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Ketelaar, P.E.; Janssen, L.; Vergeer, M.; van Reijmersdal, E.A.; Crutzen, R.; van 't Riet, J.

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The success of viral ads: Social and attitudinal predictors of consumer pass-on behavior on social network sites

Paul E. Ketelaar [a,*], Loes Janssen [b], Maurice Vergeer [a], Eva A. van Reijmersdal [c], Rik Crutzen [d], Jonathan van 't Riet [a]

[a] Communication Science, Behavioural Science Institute (BSI), Radboud University, The Netherlands
[b] Communication and Information Sciences, Tilburg center for Cognition and Communication, Tilburg University, The Netherlands
[c] Amsterdam School of Communication Research (ASCoR), University of Amsterdam, The Netherlands
[d] School for Public Health and Primary Care (CAPHRI), Maastricht University, The Netherlands

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ABSTRACT

This study investigates which factors predict whether consumers will pass on viral advertising communications to their friends on a social network site. A conceptual framework consisting of three attitudinal and three social predictors of forwarding online content was tested using three real-life advertising campaigns that were spread simultaneously through the Dutch social network site Hyves. Results show that viral advertising pass-on behavior was significantly predicted by a positive attitude toward the brand, the advertisement, and toward viral advertising in general. For two of the three advertisements participants were more likely to forward the advertisement when the advertisement was received from a friend rather than a company. The present study is the first to investigate the predictors of actual pass-on behavior of viral advertisements in the context of a social network site, thereby significantly contributing to existing knowledge on the drivers of viral advertising success.

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1. Introduction

Social network sites (SNSs) are an increasingly popular venue for marketing (Taylor, Lewin, & Strutton, 2011). Advertisers have discovered the persuasive power of viral advertising, using online peer-to-peer communication to promote their brands, products, and services among their target groups. By creating appealing and entertaining advertising messages, advertisers encourage consumers to pass on these messages to friends in their online social networks (Berger & Iyengar, 2013).

Since the success of viral advertising campaigns largely depends on people spreading the message to others, researchers have started to investigate which factors may influence whether consumers pass along online content. However, this research has mainly focused on viral marketing through e-mail (e.g., Chiu, Hsieh, Kao, & Lee, 2007; Bruyn, de, & Lilien, 2008; Dobele, Lindgreen, Beverland, Vanhamme, & Wijk, 2007; Huang, Lin, & Lin, 2009; Phelps, Lewis, Mobilio, Perry, & Raman, 2004). Few studies have investigated viral advertising in the context of SNSs, and these studies solely relied on consumers' self-reported intentions to forward a campaign message (e.g., Chu, 2011; Van Noort, Antheunis, & Van Reijmersdal, 2012).

No research to date has studied actual consumer pass-on behavior of advertising campaigns on SNSs and its determinants, which is vital to reliably predict marketing success. The present study integrates previous research findings on the predictors of passing along online content into a new conceptual framework, and tests this model using three real-life advertising campaigns that were spread simultaneously through a Dutch social network site. These advertising campaigns were all specifically designed for an SNS context, with an interactive and game-like nature.

This study is, to our knowledge, the first to investigate the predictors of actual pass-on behavior of viral advertising campaigns in the context of social network sites. The present research thereby significantly contributes to a theoretical understanding of viral advertising success. Moreover, these insights provide valuable input for companies' social media marketing activities. If marketers are to accomplish their viral marketing goals on SNSs, they need to understand what drives consumers to pass on their campaign messages, so they can take these factors into account when creating advertising content and deciding on a strategy for distribution.

2. Predicting viral advertising success

Social networking sites seem to be a promising venue for viral advertising. These web-based services that allow individuals to (1) construct

* Corresponding author at: Communication Science, Behavioural Science Institute (BSI), Radboud University, P.O. Box 9104, 6500 HE Nijmegen, The Netherlands. Tel.: +31 24 361 1812; fax: +31 24 361 3073.
E-mail addresses: p.ketelaar@ru.nl (P.E. Ketelaar), loes.janssen@let.ru.nl (L. Janssen), m.vergeer@maw.ru.nl (M. Vergeer), e.a.vanreijmersdal@uva.nl (E.A. van Reijmersdal), rik.crutzen@maastrichtuniversity.nl (R. Crutzen), j.vantriet@maw.ru.nl (J. van 't Riet).

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a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system (Boyd & Ellison, 2007, p. 211) have created a unique opportunity for people to connect and share information with others. The perceived barriers for sharing information are low (Huang, Basu, & Hsu, 2010; Vitak & Ellison, 2012) and people can easily and rapidly disseminate messages among the contacts in their social network.

An important parameter that practitioners employ to measure the effectiveness of viral advertising is the amount of consumers that forward an ad to others (Kalyanam, McIntyre, & Masonis, 2007; Thorbjørnsen, Ketelaar, Van 't Riet, & Dahlén, 2015). Previous research on viral text e-mails, viral video messages (commercials), or other forms of online word-of-mouth has identified possible antecedents of passing along online content (e.g., Chiu et al., 2007; Bruyn, de, & Lilien, 2008; Dobele et al., 2007; Huang et al., 2009; Phelps et al., 2004). Based on this literature, one can distinguish between two types of predictors, which are either social or attitudinal in nature.

Attitudinal predictors are related to the content of the viral advertising message. Viral advertising aims to create either brand experience or brand activation, involving consumers with the brand emotionally and stimulating them to try the advertised brand (Ha & Perks, 2005). To create a positive brand experience and persuade consumers to pass on the message (Porter & Golan, 2006), the content is often highly entertaining (e.g., the Carlton Draught beer ad "The Big Ad"; Kabbie, 2006), or even provocative (e.g., the Dove personal care ad entitled "Evolution"; Piper, 2006). Consumers indicate to be more likely to pass on online ads when they have a positive attitude toward the viral advertising content (Dobele, Toleman, & Beverland, 2005; Eckler & Bolls, 2011; Phelps et al., 2004; Thevenot & Watier, 2001; Woerndl, Papagiannidis, Bourlakis, & Li, 2008). Their attitude toward viral advertising in general also positively predicts intentions to pass on a viral ad (Chu, 2011; Yang & Zhou, 2011).

