Control and Manipulation Checks

From the five hundred customers that *ecomedia* had invited to the study, 131 answered the invitation e-mail (response rate: 26.2%). Twelve participants (9.2%) were removed from the sample for the following reasons: Five subjects failed to complete the questionnaire and seven failed our attention filter/self-report measure (Meade and Craig 2012). Hence, we used a sample of 119 subjects in the following analysis. Table 1 summarizes the descriptive statistics.

Non-response bias was assessed by verifying that early and late respondents were not significantly different (Armstrong and Overton 1977). t-Tests on socio-demographics between the early (first 50) and late (last 50) respondents showed no significant differences ($p > 0.05$) indicating that non-response bias was unlikely to have affected the results.

To confirm the random assignment of subjects to the different experimental conditions, we performed several one-way ANOVAs. These analyses did not reveal any statistically significant differences in age ($F = 0.566, p > 0.05$), gender ($F = 0.724, p > 0.05$), weekly internet time ($F = 0.713, p > 0.05$), privacy concerns ($F = 0.916, p > 0.05$), product involvement ($F = 1.193, p > 0.05$), market mavenism ($F = 0.835, p > 0.05$), need for uniqueness ($F = 1.175, p > 0.05$), information relevance to others ($F = 0.497, p > 0.05$) or image-impairment concerns ($F = 1.182, p > 0.05$) between all 6 experimental groups, therefore confirming that the random assignment of

subjects to the conditions was successful. We additionally controlled whether participants who triggered the share button also actually referred the promotional campaigns to their friends. A clickstream analysis revealed that all participants that pressed the sharing button also either logged into their Facebook network (89.47%) or entered e-mail addresses of friends (10.53%). Given that we addressed participants with their first names in the personalization conditions, we also checked whether participants' privacy concerns were low and whether these potential concerns affected their referral behavior. Participant's privacy concerns were quite low across all conditions ($M = 2.34$) and were not significantly associated with their referral behavior ($r = -0.106, p > 0.05$), confirming that privacy concerns had no negative impact on referral behavior in our promotional context. Finally, given that the service appears to appeal systematically more to females than to males, we analyzed whether males and females significantly differed in their referral behavior, but did not find a significant difference ($p > 0.05$).

The manipulation checks confirmed that participants in the high scarcity conditions ($M = 4.56; SD = 1.01$) assessed the number of spots remaining as being more limited than in the low ($M = 3.13; SD = 0.96$) and no scarcity ($M = 2.06; SD = 0.78$) conditions ($F = 53.07, p < 0.001$). The low scarcity condition was also experienced as being more limited than the no scarcity condition (all planned contrasts between high, low and no scarcity conditions: $F < 1$). Our measures to assert that scarcity was perceived to be caused by excess demand instead of limited supply were also confirmed, demonstrating that participants in the high scarcity condition ($M = 5.2; SD = 0.85$) did perceive the offer to be significantly more popular than in the low ($M = 4.31; SD = 0.93$) as well as no scarcity condition ($M = 3.04; SD = 1.05$). The results also suggested a statistically insignificant difference ($p > .1$) in participants' perceptions of the offer's exclusiveness between the high ($M = 3.87; SD = 0.86$), low ($M = 0.92; SD = 1.05$) as well as no scarcity condition ($M = 4.01; SD = 0.79$). Furthermore, participants in the personalization conditions ($M = 5.64; SD = 0.99$) felt to be addressed more personally than those in the non-personalization conditions ($M = 2.25; SD = 0.83$). Finally, we found that all subjects exactly matched our treatments regarding the two closed manipulation check questions for the six different conditions, implying that the manipulations were successful.

Results

Main Effect Analysis for Scarcity and Personalization

To test H1 and H3, we conducted a three stage hierarchical logistic regression on the dependent variable referral propensity (see Table 2). We first entered all controls and mediators (model 1), then the main effects (model 2) and finally the interaction effect (model 3). All three models were statistically significant at $p < 0.001$. The increase in Nagelkerke's R^2 from model 1 to model 2 was statistically significant ($p < 0.01$), leading us to use model 2 to test our main effects hypotheses.

