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'You talking to me?' : the influence of peer communication on adolescents' persuasion knowledge and attitude towards social advertisements

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“You talking to me?” The influence of peer communication on adolescents’ persuasion knowledge and attitude toward social advertisements

Abstract

This article examines how peer communication among adolescents (14-16 year) affects the evaluation of social advertising (i.e. targeted ad that adopts the social proof heuristic by using an individual’s social ties as endorsers for a brand) on social networking sites (SNSs). More precisely, the focus lies on how engaging in online peer chatting on these social platforms alters persuasion knowledge and attitude toward the ad. In order to test this, two between-subjects experiments were conducted in which adolescents chatted with peers on a mock SNS that contained a social ad. In Experiment 1, results reveal that a social ad generates a more positive attitude among adolescents when they have engaged in online peer communication, and at the same time, triggers less persuasion knowledge. In Experiment 2, the depth of the relationship between the chatters (tie strength) plays a significant moderating role as peer communication with strong ties yields greater effects, compared to communication with weak ties. These findings reveal important social influence dynamics that may alter the elaboration of persuasive communication, leading to valuable theoretical and practical implications.

Keywords: adolescents; social networking sites; peer communication; social advertising; persuasion knowledge; attitudes

Word Count: 9808

1. Introduction

Meet Kevin, a fifteen-year-old adolescent who spends countless hours chatting with his friends on Facebook every single day. He considers his friendships, and peers in general, to be very important in his life. After finishing his chat conversations, he suddenly comes across a social advertisement on his Facebook news feed showing him that *three other friends* liked a specific brand. He is thus confronted with a *social ad* (i.e. a targeted ad that uses his social ties as endorsers for a product or service). If Kevin were to evaluate this specific advertisement, how would he respond? Could it be that Kevin's response toward this social ad endorsed by his friends is influenced by his social interactions with peers on the same social network site (SNS)? Put differently, does online peer communication on a SNS affect Kevin's elaboration of a social ad when it appears in the same online environment? This raises some important questions regarding the social influence dynamics on SNSs that may alter perceptions of online advertising.

As this example illustrates, SNSs have become an important way of communicating with and acquiring information about peers among adolescents (Shapiro and Margolin 2013). At the same time, SNSs also increased in popularity as important advertising vehicles for many commercial actors. As a result, scholars have stressed the urgent need to investigate how peer influence transpires on SNSs where it co-appears with persuasive messages (see Walther, Carr, et al. 2011). Unfortunately, prior advertising research has largely ignored the influence of the surrounding social context in which ads are embedded in favor of an emphasis on the individual subject (Knoll and Schramm 2015; Puntoni and Tavassoli 2007). To fill this gap, the present study investigates in a series of two experiments how peer communication among adolescents on SNSs affects responses toward social advertising. More precisely, we will shed light on how a chat conversation on a SNS can alter adolescents' persuasion knowledge and

attitude toward the ad. Gaining insights into this issue among adolescents is of considerable importance as they are known to be particularly susceptible to peer influence, and moreover, not (yet) fully able to understand the commercial motives of online advertising (i.e. persuasion knowledge may not be entirely matured) (Zarouali et al. 2017; Müller and Minger 2013). Therefore, peer influence might be an important force that affects the way adolescents respond to the ads they encounter on SNSs, possibly making them more vulnerable to persuasion effects.

This study aims to contribute to the literature of online (marketing) communication and peer influence, as well as formulate practical implications to involved actors. First, it can foster our academic insights into the psychological interplay of peer communication in a computer-mediated environment and the evaluation of heuristic-based online advertising (i.e. social proof). Second, advertisers and marketers could also benefit from our findings by responsibly optimizing their marketing communication campaigns directed at young consumers. Finally, social caretakers (e.g. educators and parents) could get a better grasp on how adolescents' daily social media use affects the way they cope with persuasion attempts, and consequently, empower them to become critical consumers regarding online advertising formats.