In addition to these attitudinal predictors of passing on online content, research has identified several predictors that are social in nature, in that they are related to the social context in which the message is received. An important aspect of viral advertising is that not marketers, but consumers pass on the advertisements. Receiving a marketing message from a friend instead of a commercial source may reduce resistance toward the commercial message and make people more receptive of the message content (Van Noort et al., 2012). Research has investigated and confirmed that the intention to pass on online content is stronger when the sender is a friend, rather than a commercial source (Chiu et al., 2007). The strength of the relationship with the sender of the message also positively influences pass-on intentions (Dobele et al., 2005; Ellison, Steinfield, & Lampe, 2007; Huang et al., 2009; Lindgreen & Vanhamme, 2005; Phelps et al., 2004; Thevenot & Watier, 2001; Vilpponen, Winter, & Sundqvist, 2006; Woerndl et al., 2008).

Although previous studies have identified possible antecedents of consumers passing on online content, an important limitation of this work is that none of these studies measures actual pass-on behavior of viral ads. Participants estimated how often they passed on online content (e.g., Camarero & San José, 2011), or had to indicate whether they intended to pass on a specific advertising message (Van Noort et al., 2012). Besides the well-known drawbacks of self-reports (e.g., Paulhus & Vazire, 2007), the factors driving behavioral intentions are not necessarily similar to or as impactful as the factors influencing actual behavior (e.g., Webb & Sheeran, 2006). The present study therefore measures actual pass-on behavior of viral ads, and tests to what extent a set of attitudinal and social predictors that have been identified by previous research drive actual pass-on behavior.

Moreover, whereas previous research mainly focused on viral text e-mails (Dobele et al., 2005; Eckler & Bolls, 2011; Phelps et al., 2004; Thevenot & Watier, 2001; Woerndl et al., 2008), the present study is one of the first to focus on viral advertising in the context of SNSs.

Specifically, this study examines viral advertising campaigns with a game-like nature (Van Noort et al., 2012), as a form of branded entertainment featuring advertising messages, logos, and trade characters in a game format (Okazaki & Yagüe, 2012). Advertisers have long realized that creating videogames to promote a brand is likely to attract attention and word-of-mouth. As early as the 1980s, this has lead to the creation of so called 'advergames', promoting products ranging from soft drinks to pet food. It should be borne in mind, however, that in those years TV-, radio-, print- and other types of 'push' advertising were still dominant and advergames occupied only a tiny part of the advertising market. It is only recently that advertisers are predominantly focusing on using 'pull' strategies to get consumers to expose themselves voluntarily to advertising. The recent rise in the design and distribution of advergames can be seen as part of a more general trend in which advertising has become more integrated in entertainment media. The idea is that 'branded entertainment' can cut the ad clutter and engage consumers in a fun way (Shrum, 2012). For advergames specifically, one report estimated that total U.S. spending on advergames comprised $264 million in 2006 and was expected to grow to $676 million in 2009 (Johannes & Odell, 2007 cited in Lee, Choi, Quilliam, & Cole, 2009). A more recent report (Visiongain, 2010) puts the advergaming industry's annual revenues at a little over $3 billion, although this estimate included so-called in-game advertising. Although the estimates differ, it is clear that the rise in the use of advergames is truly momentous.

Terlutter and Capella (2013) have argued that advertising in digital games in a social network context has become more popular. They argue that advertising in social network games shares much communality with classic ingame advertising and advergaming, and represents a separate category for scientific research, because of the considerable reach and popularity of SNSs combined with the focus on social interactions in the games. This specific form of viral advertising on SNSs aims for brand experience by actively and emotionally involving consumers with the brand in order to generate interaction between consumers, and between consumers and the advertised brand. These campaigns typically integrate the social media profiles of members of the SNS into the campaign. Once receivers are actively involved in the viral campaign, they might invite the members of their SNS to join them.

Although the factors that influence pass-on behavior of e-mail virals are expected to play a significant role in passing along viral SNS campaigns as well, due to the unique aspects of the SNS campaigns featured in this study, the relative influence of these determinants may differ. Incorporating an individual's private social network contacts into the ad makes the content of the studied SNS campaigns highly personalized, and the social aspect of the game allows receivers to interact with members in a fun and relaxing way, without the traditional focus on persuasive arguments or an obvious sales intent (Knowles & Riner, 2007). In contrast to unidirectional internet-based advertising such as e-mail, advertising in social media thus seems to transform a corporate message into a social message, with message content integrated in the social interactions of the receiver (Van Noort et al., 2012). In particular, by playing a game, these viral advertising campaigns are inherently more interactive and "social" than viral text messages and viral commercials sent via e-mail. Furthermore, members of SNSs are possibly less likely to avoid an ad campaign on an SNS when a friend has send it to them, thus creating a positive context for ad effects compared to other media.

When compared to viral advertising through e-mail, forwarding this type of interactive, game-like SNS ads may therefore be more strongly influenced by social determinants (e.g., being especially willing to share the ad when the sender is a friend, rather than a commercial source), and perhaps to a lesser extent by attitudinal determinants (e.g., being more likely to pass on an ad when one has a positive attitude toward the advertised brand). The present research therefore tests the relative influence of both social and attitudinal predictors of passing on an SNS ad.

In sum, the goal of the present research is to go beyond self-reported behavioral intentions and to study actual pass-on behavior of real-life advertising campaigns on SNSs, which significantly increases the ecological validity of the research results. Specifically, the objectives

of the present study are (1) to develop a conceptual framework that integrates social and attitudinal predictors of passing on viral advertising on SNSs that have been identified by previous research on passing on online content, (2) test the relative influence of these predictors on actual pass-on behavior of a large sample of respondents, (3) in the context of three real-life advertising campaigns that were launched simultaneously on a social network site.

3. Conceptual framework and hypotheses

The conceptual framework, which is presented in Fig. 1, proposes six key factors, three attitudinal and three social predictors, that are expected to predict viral advertising pass-on behavior on a social network site.

The influence of these predictors will be hypothesized below, supported by previous work on e-mail virals (Dobele et al., 2005; Eckler & Bolls, 2011; Phelps et al., 2004; Thevenot & Watier, 2001; Woerndl et al., 2008), the limited number of studies that have been conducted on viral advertising in the context of SNSs (Chu, 2011; Van Noort et al., 2012), and general marketing literature (e.g., Cialdini, 2009). The possible influence of these predictors will also be grounded in Word-of-Mouth (WOM) theory (Ketelaar & Schaerlaekens, 2015; Rosen, 2009; Sundaram, Mitra, & Webster, 1998). Electronic Word-of-Mouth, defined as any positive or negative statement made by customers about a product or company, made available to a wider public via the Internet (Cruz & Fill, 2008; Ferguson, 2008; Helm, 2000; Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004) is often cited as a valuable research framework for viral marketing.