Table 1
Descriptive statistics.

	Mean	StD	Min	Max
<i>Demographics</i>				
Gender (females)	58.80%	49.42%		
Age	31.83	8.8	20	69
Internet usage in years	7.9	3.6	5	18
Weekly internet time	19.68	21.16	2	50
<i>Controls and mediators</i>				
Fashion involvement	4.53	1.2	2	7
Privacy concerns	2.34	0.82	1	7
Market mavenism	3.42	1.59	1	7
Need for uniqueness	3.59	1.64	1	7
Information relevance to others	4.83	0.93	2	7
Image impairment concern	3.3	1.35	1	5.3
Offer value	4.76	1.10	1	7
Gratitude	4.68	0.83	2	7
<i>Dependent variable</i>				
Referral %	15.97%	36.78%		

Notes: means and standard deviations, $N = 119$.

Table 2
Logistical regression on dichotomous variable consumer referral propensity.

	Model 1		Model 2		Model 3	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Intercept	-11.691 ***	3.067	-11.527 ***	3.287	-13.598 ***	3.724
<i>Manipulations</i>						
Scarcity			1.904 **	0.690	4.136 ***	1.261
Personalization			1.699 *	0.796	4.538 **	1.449
Scarcity × Personalization					-4.923 **	1.695
<i>Controls & mediators</i>						
Gender	-0.035	0.575	0.491	0.664	0.479	0.723
Age	0.017	0.024	-0.006	0.028	0.006	0.028
Fashion involvement	0.040	0.201	0.071	0.222	-0.030	0.244
Privacy concerns	-0.106	0.170	-0.132	0.193	-0.061	0.218
Market mavenism	0.252	0.199	0.237	0.233	0.323	0.275
Need for uniqueness	0.011	0.182	-0.051	0.199	-0.087	0.207
Offer relevance to others	0.067	0.289	0.267	0.331	0.046	0.351
Image impairment con.	-0.362	0.351	-0.394	0.380	-0.632	0.450
Offer value	1.436 ***	0.383	1.377 **	0.403	1.773 ***	0.474
Gratitude	1.001 ***	0.286	0.634 *	0.313	1.614	0.349
Log likelihood	90.888		79.757		68.992	
Nagelkerke's R ²	0.602		0.669		0.728	
Omnibus model χ ²	69.861 ***		80.992 ***		91.757 ***	

Notes: N = 119.

* p < .05.

** p < .01.

*** p < .001.

The results of the logistical regression revealed a significant main effect of scarcity ($b = 1.904$, Wald statistic (1) = 7.628, $p < 0.01$) and of personalization ($b = 1.699$, Wald statistic (1) = 4.56, $p < 0.05$). Hence, consistent with H1, participants primed with scarcity were more likely to make a referral than those in the no scarcity condition. Likewise, participants in the personalized condition were more likely to share the promotional offer than those in the control group, in support of H3. Taken together, these results show that priming recipients in a

promotional campaign with scarcity significantly increases the probability of them referring the offer to their peers. In a similar vein, addressing participants by name increased the likelihood that consumers referred the promotional campaign.

We conducted post-hoc tests to shed further light into the differences among the high, low and no scarcity conditions. Overall, as depicted in Fig. 5, our findings show that participants primed with high scarcity are significantly more likely to make a referral than those in the low scarcity (29.70% vs. 12.80%, $t = 4.11$, $p < 0.05$) or the no scarcity condition (29.70% vs. 7.00%, $t = 5.67$, $p < 0.01$). However, we found no evidence that participants in the low scarcity condition were significantly more likely to share the promotional offer than those in the no scarcity condition ($t = 1.48$, $p > 0.05$). These results show that scarcity cues make a difference in consumer referral propensity only when scarcity is high but not when it is low, revealing a boundary condition to the main effect of scarcity. Before further analyzing the joint effect of the cues, we turn to our mediation effect hypotheses H2 and H4.