2. Theoretical Background

2.1 Social Advertising on SNS

We live in a world in which innumerable pieces of information have to be analyzed and a lot of decisions have to be made in short time frames. Due to this cognitive overload, people rarely engage in deep and effortful processing of each piece of information, but rather rely on quick mental shortcuts or heuristic rules to guide their attitudes and behaviours (Cialdini 2006; Griskevicius et al. 2009). Therefore, advertisers often use persuasive tactics containing

appeals that rely on these heuristic processes. One such persuasive tactic is based on the heuristic rule that “if others are doing it, it must be good and right”, a principle better known as social proof (Cialdini 2006). People are generally inclined to act in accord with social evidence, rather than contrary to it. Recently, the idea of social proof has also found its way to marketing on SNS, revealing a new popular advertising tactic: *social advertising*. Social advertising refers to ads that are targeted to individuals based on their social networks. More precisely, social ads’ content is tailored to specific users with information that explicitly refers to their social relationships (Tucker 2012).

On Facebook, the most widely used SNS, a social ad takes the form of an ordinary (organic) post and is subtly integrated in a user’s news feed. These posts (also referred to as ‘sponsored posts’) promote a brand that friends have liked, and are supplemented with social proofs such as “*friend X, friend Y and 7 other friends like brand Z*” (see Figure 1 in the Appendix for an example). Prior studies on social advertising have found that that these type of ads are very successful in increasing click-through-rates (Bakshy et al. 2012; Aslay et al. 2015; Tucker 2012). However, these studies are large-scale field experiments, merely focusing on the effectiveness of social advertising among *adult* consumers. An important but unaddressed consideration is the fact that these ads might be particularly persuasive to adolescents as they are very susceptible to the opinion and likes of their peers/friends. So how would adolescents react to these ads endorsed by their peers? In addition, as adolescents are usually known to do several things at the same time on SNSs (Voorveld and van der Goot 2013), it is highly plausible that before (or while) being exposed to these social ads, they also engage in peer communication through instant messaging on the very same SNS. In this case, how does the communication with peers affect the interpretation and evaluation of social ads? This question reflects the recent call made by Walther et al. (2011) to investigate how social influence

transpires under various conditions where online peer communication *co-appears* with institutionally authored messages, such as social ads. The present study can be considered a direct attempt to respond to this call, seeking to provide more knowledge on the interplay between institutional and peer communication sources on SNSs. In the next section, we elaborate on the theoretical underpinnings of online peer communication as social influence.

2.2 Online Peer Communication as Social Influence

Adolescents avidly engage in online peer communication through SNSs (Lenhart 2015). They have embraced online peer chatting because it satisfies two important developmental needs of adolescence: connecting with peers and enhancing group identity (Subrahmanyam and Greenfield 2008; Gürbüz et al. 2017). As meaningful socialization agents, interactions with peers exert an important influence in shaping adolescents' norms, values, attitudes and behaviours, both *offline* and *online*. In an online setting, peer influence might occur through text-based chat communication (Guadagno and Cialdini 2005). People apply the same set of social rules via computers as they do in face-to-face interaction, hereby generating the same social processes and responses (Ewell, Minney, and Guadagno 2015). Put differently, as individuals engage in computer-mediated communication, social influence seems to function in a way that is rather similar to a real life interaction.

Online peer communication as a social influence has already been well documented in the literature. It has been argued that adolescents learn values, attitudes and skills by interacting with significant peers through various media, such as SNSs (Churchill and Moschis 1979; Wang, Yu, and Wei 2012). In this regard, adolescents usually tend to follow the attitude or behaviour of peers because it appears to be meaningful to them, or, because it is the most salient alternative available (Churchill and Moschis 1979). In other words, adolescents will do the same their peers do in an attempt to be just like them (Lueg and Finney 2007). In addition,

when people interact with each other through a computer network (e.g. SNS), it reinforces group salience and conformity to norms associated with the social identity of the peer group, which can lead to a behaviour and belief in line with these norms (Postmes, Spears, and Lea 1998; Spears, Lea, and Postmes 2007). This might be particularly strong among adolescents as they are in the midst of their personal development in which conformity to the peer group is extremely important (Müller and Minger 2013). Altogether, this line of reasoning illustrates that adolescents are most certainly vulnerable to peer influence when they engage in online peer communication.

In sum, by connecting the dots, we aim to investigate: I) how adolescents are influenced by social advertising on a SNS, and II) how peer communication on a SNS (i.e. online chat) affects adolescents' reactions to social advertising on that very same SNS. More precisely, their critical assessment of the persuasive intent of advertising (i.e. persuasion knowledge) and attitude will be investigated as outcomes variables. Our expectation is that messages containing social proofs (i.e. the likes of friends) may alter adolescents' responses, and particularly if they engage in online peer communication. In the next section, we will delineate our hypotheses.