Hypotheses will be formulated for the following attitudinal predictors: (a) consumers' attitude toward the advertised brand, (b) consumers' attitude toward the viral advertisement, and (c) consumers' attitude toward viral advertising in general. The three social predictors for which hypotheses will be formulated are (d) the sender of the advertisement, (e) consumers' perceived strength of tie with the sender, and (f) consumers' frequency of use of the social network site, which serves as a proxy for the strength of one's social connection with the particular SNS (Chu & Kim, 2011).

3.1. Attitudinal predictors of pass-on behavior

The first attitudinal factor that is predicted to have an influence on passing on a viral SNS advertisement is the attitude that consumers have toward the advertised brand. Although no empirical research to date has studied this factor in relation to viral advertising, studies in the domain of (electronic) word-of-mouth advertising have shown that when consumers like a brand, they are more likely to spread a branded message and associate themselves with the brand in question (e.g., Squicciarini & Griffin, 2012). Consumers are therefore expected to be more likely to pass on an advertisement to others in an SNS context when their attitude toward the advertised brand is positive (H1).

Related to brand attitude is the attitude that consumers have toward the viral advertisement itself, which is assumed to be another important predictor of pass-on behavior. Many studies have demonstrated that a positive attitude toward a viral text or video message positively influences the likelihood that consumers would pass them on via e-mail (Dobele et al., 2005; Eckler & Bolls, 2011; Phelps et al., 2004; Thevenot & Watier, 2001; Woerndl et al., 2008). This relationship is also expected to be present in an SNS context concerning actual pass-on behavior. Specifically, consumers are expected to be more likely to pass on an advertisement to others when their attitude toward the advertisement is positive (H2).

A third attitudinal factor that is suggested to influence pass-on behavior is consumers' general attitude toward viral advertising. The extent to which people enjoy receiving and attending to viral ads is likely to be an important predictor of pass-on behavior. For example, studies by Chu (2011) and Yang and Zhou (2011) showed that people's intention to pass on a viral advertisement on SNSs was significantly predicted by a positive attitude toward viral advertising. Therefore, consumers are expected to be more likely to actually pass on an SNS ad when they have a positive attitude toward engaging in viral advertisements (H3).

3.2. Social predictors of pass-on behavior

The first social factor that is predicted to have an influence on passing along a viral SNS advertisement is the sender of the viral ad. In the context of viral advertising, Chiu et al. (2007) found that consumers are more willing to pass on viral e-mail messages when the message was sent by close interpersonal sources than when the message was sent by a commercial source. As Chiu et al. argued, consumers tend to be more trusting of information that comes from familiar and similar others (as opposed to dissimilar others), since these interpersonal sources (e.g., friends or family) have no commercial intent, and therefore profit from higher credibility. Importantly, as demonstrated by Chiu et al., forwarded messages from interpersonal sources were not only more highly valued than messages from impersonal sources when the content had utilitarian benefits, but also when its benefits were hedonic in nature. The latter is especially relevant to the forwarding behavior in the present study, since game-like advertisements will most likely be forwarded because of their entertainment value. By forwarding such an ad in the interactive context of an SNS, one invites a friend to engage in a social activity that was previously judged as highly enjoyable. Assuming that hedonic value as judged by a friend in one's social network is more trustworthy than judged by an impersonal source. In the present study consumers are expected to be more likely to pass on an SNS ad to others in their social network when the sender is a friend, rather than the company behind the ad (H4).

In addition, the present study investigates consumers' perceived strength of tie with the sender of the advertisement as a predictor of pass-on behavior. Tie strength is defined as the degree of closeness and frequency of contact between an individual and another person in a social network (Carrasco & Miller, 2006; Bruyn, de, & Lilien, 2008; Norman & Russell, 2006). In the present study, tie strength is only taken into account when an individual receives the advertisement from a friend, not when the ad is received from a company.

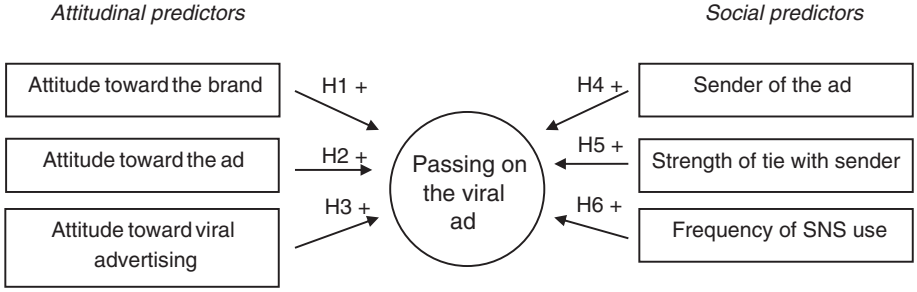

Fig. 1. Conceptual framework with attitudinal and social predictors of passing on viral ads on social network sites.

Tie strength might play an important role in viral SNS campaigns, since social connection is one of the most important motivations for people to use an SNS (Van Noort et al., 2012). However, the nature of social connections differs, as these connections can either be weak or strong (Carrasco & Miller, 2006; Ellison et al., 2007). Granovetter (1983) defines weak ties as rather loose connections between individuals and conducive to information dissemination beyond tightly knit and close networks, but do not provide emotional support. However, strong ties are characterized by strong connections between individuals who emotionally support one another, as is the case with close friends and family. Brown and Reingen (1987) have established that at the macro level (e.g., communication flows across groups), weak ties were predominant in demonstrating a crucial bridging function, thus allowing information to disseminate and spread among distinct groups. However, at the micro level (e.g., communication flows within dyads or small groups, such as the dissemination of viral campaigns), strong ties were more likely to be activated.

Several studies on e-mail virals have shown that people are more likely to open and read e-mails from close friends rather than distant friends, because people perceive them as more trustworthy and sharing similar interests (Dobele et al., 2005; Ellison et al., 2007; Huang et al., 2010; Lindgreen & Vanhamme, 2005; Phelps et al., 2004; Thevenot & Watier, 2001; Vilpponen et al., 2006; Woerndl et al., 2008). In our context of game-like advertisements, the aspect of shared interests seems to be particularly relevant. People with strong ties tend to show attitudinal, behavioural and also demographic similarities (Duck, 1983). In general, people are more likely to engage in shared activities with others who share their interests. These joint activities are rewarding for individuals because they offer social validation of one's attitudes and interests (Aboud & Mendelson, 1996). As a consequence, the ties between individuals become stronger and future joint activities are more likely. For game-like advertisements, this may imply that if individuals receive the ad from a close tie, receivers assume that the ad is relevant and fits their interests. This perception can be used as a cue to decide to forward the ad to others. Chu and Kim (2011) have found similar results for pass-on behavior of online word-of-mouth on SNSs. The results of their study show that perceived tie strength is positively related to consumers' intention to pass on product-related information in online social media (see also Van Noort et al., 2012). In the present study, consumers who received the advertisement from a friend are expected to be more likely to pass-on the advertisement to their SNS contacts when the perceived strength of tie with this friend is strong, rather than weak (H5).