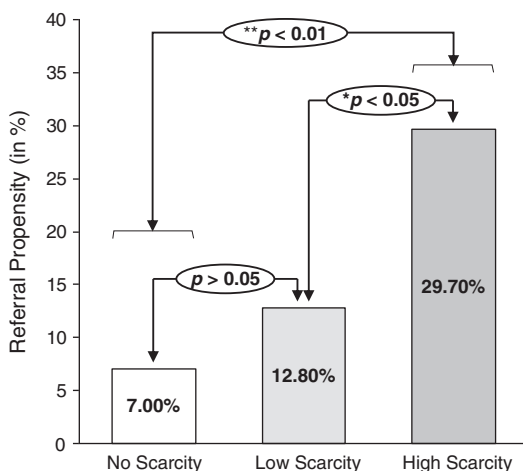
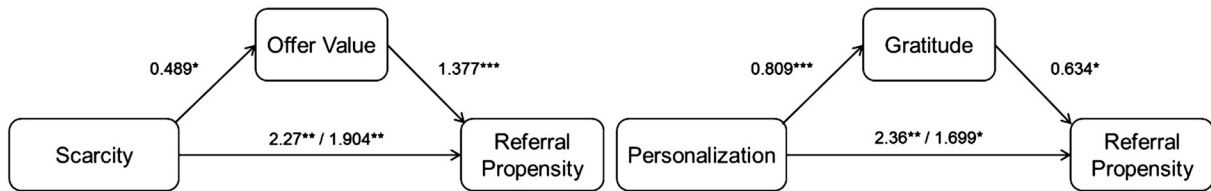


Fig. 5. Effect of scarcity on referral propensity.

Mediation Analysis for Scarcity and Personalization

We hypothesized that scarcity's impact on participants' likelihood to engage in referrals would be driven by the sender's perceptions of offer value, while the mechanism underlying the effect of personalization on referral likelihood would be based on consumers' gratitude vis-à-vis the marketer. Thus, in a mediation model using bootstrapping with 10,000



Notes. Coefficients were computed based on mediation analysis using bootstrapping with 10,000 samples and a 95% bias-corrected confidence interval (Hayes 2013); all controls as well as manipulations were included in the analysis; the first coefficient on a given path represents the direct effect without the mediator in the model. The second coefficient represents the direct effect when the mediator is included in the model. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ one-tailed

Fig. 6. Mediation analysis.

samples and a 95% bias-corrected confidence interval, we tested the indirect effect of the promotional cues (i.e., scarcity and personalization) on referral propensity through offer value and gratitude. Two separate mediation analyses – one for each promotional cue – were performed, using the bootstrap mediation technique (PROCESS macro; Hayes (2013)).

First, to investigate the process driving the effect of scarcity on referral engagement, we entered offer value as potential mediator between scarcity and referral behavior. The indirect effect of scarcity on referral propensity through offer value was statistically significant (i.e., offer value significantly mediated the relationship: indirect effect = 0.674, standard error = 0.732, 95% bias-corrected confidence interval (CI) = [0.065, 1.624]), supporting H2. Furthermore, scarcity was positively associated with offer value ($b = 0.489$, $p < 0.05$), and higher offer value was associated with higher probability of making a referral ($b = 1.377$, $p < 0.001$; Fig. 6), while scarcity's direct effect on referral propensity remained significant after offer value was entered into the model representing the case of a partial mediation (Hayes 2013).⁴ These results thus showed that offer value significantly mediated the impact of scarcity on referral behavior, such that, as per our proposition, scarcity produced higher offer value, which in turn led to greater expectations of building social capital within one's social network, thus resulting in a higher likelihood of referring the online campaign.