3. Hypotheses

3.1 Attitude Toward the Ad (A_{ad})

In assessing the effectiveness of a persuasive message, A_{ad} has been considered to be a crucial outcome variable over the past few decades (Sinclair and Irani 2005; MacKenzie and Lutz 1989). Recently, Tan, Kwek, and Li (2013) even revealed that A_{ad} is the most powerful factor in affecting the effectiveness of interactive advertising on social media (compared to other conventional outcomes, such as brand attitude and purchase intention). Most of contemporary research on A_{ad} has been largely dominated by dual-route perspectives, such as the

Elaboration Likelihood Model (ELM) (Petty and Cacioppo 1986). One of the fundamental ideas of dual-route models is that attitude change can take place by automatic influences of variables serving as heuristics or peripheral cues (Haugtvedt and Kasmer 2008; Petty and Briñol 2010). This peripheral route to persuasion is particularly effective among consumers lacking the ability and/or motivation to allocate great cognitive resources to process an ad (Petty and Cacioppo 1986). On SNSs, adolescents can be considered part of this category of consumers. To illustrate this, take the example of an adolescent spending time on Facebook. S/he will be busy chatting with friends, posting reactions, liking pictures, playing social games, and so on. The presence of these numerous entertaining activities will most certainly distract the adolescent from systematically and critically processing an advertisement (i.e. low *ability*) (Hudders et al., 2017). Moreover, it is very unlikely that advertising in a highly entertaining online social environment might *motivate* them to think about it elaborately. Therefore, as the *ability* and *motivation* are low, persuasion will mostly occur based on peripheral cues (Hudders et al. 2017; Petty and Cacioppo 1986). Thus, adolescents may be particularly reliant on certain heuristic rules developed through their own experience, such as “my mother knows what's right,” or “if I play with it, I must like it” (Petty and Cacioppo 1986). Translating this reasoning to our research context, it means that adolescents should show significant attitude change in case of social advertising on SNS. Social ads include the likes of friends, usually a person’s peers. Bearing in mind that peers are important influencers during adolescence, we expect adolescents to generate a more positive attitude toward a social ad based on the (social proof) peripheral rule ‘my friends are liking it, so I should like it too’ (i.e. complying to the attitudes of their friends) (Churchill and Moschis 1979; Griskevicius et al. 2009). In summary, we suggest:

H₁: Social advertising on a SNS generates a more a positive A_{ad} compared to non-social advertising.

In addition, we expect online peer communication, operationalized as chatting on the SNS, to play a moderating role in this relationship. As addressed earlier, adolescents tend to follow their peers' responses if they are highly salient to them (Churchill and Moschis 1979). Thus adolescents generally adopt the salient attributes of their peer group, including the attitudes and beliefs of that group (David, Cappella, and Fishbein 2006; Pool, Wood, and Leck 1998). In the present study, we argue that an online chat with peers can make the likes of others in a social ad more *salient*. Peer interaction via computer-mediated communication has been shown to lead to the formation of an online shared identity and a sense of 'belonging' between the interacting actors, or put differently, a genuine feeling that members matter to one another and to a group (Dawson 2006; McInnerney and Roberts 2004). Therefore, when adolescents engage in online peer communication on a SNS (i.e. their connection with these peers is mentally primed and thus cognitively more accessible), we expect that the *likes of friends* should have a greater impact, hereby generating a more positive A_{ad} compared to those who did not engage in peer communication. In other words, after having chatted with peers (mostly friends), adolescents should be reminded of their shared social identity and their connectedness to these peers; under this specific condition, we expect that the likes of friends in a social ad should result in a stronger adherence to the positive attitudes of these friends, as compared to those who did not engage in peer chatting.

As for non-social advertising, the ad itself does not include these social likes of others.

Therefore, we expect no attitudinal differences as a result of online peer communication for this ad format. Hence, we formulate the following hypothesis:

H₂: Social advertising on a SNS generates a more positive A_{ad} when adolescents engage in online peer communication on the same SNS, compared to those not engaging in it. For non-social advertising, we expect no difference.