Finally, a third social factor that is suggested to influence pass-on behavior is consumers' frequency of use of the SNS in question. Research shows that the amount of time spent online is positively related to passing on online content on the internet in general (Ho & Dempsey, 2010; Sun, Youn, Wu, & Kuntaraporn, 2006). In the present study, consumers are expected to be more likely to pass on an advertisement to their SNS contacts when they are more frequent users of the social network site (H6).

4. Method

4.1. Procedure

The present study focuses on actual pass-on behavior of viral advertisements, by members of the Dutch SNS Hyves. At the time of data collection more than half of the Dutch population owned a Hyves-profile (Van Belleghem, 2011). During four consecutive weeks, Hyves members were exposed to real-life advertising campaigns for three large international brands: Lay's, Telfort, and Sony Ericsson. Studying three real-life campaigns that were launched and running at the same time provided a unique opportunity to measure actual pass-on behavior, thereby increasing the external validity of the study's results. Moreover, studying multiple advertisements created an opportunity to evaluate overall pass-on behavior, as well as possible unique campaign effects.

During the campaign period, banners that lead to the campaign websites appeared in random order on Hyves members' profile pages when members logged into their Hyves account, provided that a member belonged to the target group of the advertisements, which was 20 to 50 year olds. Anyone belonging to the target group thus had an equal chance of being exposed to one of the three banners each time they logged onto their profile page.

Hyves members that visited the website of either one of the three advertising campaigns by clicking on a banner or by accepting an invitation from a friend to visit a campaign website were eligible for participation in the study. Hyves members have a unique Hyves-identity number which was used to register whether they had visited a campaign website, and if they did, whether they had passed on the advertisement presented on that website. During the four weeks in which the campaigns were run, at the end of every week an e-mail was sent to all members who had visited a campaign website in that particular week, inviting them to participate in an online survey. Although participants could have visited more than one campaign website, they only filled out a survey about the advertisement they had seen first, and they could participate only once during the study.

In the survey, which will be explained in more detail below, participants first indicated whether they received the viral advertisement from a friend, or came across the ad by clicking on a banner. If they received the advertisement from a friend, they indicated the perceived strength of tie with the sender. Furthermore, they indicated their frequency of use of the Hyves SNS and their general willingness to engage in viral advertisements. Finally, they indicated their attitude toward the brand that featured in the advertisement and their attitude toward the advertisement itself, followed by questions about gender, age and education. The dataset did not contain any missing values, since the online survey software required a response before one could continue to the next survey question. Only completed surveys were analyzed. To increase the response rate, participation was linked to joining a lottery to win one of ten Hyves gift sets consisting of a pen, a usb-stick, and a keychain.

4.2. Participants

A total number of 166,755 Hyves members visited at least one of the three campaign websites within the four weeks that the viral advertisements were active, of which 17,850 members (10.7%) agreed to participate in this study. Of those who agreed to participate, 9340 people (52.3%) indicated that they did not recognize the advertisement and were therefore excluded from the study. A lack of memory for the ad can be explained by many people leaving the campaign website directly after clicking on a banner or friend invitation, thereby significantly limiting exposure to the advertisement. The net result of 8510 participants equals a 5.1% response rate, which is reasonable considering the fact that only a minor incentive was given for participating in the study. Of this total sample, 4499 individuals (52.9%) answered questions about the Sony advertisement, 1601 people (18.8%) answered questions about the Lay's advertisement, and 2410 participants (28.3%) answered questions about the Telfort advertisement.

The sample differed slightly from the Hyves population of which 56% is female, with an average age of 27 years (Buschenhenke, de Groote, Horrevorts, & Wilbrink, 2014). In the present sample, 70% was female and participants had an average age of 26.4 years ($SD = 12.72$). Table 1 shows demographic variables (age, gender, and education level) for the entire sample as well as for each advertisement sample separately.

4.3. Viral advertising communications

Hyves members were exposed to real-life advertising campaigns for three international brands that are well-known in the Netherlands:

Lay's, a company that produces potato chips, Telfort, a mobile network provider, and Sony Ericsson, producer of mobile telecommunications equipment. Specifically, Lay's advertised their potato chips and a sponsored event called "Picnic in the Park", Telfort advertised a Sim-only subscription to their network, and Sony Ericsson advertised a Sony Ericsson mobile phone with Hyves software application.

Although the three advertisements focused on different product categories, they were similar in many respects, which legitimizes overall comparisons. All three advertisements were aimed at the same target group (20 to 50 year olds) and focused on 'brand experience' (Ha & Perks, 2005), involving consumers with the brand emotionally. Specifically, all three ads were interactive and involved playing a game. The three games had a similar structure and members followed a comparable route through the game (details are specified below). Each game used the database of names and pictures of friends in the personal network of the member who played the game. The brand appeared on each page of the viral advertising communication. At the end of each game, members could choose to play the game again, to forward the ad to friends, and/or place the gadget of the ad on their personal Hyves page.

4.3.1. Lay's "Join the Picnic" ad

In the Lay's "Join the Picnic" ad, participants have to find ten Hyves friends whose profile pictures appear randomly in a virtual park setting (see Fig. 2). All friends have to be found within 60 s, by clicking on their pictures. The game ends when all ten friends have been found and participants enter a page where they can leave behind their e-mail address to win a Lay's picnic cloth or VIP-cards for the Dutch "Picnic in the Park" sponsored event.

4.3.2. Telfort "Simsalabim" ad

The Telfort "Simsalabim" ad features a game with a magic trick (see Fig. 3). Participants are shown a selection of their friends' profile pictures and pick one to take in mind. Magicians' hands shuffle the pictures and divide them into three lines, after which participants have to indicate which row contains their friend's picture. The magician repeats this scenario three times until he 'magically' shows the picture of the friend the participant had in mind.