Second, to examine the process underlying the effect of personalization on referral behavior, we entered consumer gratitude as potential mediator into a mediation model (Hayes 2013). The results showed that gratitude mediated the effect of personalization on referral propensity (indirect effect = 0.513, standard error = 0.729, 95% CI = [0.003, 1.543]), and that this effect was statistically significant as well. Personalization was positively associated with gratitude ($b = 0.809$, $p < 0.001$), and higher feelings of gratitude were associated with a higher likelihood of referral ($b = 0.634$, $p < 0.05$; Fig. 6) while personalization's direct effect on referral behavior remained significant after gratitude was entered into the model indicating a partial mediation effect (Hayes 2013), in support of H4.⁵

In a supplementary analysis, we tested whether perceived offer value qualified as mediator for personalization and whether gratitude qualified as mediator for scarcity in the context of referral propensity. However, both indirect effects turned out to be insignificant (both $p > 0.5$).

In sum, these results suggest that participants were more likely to make a referral of a personalized (vs. non-personalized) promotional campaign, because they had the urge to engage in gratitude-based reciprocity and therefore contributed back to the marketer by referring the promotional campaign.

Interaction Effect Analysis for Scarcity and Personalization

As indicated in model 3 of our logistic regression results (see Table 2), the main effects of scarcity and personalization on referral propensity were qualified by a significant two-way interaction ($b = -4.923$, Wald statistic (1) = 8.431, $p < 0.01$), suggesting that the effects of the promotional cues on referral behavior are contingent on the presence of each other. To further test H5, we conducted planned contrast comparisons to examine the conditional effects of personalization at different levels of scarcity (none, low, high). The results in Fig. 7⁶ highlight that participants primed with personalization are significantly more likely to refer the promotional offer than those in the no-personalization condition when scarcity is absent (18.75% vs. 0.00%, $F = 11.882$, $p < 0.01$). However, a significant difference in referral propensity between personalized and non-personalized campaigns did not emerge at low (22.07% vs. 16.67%, $F = 0.85$, $p > 0.25$) and, in particular, high (27.78% vs. 31.58%, $F = 0.122$, $p > 0.40$) levels of scarcity.

These results support H5 by showing that priming recipients in a promotional campaign with personalization does not significantly increase the likelihood of them referring the offer to their peers when high scarcity is present (in fact, the numbers suggest a slight decrease); it does however when scarcity is absent (see Fig. 7). In other words, high scarcity resulted in a similar likelihood of referrals no matter whether the online campaign was personalized or not, whereas no scarcity led to

⁴ In an ancillary analysis, we entered all controls simultaneously with offer value in a parallel multiple mediation, but no other indirect effect reached significance. These results cast doubt on alternative accounts.

⁵ We again also entered all controls simultaneously with gratitude in a parallel multiple mediation analysis, but no other indirect effect reached significance.

⁶ The results for the low scarcity conditions were left out of Fig. 7 for reasons of clarity.

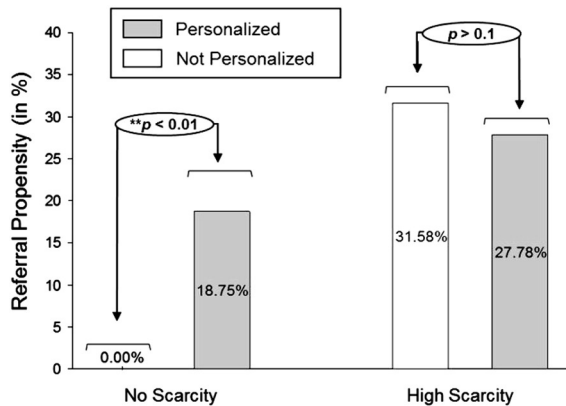


Fig. 7. Interaction between personalization and scarcity on referral propensity.

greater referral engagement of personalized campaigns compared to non-personalized ones.

Discussion

Viral marketing has become a key component of marketing strategy, not only due to its cost-effectiveness and broad reach, but also because consumers have come to perceive traditional online advertising as often irrelevant and therefore are increasingly turning towards alternative sources, most importantly word of mouth, to gather credible information about new products.