3.2 Persuasion Knowledge

When individuals are exposed to advertising, this might trigger their awareness of a persuasion attempt, or in other words, activate their persuasion knowledge (cfr. Persuasion Knowledge Model). Persuasion knowledge refers to consumers' theories of persuasion attempts and includes beliefs about marketers' motives, strategies, and tactics (Campbell and Kirmani 2000; Friestad and Wright 1994). This knowledge develops throughout life, and individuals gradually learn to use it to interpret, evaluate, and respond to persuasion attempts (Friestad and Wright 1994). Persuasion knowledge has often been used by scholars to investigate whether young consumers are able to identify how, when, and why advertisers try to influence them (also known as 'advertising literacy') (Hudders et al. 2017). It can be considered as an important and indispensable tool to cope with and resist the many ads they encounter on a daily basis on several platforms, such as SNSs. Importantly, for persuasion knowledge to be activated and used, adolescents must recognize the persuasive motive of a particular situation or message (Campbell and Kirmani 2008). Non-recognition of advertising as a persuasive attempt will prevent adolescents from activating and using their persuasion knowledge (Friestad and Wright 1994; Evans and Park 2015).

Nowadays, many covert advertising techniques are aimed at reducing the likelihood of persuasion knowledge activation by embedding persuasive messages in the 'surrounding' media content, which blurs the boundaries between entertainment and advertising (Hudders et al. 2017; Evans and Park 2015). This reasoning also applies for social advertising on SNS. As already addressed, social ads take the same form as ordinary posts, and are subtly embedded in between all the other organic posts on a user's news feed. Therefore, this might make a social ad appear less like an advertisement, but more like the content around which it is placed. In addition, it can also be argued that the true persuasive intent of a social ad is even

more disguised because it is ‘liked’(read: recommended) by friends, which detaches the message from the idea that it originates from a commercial source (Hsieh, Hsieh, and Tang 2012). Since a social ad promotes a product or service endorsed by social ties, it might be perceived as more credible and trustworthy, and therefore less likely be considered a true commercial attempt with underlying persuasive motives (Van Noort, Antheunis, and Reijmersdal 2012; Pornpitakpan 2004). Eventually, adolescents might be less likely to perceive a social ad as being advertising, but rather ‘organic content’ shared by their peers, just like most of the others posts around it (Hsieh, Hsieh, and Tang 2012). Based on these arguments, we expect that social advertising will activate less persuasion knowledge compared to non-social advertising. This leads us to the following hypothesis:

H₃: Social advertising on a SNS triggers less persuasion knowledge compared to non-social advertising.

Similar to the previous section, we expect an interaction with peer communication. As argued earlier, adolescents engaging in peer communication feel more closely related to their peers as it makes the presence of and connectedness to these peers highly pertinent and cognitively accessible (Dawson 2006; McInnerney and Roberts 2004). Under this specific condition, we expect persuasion knowledge regarding social advertising to be significantly lower. More concretely, as peer communication makes the connectedness to these peers salient, adolescents might be less likely to think about the possibility that a news feed post that includes the likes of their friends and peers could actually be a true persuasion attempt. Thus, if adolescents were to be exposed to an ad that includes the likes of friends after having chatted with their friends on the very same platform, chances are that they might not associate this particular message as being a commercial attempt with underlying persuasion motives. Put differently, right after a chat, peer connectedness should be mentally primed (and thus

cognitively accessible); this could decrease the likelihood that adolescents interpret a post endorsed by their friends and peers as a message from an advertiser. Altogether, we expect that adolescents that engage in a peer chat should activate less persuasion knowledge as compared to those who did not engage in peer chatting. For a non-social ad (i.e. an ad which does not contain social proof), we do not expect such difference to occur. In conclusion, we propose:

H₄: Social advertising on a SNS triggers less persuasion knowledge when adolescents engage in online peer communication on the same SNS, compared to those not engaging in it. For non-social advertising, we expect no difference.

4. Experiment 1

4.1 Method

4.1.1 Design and participants

Experiment 1 used a 2 (non-social ad vs. social ad) x 2 (no peer communication vs. peer communication) between-subjects design. In total, 132 adolescents aged 14-16 years participated ($M_{\text{age}} = 14.72$; $SD = .69$; 58% female) within a classroom context. Participants were ninth- and tenth-graders recruited from different schools situated in [region removed for blind peer review]. This age category was chosen because empirical evidence showed that during this period (mid-adolescence) susceptibility to peer influence peaks (for a review, see Müller and Minger 2013). Prior to the experiment, we obtained institutional approval [ethical approval number: SHW_16_06 - this approval also applies for Study 2], as well as parental consent and informed consent from all participants.