4.3.3. Sony Ericsson "Who, what, where am I?" ad

In this advertisement, a Sony Ericsson mobile phone shows an invitation from a Hyves friend for a social activity (see Fig. 4). Participants are shown a selection of their friends' profile pictures and have to guess which friend has sent the message. They can ask for hints that appear on the screen of the mobile phone (e.g., their friend's age or place of residence). The game ends when participants correctly identify the sender of the invitation. Before playing the game, participants are told that by playing the game they can win a unique SonyEricsson mobile phone with Hyves software application.

Table 1
Demographic characteristics separate advertisement samples.

	Overall sample		Sony		Lay's		Telfort	
	N	%	N	%	n	%	n	%
	8510	100	4499	52.9	1601	18.8%	2410	28.3%
Age†	26.42 ± 12.74		26.59[b] ± 12.28		31.54[c] ± 12.84		22.69[a] ± 12.22	
Gender*								
Male	30.0%		31.5%		16.3%		36.5%	
Female	70.0%		68.5%		83.7%		63.5%	
Education*								
Higher education	10.9%		10.0%		18.7%		7.4%	
Secondary education	65.2%		68.1%		69.1%		56.9%	
Primary education	9.6%		11.3%		5.2%		9.5%	
Other/no answer	14.3%		10.5%		7.0%		26.1%	

† Means differ significantly between the three campaigns; means with different superscripts differ significantly from each other.
* Frequencies differ significantly between the three campaigns.

4.4. Measures

4.4.1. Pass-on behavior

The key dependent measure of the present study is whether respondents did or did not pass on the advertisement to others, which was tracked by means of server registrations of members' unique Hyves identity numbers.

4.4.2. Attitude toward the brand

Attitude toward the brand was measured with four 5-point semantic differential items. Following MacKenzie, Lutz, and Belch (1986), participants were asked to indicate whether their attitude toward the brand was negative (1) vs. positive (5), and whether they were not interested (1) vs. interested (5) in the brand. Two items were added to measure participants' level of knowledge about the brand: whether they knew a lot about the brand (5) vs. very little about the brand (1) and whether they knew a lot about the brand compared to other brands (5) vs. very little about the brand compared to other brands (1). These items were combined into an average brand attitude scale ($\alpha = .80$; $M = 3.20$; $SD = 0.78$).

4.4.3. Attitude toward the ad

Attitude toward the viral advertisement was measured by means of six 5-point semantic differential items, asking participants to indicate whether they liked the viral advertisement (1 = *did not like it at all*; 5 = *liked it very much*), whether the ad appealed to them (1 = *did not appeal at all*; 5 = *appealed very much*), whether they thought the ad fitted the brand (1 = *did not fit at all*; 5 = *fitted very well*), and whether they thought the ad was pretty, (1 = *very ugly*; 5 = *very pretty*), good (1 = *very bad*; 5 = *very good*), and original (1 = *not original at all*; 5 = *very original*) (Mackenzie & Lutz, 1989). These item scores were averaged into an ad attitude scale ($\alpha = .86$; $M = 3.39$; $SD = 0.79$).

4.4.4. Attitude toward viral advertising

Participants were asked to indicate how they would generally respond to viral advertising: (1) I would certainly engage in the advertisement; (2) I would engage in the advertisement conditionally or (3) I would not engage at all. In the analysis, this predictor represented by two dummy variables. In total, 24% of participants indicated that they would certainly engage in the advertisement.

4.4.5. Sender of the advertisement

Participants indicated whether they received the viral advertisement from a friend, came across the ad by clicking on a company banner, or did not remember how they came across the advertisement. In the analysis, this predictor was represented by two dummy variables.

4.4.6. Tie strength with sender

Participants who received the advertisement from a friend indicated the strength of tie with that person by answering two questions on a 5-point scale. Following Norman and Russell (2006), participants indicated the perceived strength of tie with the person that had sent them the advertisement (1 = *very weak*; 5 = *very strong*), as well as the frequency of contact with that person (1 = *very infrequent contact*; 5 = *very frequent contact*). The two item scores were averaged into a composite tie strength measure ($r = .72$; $M = 3.45$; $SD = 1.00$).

4.4.7. Frequency of SNS use

The question "How often do you visit Hyves?" measured frequency of use of the SNS, following Phelps et al. (2004). Possible answers ranged from "less than once a month" to "daily" (eight categories). Because 69.9% of participants indicated that they used Hyves on a daily basis, resulting in a non-normal distribution ($M = 7.36$, $SD =$

Fig. 2. Lay's"Join the Picnic" advertisement.

1.10), this construct was not used as a linear variable in the analyses, but a dichotomous variable was created, indicating daily use or non-daily use.

4.5. Analyses

Since the dependent variable is binary (passing on the ad vs. not passing on the ad), multiple logistic regression analysis was used to test the hypotheses. All independent variables (three attitudinal and three social predictors, as well as gender, age, and education) were entered in one block. Nagelkere's R^2 was used to assess the variance explained by the model. Analyses were performed for the entire sample and for the three viral advertisements separately. In the main analysis, perceived tie strength with the sender was not included, because this would limit the analysis to those participants who received the viral advertisement from a friend (n = 2298). For those participants, separate logistic regression analyses were performed which included tie strength with the sender as an independent variable. These analyses were done separately for the three different advertisements. Effect sizes were determined following recommendations by Chinn (2000), who proposed that Odds Ratios can be converted to Cohen's d following the formula d = ln(OR)/1.81. Combining this formula with Cohen's (1988) classification of an effect size of d = .20 as small, of d = .50 of medium and of d = .80 as large, a small effect size of d = .20 is equivalent to an Odds ratio (OR) of 1.44, a medium effect size of d = .50 is equivalent to an Odds ratio of 2.47, and a large effect size of d = .80 is equivalent to an Odds ratio of 4.25.