However, despite the substantial amount of research on consequences of viral marketing as well as factors that drive consumers' referral decisions, the role of classical promotional tactics in enhancing consumers' referral propensity has remained conspicuously absent from the literature. Therefore, this study aimed to shed light on the promotional tactics of scarcity and personalization, as prior research on these cues has demonstrated their influence on well-established drivers of consumer referrals.

Our findings support the premise that scarcity due to social demand has a positive causal effect on consumers' propensity to engage in referrals. Furthermore, we could specifically confirm that offer value acts as partial mediator for the effect of scarcity on consumer referral likelihood. Our underlying explanation is that consumers may believe to build more social capital with their peers while referring the offer, in particular because they perceive the value of the information they are sharing to be greater. At the same time, the fact that the offer is so limited also imposes direct pressure on them to share the offer as fast as possible, as the information at hand might become obsolete as time passes. As a boundary condition, we found that scarcity has to exceed an upper threshold value to be effective. While campaigns inducing low scarcity did not significantly differ in referral behavior compared to those with no scarcity at all, those with high scarcity had a strong effect indicating that scarcity is a viable promotional tactic to increase referral propensity only after a tipping point has been reached.

We also found a positive and statistically significant effect of personalization on referral behavior which supported our

premise that personalization of online campaigns can increase referral propensity, specifically in contexts of pre-existing relationships between consumers and the marketer. Consumer gratitude vis-à-vis the marketer thereby emerged as the key explanatory mechanism that underlies the impact of personalization on consumer referral behavior. Personalization is a relationship marketing investment which, when perceived as an intentionally rendered benefit towards the consumer, generates feelings of gratitude or gratefulness. These emotions in turn stimulate consumers' need to engage in gratitude-based behaviors leading to reciprocation by complying with requests made by the marketer (i.e., in our case referrals). Overall, our mediation results also suggest that scarcity's and personalization's effects were not due to privacy concerns, product involvement, market mavenism, need for uniqueness, offer relevance to others or image-impairment concerns, ruling out salient alternative accounts of referral engagement.

When considering the interaction between scarcity and personalization, we found that the positive effects of personalization on consumer referral propensity are overridden when scarcity cues are present. A plausible explanation for this crowding-out effect pattern is that scarcity does not only induce arousal and lead to a thought process which effectuates higher product valuations, but it also stimulates cognitive processing (i.e., assessing the offer's value) (Brannon and Brock 2001; Inman, Peter, and Raghurir 1997). Furthermore, the effectuated arousal results in a progressive decrease of the information used to perform the value assessment at the neglect of personalization cues which are less relevant in performing this task (Clee and Wicklund 1980; Ordonez and Benson 1997). Affective processing, which cultivates feelings of gratitude is consequently undermined, therefore wiping out the effects of personalization on consumer referral decisions.

Our study contributes to interactive marketing literature in expanding our understanding of the antecedents of ewom behavior in general and referral behavior in particular, as suggested by King, Racherla, and Bush (2014). We shed light on mechanisms that may enhance referral propensity of first stage actors when seeding viral marketing campaigns, as more recent research insists that their critical role in the success of viral marketing campaigns has been overlooked by extant contributions (Pescher, Reichhart, and Spann 2014). We introduce previously underexplored catalysts of consumer referral behavior and provide a validated model to explain their interactions. The results thereby illuminate the psychological processes underlying the promotional cues' effects, showing that these cues operate through different causal pathways to shape referral decisions. Our findings are in line with several previous studies which suggest that building social currency (Berger 2013; Hennig-Thurau et al. 2004; Nahapiet and Ghoshal 1998) as well as consumers' need to reciprocate in certain situations (Berger and Schwartz 2011; Cialdini 1993; Sundaram, Mitra, and Webster 1998) are key reasons for consumer referral engagement.