4.1.2 Materials & stimuli

In a separate pretest among 40 adolescents, we aimed to test the following materials and stimuli: our social network, the ad (product and brand) and the chat topic. First, a mock SNS, called “Social Engine”, has been created for the experiment with a very intuitive and user-friendly interface (see Appendix, Figure 2). This platform operated on a private server and offered the researchers full control over all the content and interactions. Social Engine was given the ‘look and feel’ of Facebook by using the same theme colors and fonts, general layout, and main functionalities and services (including the chat function, which participants used to communicate with their peers). In the pretest, we examined the credibility of our social network. The results revealed that adolescents consider Social Engine to be credible and realistic network ($M = 5.15$, $SD = 1.49$, on a scale of 7). Before the experiment took place, accounts were created of fictitious, anonymous characters to make sure that nobody knew each other’s identity on the network. By doing this, we wanted to rule out the possible influence of preexisting friendships or prior experiences between classmates during the chats (this will be tested in Experiment 2). Importantly, the anonymous characters corresponded with the participants’ age and gender in order to facilitate identification and empathy with their character.

Next, our pretest also examined a suitable product and brand to employ in our test-ads (social and non-social ad). The pretest showed that earphones scored very well on product liking among adolescents ($M = 5.80$, $SD = 1.39$, on a scale of 1 to 7). As a brand, we opted for the popular earphones by *Dr. Dre*. This brand was appointed by 70 percent of all respondents as the single or second best earphone brand, out of a list of five brands. Based on this input, we created two ad formats (social vs. non-social ad) similar to how they are displayed on Facebook (See Appendix, Figure 3).

Finally, we also explored a suitable chat topic for our participants. Based on our pretest findings, hobbies/leisure time was found to be the most popular topic among adolescents.

More than three quarters of the adolescents indicated that they -at least occasionally- chat about their hobbies/leisure time on SNSs with peers. Therefore, this was chosen as the topic adolescents had to talk about in both experiments.

4.1.3 Procedure

The participants started with an online survey containing socio-demographic questions. When ready, they were directed to the mock SNS Social Engine. As a cover story, participants were told that they would participate in a *usability test* for a new SNS. They all received a username and password to log in to the network as a fictitious, anonymous character (see previous section). They were strictly informed to keep their identity secret on the network. The design of the network randomly allowed half of the participants to engage in peer communication (chatting) with classmates for 15 minutes, while disabling this chat function for the other half. This second group conducted a control task, which consisted of completing the character's profile account, such as adding hobbies, favorite movie, etc. The adolescents knew they were chatting with classmates, but had no information about the exact identity of their chat partners (i.e. anonymous characters). After having performed the chat or control task, they were told to have a look at their news feed. The news feed contained a set of organic posts that were integrated by the researchers to simulate a realistic scenario. One of these posts was the test ad of our experiment. The news feed content (i.e. organic posts) on the network was similar for every participant, except for the post with the ad (a social ad or a non-social ad, randomly assigned). After having inspected the news feed with the test ad (social or non-social ad), they were told to log out, and go back to the questionnaire. Finally, they had to complete the remaining part of the questionnaire, which included our two dependents variables. All participants followed the experimental procedure correctly, and more importantly, no one revealed his/her identity while chatting.

4.1.4 Measures

Attitude toward the ad was measured by using three 7-point bipolar items based on the study of Rosbergen, Pieters and Wedel (1997) (anchored by ‘bad/good’, ‘unattractive/attractive’ and ‘not worth watching/worth watching’). These three items were aggregated to form a single measure of A_{ad} ($M = 4.00$, $SD = 1.41$; $\alpha = .90$). To assess persuasion knowledge, we used an instrument designed for measuring knowledge and beliefs about advertisers tactics among adolescents (Boush, Friestad, and Rose 1994). This scale (originally applied to traditional advertising) has been adapted to be made convenient for online advertising on SNS (see Table 1 in Appendix). This adapted scale was tested in a separate cross-sectional study consisting of 135 adolescents. Factor analysis revealed that the construct was uni-dimensional as all six items loaded on one single factor ($EV = 4.03$, $R^2 = 67.23$). The response options ranged from one (*not trying at all*) to seven (*trying very hard*). The mean score of all items was used as a measurement of persuasion knowledge ($M = 4.21$, $SD = 1.39$; $\alpha = .91$).