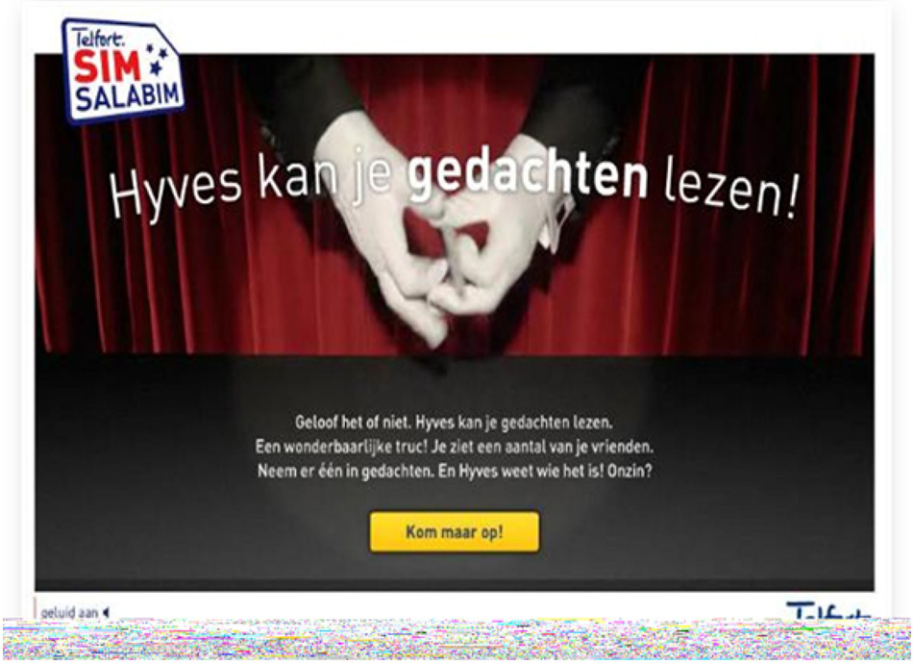

Fig. 3. Telfort's "Simsalabim" advertisement.

Fig. 4. Sony Ericsson's "who, what, where am I?" advertisement.

5. Results

5.1. Pass-on behavior and sender of the advertisement

Of the total sample of 8510 participants, 2192 (25.8%) sent the ad on to others. Table 3 shows this overall percentage, as well as how many participants passed on each individual ad. A total of 2298 participants (27%) indicated that they received the viral advertisement from a friend, whereas 5074 members came across the ad by clicking on a company banner (59.6%), or did not remember how they came across the advertisement (n = 1138; 13.4%). Table 1 shows these overall percentages, as well as percentages for each individual ad.

Table 2
Results of the multiple logistic regression for the overall sample and separate advertisement samples with pass-on behavior as the dependent variable.

	Overall sample				Sony				Lay's				Telfort			
	B	OR	Wald	*p*	*B*	OR	Wald	*p*	*B*	OR	Wald	*p*	*B*	OR	Wald	*p*
Brand attitude	.17*	1.19	19.68	.000	.12*	1.13	6.08	.014	.08	1.08	0.48	.487	.34*	1.40	18.19	.000
Ad attitude	.84*	2.32	380.77	.000	.73*	2.09	165.64	.000	.86*	2.37	67.20	.000	1.06*	2.87	144.1	.000
General viral ad attitude																
Certainly	1.24*	3.45	91.77	.000	1.19*	3.28	54.49	.000	1.29*	3.64	15.33	.000	1.52*	4.59	23.79	.000
Conditionally	.69*	1.97	30.35	.000	.52*	1.69	11.90	.001	.79*	2.20	6.37	.012	1.17*	3.22	14.92	.000
Never	REF															
Sender of the ad																
Friend	.11	1.11	3.01	.083	−.40*	0.67	21.53	.000	.53*	1.70	14.87	.000	.86*	2.36	45.38	.000
Don't remember	−.17	0.85	3.65	.056	−.34*	0.71	9.45	.002	.03	1.03	0.03	.861	n.a.	n.a.	n.a.	n.a.
Company banner	REF															
SNS frequency																
Daily use	.02	1.02	0.10	.753	.02	1.02	0.06	.810	.13	1.14	1.13	.289	−.14	0.87	1.32	.251
Non-daily use	REF															
Age	.02*	1.02	56.29	.000	.01*	1.01	11.96	.001	.01*	1.01	7.10	.008	.03*	1.03	3.94	.000
Gender																
Female	−.07	0.93	1.28	.257	.02	1.02	0.05	.828	−.12	0.89	0.56	.454	−.23*	0.78	3.94	.047
Male	REF															
Education																
Higher education	−.07	0.94	0.28	.598	.05	1.05	0.07	.786	.48	1.61	2.18	.140	−.50	0.61	2.99	.084
Secondary education	−.04	0.96	0.15	.964	.03	1.03	0.05	.821	.48	1.62	2.57	.109	−.39*	0.68	3.98	.048
Primary education	REF															
Other/no answer	.11	1.11	0.90	.342	.10	1.11	0.45	.503	.00	1.00	0.00	.998	.10	1.11	0.25	.619
Brand																
Sony	.23*	1.26	11.53	.001												
Lay's	.01	1.01	0.01	.93												
Telfort	REF															
Constant	−5.08	0.01	661.34	.000	−4.45	0.01	273.83	.000	−5.24	0.01	82.10	.000	−6.16	.00	264.9	.000
Nagelkerke R^2	.17				.15				.15				.29			
−2 LL	8648.516				4680.028				1766.496				2066.182			

Note. No participants indicated to not remember how they received the Telfort advertisement. Therefore, no data was provided for this second dummy variable. Age had a small effect in the overall sample ($B = .001$), but because of the small SE (SE = .000) this effect was statistically significant (95% CI: 1.000–1.002) despite a trivial effect size.

5.2. Testing the hypotheses

The overall model fitted based on Nagelkerke's $R^2 = .16$. With regard to the attitudinal predictors (as shown in Table 2), the analyses show that brand attitude, ad attitude, and people's general attitude toward viral advertising all significantly predict pass-on behavior in the expected direction.

Specifically, the more positive the attitude toward the brand (H1), the more positive the attitude toward the ad (H2), and the more positive the attitude toward viral advertising in general (H3), the more likely receivers were to forward the ad to others in their online social network. The effect of brand attitude is in the small range (OR = 1.19), whereas the effects of attitude toward viral advertising (OR = 3.45 and OR = 1.97) and ad attitude (OR = 2.32) are in or approaching the medium range. Note that the analyses for the three advertisements separately show similar results; however, for the Lay's advertisement the influence of brand attitude does not reach significance.

With regard to the social predictors (as shown in Table 2), the analyses showed that the source of the viral advertisement did not significantly influence pass-on behavior (H4). However, analysing the advertisements separately revealed significant effects that are different for the three advertisements. Specifically, whereas participants were more likely to pass on the Lay's and Telfort advertisements when they were sent by a friend rather than received by clicking on a banner, the analysis for the Sony advertisement showed the opposite pattern: participants who received the advertisement from a friend were *less* likely to pass on the ad, as compared to those who received the ad by clicking on a banner.