We also complement extant research on scarcity as a promotional tactic (Inman, Peter, and Raghurir 1997; Lynn 1989; Van Herpen, Pieters, and Zeelenberg 2009; Worchel, Lee, and

Adewole 1975) by revealing its impact on consumer referral decisions and enhancing our understanding of the importance of the origin of scarcity, namely supply vs. demand based. Through providing insight into demand-based scarcity's positive effect on referral engagement, we extend the work of Cheema and Kaikati (2010), who suggest that supply-based scarcity decreases engagement in referrals due to consumers' urge to fulfill their need for uniqueness, and thus provide a more nuanced perspective on scarcity cues' influence on consumer referral behavior in promotional campaigns.

Lastly, we also bring more clarity to research on personalization through greetings which has hitherto shown mixed results. Our results demonstrate that personalized greetings can indeed have positive effects on consumers' referral propensity in contexts in which consumers can expect to be addressed by name (e.g., existing customers that receive information about a new product or service or consumers pre-registering for further information from a new venture) and thus when privacy concerns are less prevalent. This result is also in line with previous studies that found that personalized messages can have a positive impact on the marketer's desired actions (Heerwegh 2005; Joinson and Reips 2007). However, our work also reveals a novel boundary condition to personalization effects such that personalization cues (i.e., personalized greetings) are particularly effective when they operate independently from scarcity cues, yet are overridden when high scarcity is present.

While the preceding comments focus on theoretical contributions, our study's findings have also several practical implications. For firms seeking to increase referral likelihood of first stage actors when seeding their promotional campaigns, a precondition for word of mouth to unfold among subsequent actors, our findings imply that one needs to employ strong scarcity cues and that personalization can be neglected as long as high scarcity is a feasible option for implementation. In cases where high scarcity is not a viable option and there is a pre-existing relationship between the marketer and consumer (and potential privacy concerns are less prevalent), personalization should not be neglected but incorporated as facilitator of referrals to increase the potential of subsequently going viral. Given these results, the business goals and products or services offered must be weighed and prioritized when deciding the types and combinations of promotional cues to be implemented in an online campaign. A freemium business model, for example, focusing on converting free users to paying premium customers might accentuate scarcity cues during promotional campaigns targeted at first stage actors to increase the urgency to act and therefore lay the basis for spreading the word around the campaign, while making do with little or no personalization. On the other hand, e-commerce driven business models that emphasize building long-term relationships with prospective customers might benefit from personalization cues in their campaigns at the neglect of scarcity which is often perceived as having a touch of puffery. In any case, recognizing this balancing act may help marketers make more informed trade-off decisions that best fit their own business model. Finally, marketers should extensively leverage peoples' need to build social currency

in design decisions of their promotional campaigns to drive consumer referral likelihood and the awareness of their venture.

Despite the substantial theoretical and practical contributions, this study has some limitations which present avenues for further research. First, the nature of the service underlying the experiment naturally appealed more to females. Research on scarcity and personalization does not suggest the effectuated higher product valuations as well as feelings of gratitude to be a gender specific phenomenon, therefore leading us to expect similar effects in a context more pertinent to males. However, it has been put forward that females are generally more likely to disclose information than males (Dindia and Allen 1992), making it essential to test the validity of our findings in the context of more gender-neutral settings. Second, our study analyzed how scarcity and personalization affect referral propensity in the context of e-commerce with a special focus on fashion — a conspicuous and experience good. Future research should examine how these cues work in other business model contexts (e.g., freemium) and for different kinds of products (e.g., inconspicuous and search products). Third, our study focused on personalization settings in which consumers are prepared and can expect to be addressed by name in promotional campaigns and relationships between the marketer and consumer pre-exist. Future studies should however also investigate whether consumers are willing to share personalized campaigns to a similar extent when they don't know how the marketer collected personal information about them and there is no pre-existing relationship. Finally, the nature of the study only allowed for observing the effect of the promotional cues on referral decisions of first stage actors. Although, these referral decisions are a critical precondition to achieving virality, it is essential to understand how the promotional tactics may affect second and later stage actors. The sheer fact that a person comes by a promotional offer through a referral may be interpreted as signal of higher social demand as proposed by Van Herpen, Pieters, and Zeelenberg (2009) and therefore could be of material influence. According to Worchel, Lee, and Adewole (1975), higher demand perceptions have a compounding effect on the positive relationship between scarcity and product valuation, leading us to expect an equally significant or greater influence of scarcity on the referral decision of later stage actors. Hence, future research needs to examine how scarcity effects referrals across different stages of dissemination.