4.2 Results

4.2.1 Attitude toward the ad

An ANOVA-analysis was used to test our two first hypotheses, with A_{ad} as a dependent variable and ad format (social vs. non-social ad) and peer communication (yes – no) as factors. In line with hypothesis 1, main effects showed that the social ad performed better in terms of A_{ad} than the non-social ad ($F(1, 128) = 5.04$, $p < .05$; $M_{soc} = 4.22$ vs. $M_{non-soc} = 3.69$). Furthermore, the proposed interaction in hypothesis 2 was also significant ($F(1, 128) = 4.49$, $p < .05$; see Figure 1A). More precisely, results showed that engaging in online peer communication results in a more positive attitude toward a social ad, as compared to no peer communication ($M_{chat} = 4.60$ vs. $M_{no-chat} = 3.85$; $F(1,128) = 5.55$, $p < .05$). As for the non-social ad, no attitude difference was found between adolescents that did and did not engage in peer chatting ($M_{chat} = 3.42$ vs. $M_{no-chat} = 3.96$; $F(1,128) = 2.26$, $p = 0.14$).

4.2.2 Persuasion knowledge

The two hypotheses regarding persuasion knowledge were tested by using a two-way ANOVA. We did not find the proposed main effect of hypothesis 3, meaning that the advertising format (social advertising vs. non-social advertising) did not exert a significant effect on persuasion knowledge ($F(1, 128) = .00, p = .97; M_{soc} = 4.23$ vs. $M_{non-soc} = 4.22$). However, we did find an interaction effect between peer communication and ad format on persuasion knowledge ($F(1, 128) = 4.93, p < .05$; see Figure 1B). This interaction indicates that adolescents had a lower persuasion knowledge for the social ad if they engaged in online peer chatting, as compared to those who did not engage in peer chatting ($M_{chat} = 3.87$ vs. $M_{no-chat} = 4.58; F(1, 128) = 4.85, p \leq .05$). For the non-social ad, engaging in peer communication elicited no significant differences in persuasion knowledge for this ad format ($M_{chat} = 4.40$ vs. $M_{no-chat} = 4.03; F(1, 128) = 1.03, p = .31$). This result confirms H₄.

[PLACE FIGURE 1 ABOUT HERE]

4.3 Discussion

In Experiment 1, we found that social advertising (compared to non-social advertising) on SNS leads to an increase in A_{ad} (H₁). Moreover, the findings revealed that adolescents engaging in online peer communication on a SNS rated the social ad more favorably than those not, whereas this difference was not found for a non-social ad (H₂). As for persuasion knowledge, we did not find a main effect that social advertising leads to less persuasion knowledge (H₃). However, adolescents that engaged in online peer communication activated less persuasion knowledge in case of a social ad, as compared to the non-chatters. Again, we did not find this pattern when the adolescents were exposed to a non-social ad (H₄). In sum, this experiment revealed that peer chatting on SNS influences persuasion knowledge and attitude toward the social ad.

Importantly, in this experiment, we ruled out the possible interference of preexisting friendships or prior experiences between classmates by letting the adolescents chat anonymously. In Experiment 2, we aim to extend the findings of this study and further investigate *under which* conditions online peer communication could exert a greater persuasion impact. In this regard, we will shed light on an important explanatory factor: *tie strength*. More precisely, we will investigate to what extent consumer responses toward social advertising depend on the depth of the relationship between the user and his/her affiliated peer on SNS. We expect that the preexisting social tie between adolescents on SNSs can modify the responses toward social advertising. Hence, by studying the impact of these ties, our knowledge can be improved regarding how differences in relational closeness can influence advertising interpretation and evaluation.

5. Experiment 2

With regard to peer communication on SNS, the depth of existing relationship plays a crucial role (Wang, Yu, and Wei 2012). This can be represented by the construct ‘tie strength’ (Granovetter 1973), which refers to the strength or potency of an interpersonal relationship in the context of a person’s social network (Money, Gilly, and Graham 1998). Ties can vary from strong to weak: examples of strong ties can be family members and close friends; examples of weak ties are acquaintances and strangers. As a multidimensional construct, tie strength can be operationally assessed by using a variety of underlying indicators (Marsden and Campbell 1984; Mittal, Huppertz, and Khare 2008). However, it has been argued that ‘closeness’ or emotional intensity of a relationship is the best way to capture tie strength (Marsden and Campbell 1984). Therefore, in the present study, we conceptualize tie strength as ‘a subjective experience of intimacy, emotional affinity, and psychological bonding with another person’ (Ledbetter et al. 2010, p. 8).