For those participants who received the viral advertisement from a friend, additional analyses were performed to investigate whether perceived strength of tie with the sender significantly contributed to the prediction of pass-on behavior (H5). The results of these analyses revealed that, overall, participants who perceived a stronger tie with the person who sent them the viral advertisement were significantly more likely to forward the ad to others ($B = .12$, OR = 1.13, Wald = 5.23, $p = .022$). However, separate analyses showed that tie strength was only a significant predictor for the Sony advertisement ($B = .15$, OR = 1.16, Wald = 4.26, $p = .039$). For the Telfort advertisement, despite the effect size being in the same range, the effect of tie strength was not significant ($B = .14$, OR = 1.15, Wald = 1.29, $p = .256$), which could be due to the smaller sample size ($n_{Telfort} = 551$). For the Lay's advertisement the influence of tie strength was also not significant ($B = .06$, OR = 1.06, Wald = 0.32, $p = .570$). Table 3 shows the descriptive statistics for all relevant measures for the overall sample and separate advertisement samples.

With respect to the last social factor, the analyses showed that frequency of SNS use neither predicted pass-on behavior for the general sample, nor for the three advertisements separately (H6). Finally, gender and education did not have significant effects on pass-on behavior. The results did show a significant effect of age, which means that older people are somewhat more likely to pass-on the viral ad. However, this effect is quite small and could therefore be considered irrelevant.

A non-hypothesized predictor is age. The results showed a rather small, but significant effect of age, meaning that older people are somewhat more likely to pass-on the viral ads.

Table 3
Descriptive statistics for all relevant measures for the overall sample and separate advertisement samples.

	Overall sample	Sony	Lay's	Telfort
	N = 8510	N = 4499	N = 1601	N = 2410
	100%	52.9%	18.8%	28.3%
Pass-on behavior*				
Pass on	25.8%	26.3%	29.4%	22.4%
No pass on	74.2%	73.7%	70.6%	77.6%
Brand attitude†	3.20 ± 0.78	3.24^{b} ± 0.80	3.46^{c} ± 0.56	2.94^{a} ± 0.78
Ad attitude†	3.39 ± 0.79	3.31^{a} ± 0.76	3.72^{b} ± 0.65	3.32^{a} ± 0.85
General viral advertising attitude*				
Certainly	24.0%	23.4%	21.0%	27.1%
Conditionally	65.2%	65.3%	71.6%	60.8%
Never	10.8%	11.3%	7.3%	12.1%
Sender of the ad*				
Friend	27.0%	28.1%	30.3%	22.9%
Don't remember	13.4%	15.2%	28.2%	–
Company banner	59.6%	56.7%	41.5%	77.1%
SNS frequency*				
Daily use	69.9%	73.3%	66.2%	65.9%
Non-daily use	30.1%	26.7%	33.8%	34.1%
Tie strength†	3.45 ± 1.00	3.36^{a} ± 1.06	3.57^{b} ± 0.94	3.53^{b} ± 0.90

Note: Numbers are either percentages (%) or means ± standard deviations.
* Frequencies differ significantly between the three campaigns.
† Means differ significantly between the three campaigns; means with different superscripts differ significantly from each other.

6. Discussion

The present study investigated which factors predict whether members of SNSs will pass on viral advertising communications. The present study integrated previous research findings on the predictors of passing on online content into a new conceptual framework, and tested this model using three real-life advertising campaigns that were spread on the Dutch social network site Hyves. Going beyond self-reported behavior and intentions, and investigating actual pass-on behavior, this study significantly adds to existing knowledge on the drivers of viral advertising success.

Compared to viral advertising through e-mail, pass-on behavior on SNSs was expected to be more strongly influenced by social predictors, such as the sender of the ad, rather than attitudinal predictors, such as consumers' attitude toward the advertised brand. This difference was expected because in contrast to other types of forwarded online content, the type of viral advertisements on SNSs that were studied in this paper were more personal, interactive, and social in nature: the ad campaigns involved playing a game in which not the advertised brand, but an individual's private social network played a central role.

However, in contrast to what was expected, in the present study pass-on behavior appeared to be more strongly predicted by attitudinal factors, instead of social factors. With respect to the three attitudinal predictors that were investigated, attitudes toward the brand, ad, and viral advertising in general all significantly influenced pass-on behavior of the three different campaign ads, with effect sizes approaching the medium range (although the effect of brand attitude did not reach significance for the Lay's advertisement). In line with previous work on self-reported pass-on behavior of commercial messages through e-mail (e.g., Chu, 2011; Thevenot & Watier, 2001; Woerndl et al., 2008; Yang & Zhou, 2011), people were more likely to actually pass on an advertisement in an SNS context, the more positive their attitude toward the ad, or toward viral advertising in general. Although the attitude toward the brand was not previously studied in relation to viral advertising, the present research shows that consumers are also significantly more likely to pass on an ad when they have a positive attitude toward the advertised brand. It is important to note that studying real-time advertising campaigns did not allow a measurement of brand attitude before exposure to the campaigns, and therefore it remains unknown whether and to what extent brand attitude may have been influenced by ad exposure. However, considering that the brands featured in this study are well-known and engage in advertising on a large scale in the Netherlands.

Compared to the three attitudinal predictors that were investigated in the present study, the three social predictors had relatively small (sender of the ad and tie strength) to even non-significant effects (frequency of SNS use) on pass-on behavior. With respect to the sender of the advertisement, the direction of the effect of this predictor differed between the three advertisements. Participants were more likely to pass on the Lay's and Telfort advertisements when they received them from a friend, rather than a company, whereas the Sony ad was more likely to be forwarded when participants received the ad from a commercial source, rather than a friend (rendering the overall effect of this predictor non-significant).

Although previous research consistently showed that consumers are more likely to comply with requests (Cialdini, 2009) and forward content (e.g., Chiu et al., 2007) sent by close interpersonal sources rather than commercial sources, the results for the Sony ad thus seem to deviate from this pattern. Why the Sony ad was less likely to be passed on when received from a friend (i.e. a strong tie) rather than a company (i.e. a weak tie) seems to be related not only to the types of networks (cf. Granovetter, 1983), but also to participants' motives for passing on the campaign ads (cf. Phelps et al., 2004). In order to reliably explain why the Sony ad was less likely to be passed on when received from a friend rather than a company, and why this pattern contrasts with the other two ads, additional data would be needed on participants' motives for passing on the campaign ads (cf. Phelps et al., 2004). Forwarding the Lay's and Telfort ads may have been mainly driven by a hedonic motivation, such as the need to entertain and share a positive experience (inviting others to play a fun game), whereas forwarding the Sony ad may have been more strongly driven by a utilitarian motivation, such as the need to provide others with useful content (informing others that by playing a game they can win a mobile phone) (cf. Chiu et al., 2007). Receiving an ad from a friend may better match a hedonic motivation, which could explain why the Lay's and Telfort ads were more likely to be passed on when received from a friend, rather than a company. Receiving an ad from a company may better match a utilitarian motivation, which could explain why the Sony ad was more likely to be forwarded when received from a company, rather than a friend. Although the present study did not investigate such motivations for passing on ads in social networks and how these motivations may interact with the sender of the ad, this interaction would be profitable for future research to explore.