We hope that our contribution helps advance our understanding of the antecedents of consumer referrals in the online context and fuels the respective stream of research on viral marketing among interactive marketing scholars, thus aiding marketers in devising effective online promotional campaigns which will trigger a viral loop around their offerings.

Acknowledgement

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Appendix A

Table 1
Measurement scales.

Construct	Item (all 7-point Likert)
Perceived popularity Van Herpen, Pieters and Zeelenberg (2009) ($\alpha = 0.79$, CR = 0.83, AVE = 0.74)	1. This offer is popular 2. I think that many people want to redeem this offer 3. This offer is redeemed well
Perceived exclusiveness Van Herpen, Pieters and Zeelenberg (2009) ($\alpha = 0.83$, CR = 0.92, AVE = 0.74)	1. I perceive this offer as highly unique 2. This offer is one of a kind 3. This offer is really special
Perceived offer value Suri and Monroe (2003) ($\alpha = 0.83$, CR = 0.84, AVE = 0.70)	1. I think that given this offer's attributes, it is a good value 2. At the advertised conditions, I feel that I am getting a good quality offer 3. If I redeemed this offer at the advertised conditions I feel I would be getting good value
Gratitude Palmatier et al. (2009) ($\alpha = 0.87$, CR = 0.90, AVE = 0.81)	1. I feel grateful to <i>StyleCrowd</i> 2. I feel thankful to <i>StyleCrowd</i> 3. I feel appreciative to <i>StyleCrowd</i>
Information privacy concerns Sutanto et al. (2013) ($\alpha = 0.87$, CR = 0.84, AVE = 0.79)	1. I am concerned with how information about me may be exploited by <i>StyleCrowd</i> 2. I am concerned that my privacy has been compromised by <i>StyleCrowd</i> 3. I am concerned that my personal information may be kept in a non-accurate manner by <i>StyleCrowd</i>
Product (Fashion) involvement Zaichkowsky (1985)	1. I am interested in reading articles about fashion and style
Market mavenism Feick and Price (1987) ($\alpha = 0.85$, CR = 0.88, AVE = 0.78)	1. I like introducing new brands and products to my friends 2. I like helping people by providing them with information about many kinds of products 3. My friends think of me as a good source of information when it comes to new products or sales
Need for uniqueness Tian et al. (2001) ($\alpha = 0.89$, CR = 0.92, AVE = 0.81)	1. I collect unusual products as a way of telling people I'm different 2. When products or brands I like become extremely popular I lose interest in them 3. I have sometimes purchased unusual products or brands as a way to create a more distinctive personal image
Information relevance to others Hupfer and Detlor (2006)	1. I believe information about this offer could be relevant to my peers
Image-impairment concerns Zhang et al. (2014) ($\alpha = 0.81$, CR = 0.85, AVE = 0.73)	1. I feel embarrassed for my buying mistakes 2. Consumers need to worry about how other people view them 3. Looking like a smart shopper is important for me

Table 2
Construct correlation matrix.

	1.	2.	3.	4.	5.	6.
1. Perceived offer value	1					
2. Gratitude	0.365 *	1				
3. Information privacy concerns	-0.119	0.15	1			
4. Market mavenism	0.238 **	0.225 *	-0.236 *	1		
5. Need for uniqueness	0.047	0.051	0.077	0.334 *	1	
6. Image-impairment concerns	-0.021	0.081	0.148	-0.066	-0.088	1

Notes: $N = 119$.

* $p < .05$.

** $p < .01$.

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