On SNSs, tie strength plays an important role in influencing others' beliefs and attitudes (Aral and Walker 2014). However, in the field of online communication research, only a limited amount of studies focused on the role of tie strength on marketplace decision-making (Van Noort, Antheunis, and Reijmersdal 2012). These available studies mainly explored tie strength as an antecedent of forwarding persuasive messages (e.g. De Bruyn and Lilien 2008; Harvey, Stewart, and Ewing 2011). However, two studies revealed that commercial messages on SNSs originating from a strong tie perform better in terms of liking compared to a weak tie (Bakshy et al. 2012; Van Noort, Antheunis, and Reijmersdal 2012). This can be explained by arguing that strong ties are perceived more important to one's self-concept, making them more relevant for determining one's own (consumer) behaviour (Berger 2014). So, when adolescents chat on a SNS with strong ties, and are subsequently exposed to an ad referring to these ties having liked the ad (i.e. a social ad), they should be more inclined to follow this behaviour by liking it as well (something that occurs to a lesser extent in case of a weak tie) (Bakshy et al. 2012; Carr and Foreman 2016). In addition, Wen, Tan & Chang (2009) argued that consumers are more likely to align their attitudes with strong-ties compared to weak-ties, as strong-ties are simply more valued. Thus, consumers will more easily be influenced by the attitudes of strong-ties (Carr and Foreman 2016). In line with this reasoning, we expect a social ad to generate a more positive A_{ad} when adolescents have engaged in peer communication with a strong tie, as compared to a weak tie. In summary:

H₅: Social advertising on a SNS generates a more positive A_{ad} when adolescents engage in online peer communication on the same SNS with a strong tie, compared to a weak tie. For non-social advertising, we expect no difference.

As theoretically delineated and empirically revealed in Experiment 1, adolescents engaging in peer communication have more difficulties in assessing the true persuasive nature of a social

ad that included the likes of their peers and friends. In other words, when endorsed by friends, adolescents were less likely to interpret the social proof ad as a commercial attempt right after a peer chat on a SNS. Additionally, the literature offers empirical ground to predict that this might be more pronounced for strong ties compared to weak ties. As strong ties convey more trust and are considered more credible (Aral and Walker 2014; Carr and Foreman 2016), it can be argued that messages liked by these strong ties will less likely be perceived as having an underlying persuasive, commercial intent, compared to when they are liked by a weak tie. In line with this argument, Van Noort and colleagues (2012) found that an increase in tie strength between the sender and the receiver of a viral SNS campaign leads to a decrease in the receiver's perceived persuasive intent of the campaign. We expect to witness a similar pattern in the present study. Adolescents engaging in online peer communication with a strong tie -as compared to a weak tie- might be less likely to interpret a social ad as true form of persuasive content originating from a commercial agent. Therefore, we expect adolescents to have lower levels of persuasion knowledge for social advertisements when they chat with strong ties. Therefore, we conclude:

H₆: Social advertising on a SNS triggers less persuasion knowledge when adolescents engage in online peer communication on the same SNS with a strong tie, compared to a weak tie. For non-social advertising, we expect no difference.

5.1 Method

5.1.1 Design and participants

Using a two-level between-subjects design, adolescents were either exposed to a social ad or a non-social ad after having engaged in peer communication. Importantly, tie strength was not included as a second manipulated factor in our design because we opted to use a (undichotomized) continuous variable as a measure of tie strength (*see measures*). In total,

138 adolescents aged 14-16 years were reached. However, based on consent forms, two pupils were not granted parental permission, leaving 136 adolescents to participate ($M_{age} = 15.21$, $SD = 0.75$; 63 % female).

5.1.2 Procedure

This experiment followed the same procedure as Experiment 1 (see for a more detailed account). After completing socio-demographic questions, every adolescent engaged in peer communication with a randomly paired peer (in their classroom) on our mock SNS ‘Social Engine’ for 15 minutes. All participants engaged in peer communication by using their real names (and own identity). In terms of gender composition of the dyads, we ensured that we had a fairly equal number of same-gender and cross-gender pairs (i.e., male–male, female–female, and male–female dyads). Absolute silence was strictly maintained during the chat sessions to avoid other group dynamics to interfere. Thereafter, they were exposed to either the social or non-social ad on their personal news feed. Finally, participants completed the last part of the questionnaire, which first included our dependent variables, and thereafter the tie strength indicator. Since we positioned the tie strength measure at the end, we introduced a time delay which should have decreased the likelihood that tie strength was affected by the chat itself.