Related to the motivational aspect of forwarding online content is whether a consumer may be dispositionally motivated to forward an ad campaign. Specifically, previous research distinguishes opinion followers from opinion leaders (Rogers, 2010). According to Rogers, opinion leaders are more active in passing along viral messages that they consider informative, since being competent and trustworthy sources of information to their followers, they need to stay in touch with the latest trends and innovations. Taking consumer innovativeness into account could possibly shed more light on people's motivations for passing on an advertisement either received from a company or a friend.

Moreover, future research could delve more deeply into the content characteristics of viral advertising campaigns on SNSs, and how these may influence forwarding success. In line with previous work by Berger and Milkman (2012), which showed that emotions are a strong predictor of online content going viral, future studies could test the relation between pass-on behavior and emotions elicited by the advertisement. For example, future studies could incorporate a scale that measures emotions such as surprise and joy in response to the advertisement (see Dobele et al., 2007), as well as measuring to what extent participants thought the advertisements were entertaining and funny. Finally, in addition to the emotional value of message content, future studies could also measure value derived from content characteristics on a more cognitive level, such as the extent to which the advertised content (and product) is considered functional, relevant, valuable, and useful (e.g., Schulze, Schöler, & Skiera, 2014).

For participants who received the ad from a friend, the strength of tie with this friend appeared to be a significant predictor of pass-on behavior in the present study. In line with previous research on forwarding intentions (e.g., Van Noort et al., 2012), people were more likely to actually pass on an advertisement in an SNS context when the perceived strength of tie with the sender was strong, rather than weak. However, the effect size was quite small, and analyses for the three advertisements separately revealed that the effect was only significant for the Sony ad, and not for the Lay's and Telfort advertisements. If the explanation holds that passing on the Sony ad was mainly driven by the need to inform and passing on the Lay's and Telfort ads by the need to entertain, this motivational difference could explain why the influence of tie strength only reached significance for the Sony ad. When informing others, the trustworthiness of the source may be of more importance than when the goal is to entertain (Schulze et al., 2014). Since people are more likely to trust the information that is sent by close friends as opposed to distant friends (e.g., Dobele et al., 2005), tie strength may have been a more important predictor of passing on behavior for the Sony ad than for the other two ads. Furthermore, previous work in the domain of viral advertising via e-mail and SNS (e.g., Chu & Kim, 2011) suggests that strong ties are more predictive of forwarding online content than weak ties.

In the present study, tie strength was only measured for participants that received the advertisement from a friend, and was not taken into account for those who received the ad by clicking on a company banner. Although tie strength appears to be more relevant with respect to relationships with humans as compared to relationships with companies, future research could take the strength of consumer–company relationships into account as well. Stronger relationships with and more trust in a company or brand may result in more consumer pass-on behavior than weaker relationships, especially for advertisements that are forwarded for informational (rather than entertaining) purposes. A commercial source may be considered a weak tie (cf. Chiu et al., 2007; Van Noort et al., 2012) when compared to familiar people, however, a commercial source may be a proxy of a strong tie when that source is a familiar brand. In line with the thought that brands are like real people (Smit, Van den Berge, & Franzen, 2003), future research could also incorporate a measure to establish tie strength with companies.

Furthermore, based on WOM theory, Sundaram et al. (1998) hypothesize that if the ties between people are strong, senders are more likely to pass on and share campaigns of familiar brands than unfamiliar brands, because these campaigns are perceived as informative and entertaining by the receivers, and help reinforce the social connection.

Contrary to expectations, the frequency of SNS use (which served as a proxy for the strength of one's social connection with the particular SNS) did not significantly predict pass-on behavior. Participants were not more likely to pass on an advertisement to their SNS contacts when they were more frequent users of the social network site. Although based on previous findings one would predict otherwise (Ho & Dempsey, 2010; Sun et al., 2006), this result corroborates the general findings of the present study that social predictors have relatively small effects on actual pass-on behavior. To shed more light on this result, future research may tease out different types of SNS users, since people who frequently use an SNS to actively participate may be more likely to forward ads than people who frequently use the SNS to passively view what others are doing (so-called lurkers; Mathwick, 2002).

To sum up, based on the investigation of three real-life advertising campaigns, the success of viral advertising on SNSs seems to strongly depend on the attitudes that consumers have toward the advertised brand, toward the ad itself, and toward viral advertising communications in general. Contrary to what was expected, social predictors seem to play a less important role in predicting whether consumers forward an ad to their SNS contacts.

A limitation of the present research that should be taken into account when interpreting the results, is that the response rate of the

study seems rather low. This is at least partly due to the precondition that participants had to recognize at least one of the campaigns from previous exposure to be eligible for participating in the study. The results may thus only be extrapolated to those respondents who have devoted some attention to the campaign.

The present work tested a conceptual framework that contained six possible predictors of pass-on behavior, as defined by previous work in the domain of online marketing. To further develop this framework, future research could test the influence of additional factors that the present study left unexplored, such as the motives one may have for (not) forwarding an SNS ad, specific content characteristics of the ad campaigns, and elicited emotions. Finally, whereas the present work studied pass-on behavior of multiple advertising campaigns for different types of products, future studies could take an even broader range of brands and products into account, as well as extending research to other types of viral advertising content that is present on SNSs, as to test the robustness of the present framework in predicting actual pass-on behavior.

In addition to advancing a theoretical understanding of the drivers of viral advertising success, the present study has important implications for marketing practice. The finding that attitudinal factors are more important predictors of pass-on behavior than the investigated social predictors indicates that viral advertising success is at least partly under marketers' control. Whereas the social aspect of who passes on a message to whom will be difficult to influence, advertisers can control the form, quality, and content of an advertising message, as to positively affect consumers' attitudes toward the ad and the advertised brand. By creating appealing and entertaining advertising messages, marketers can use the persuasive power of peer-to-peer communication in online social network sites to their advantage.

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