5.1.3 Measures

For attitude toward the ad ($M = 3.97$, $SD = 1.33$; $\alpha = .86$) and persuasion knowledge ($M = 3.94$, $SD = 1.44$; $\alpha = .91$), the same measures were used as in Experiment 1. As for tie strength, adolescents were asked to describe their relationship with the peer they have interacted with on the social network. As mentioned earlier, Marsden & Campbell (1984) argued that a measure of closeness is the best indicator of tie strength. Based on the latter, we

used Vangelisti and Caughlin's (1997) seven-item instrument assessing relational closeness. The response options ranged from one (*not at all*) to seven (*very much*). Sample items are: "How often do you talk about personal things with this person?" and "How close are you to this person?". All the items were aggregated to form a continuous measure of tie strength ($M = 4.03$, $SD = 1.44$; $\alpha = .93$). We opted not to dichotomize this measure by means of a median split (i.e. weak and strong ties). This practice has been the topic of considerable debate because it may yield misleading results (see Fitzsimons 2008).

5.2 Results

5.2.1 Testing for non-independence

Because the adolescents in the present study engaged in peer communication in pairs (or dyads), we first tested if our data did not violate the key assumption of independence (Kenny et al. 2006). Therefore, intraclass correlations were estimated to test for non-independence in our two outcome variables that could have been influenced by the interaction between the members of each dyad (see SPSS macro's of Alferes and Kenny 2009). Intraclass correlations for A_{ad} ($ICC = -.02$; $F(67, 68) = 1.04$, $p = .87$) and persuasion knowledge ($ICC = -.16$; $F(67, 68) = 1.38$, $p = .19$) were non-significant, indicating that the scores of the units in our data are independent.

5.2.2 Attitude Toward the Ad and Persuasion Knowledge

Because we opted not to dichotomize the variable tie strength, we have a combination of a continuous and a categorical predictor variable in our design (tie strength and ad format). Therefore, we used a multiple regression-based approach that allows to define categorical x continuous variable interactions. The first model included A_{ad} as a dependent variable, and ad format (0: non-social ad, 1: social ad) and tie strength as independent variables. The results showed that the interaction formulated in hypothesis 5 between social advertising and tie

strength on A_{ad} is significant ($b = .45, p < .001; F(3,132) = 9.00, p < .001, R^2 = .17$). To interpret the nature of this interaction, we conducted a spotlight analysis at plus and minus one standard deviation from the mean of tie strength (i.e. weak and strong tie strength) (Fitzsimons 2008; see Figure 2A). When adolescents were exposed to the social ad, they had a more positive A_{ad} if they engaged in peer communication with a strong tie ($M_{strong} = 4.73$), as compared to a weak tie ($M_{weak} = 3.66; b = 0.38, SE = .10; t(132) = 3.85, p < .001$). However, this difference was not found for the non-social ad ($M_{weak} = 3.74$ vs. $M_{strong} = 3.51; b = -.06, SE = .11; t(132) = -.53, p = .60$). This result confirms H_5 .

The second model included the same independent variables, in combination with persuasion knowledge as a dependent variable. This analysis yielded a significant interaction effect between tie strength and social advertising on persuasion knowledge as an outcome variable ($b = -.41, p \leq .01; F(3,132) = 2.72, p < .05, R^2 = .06$) (see Figure 2B). Social advertising triggers less persuasion knowledge when adolescents engaged in peer communication with a strong tie ($M_{strong} = 3.57$), as compared to a weak tie ($M_{weak} = 4.20; b = -.22, SE = .11; t(132) = -1.94, p < .05$). In case of a non-social ad, we witness a somewhat opposite pattern (i.e. weak tie triggers less persuasion knowledge), but this difference was not found to be significant ($M_{weak} = 3.81$ vs. $M_{strong} = 4.38; b = .17, SE = .13; t(132) = 1.33, p = .09$).

[PLACE FIGURE 2 ABOUT HERE]

5.3 Discussion

In the first experiment, we demonstrated that chatting on a SNS has an influence on how adolescents interpret and evaluate social advertising on these social platforms. In this second experiment, we showed that knowledge on *who* they chat with is crucial to understand the psychological outcome variables related to social advertising on SNS. In this regard, we introduced tie strength. Our analyses revealed that when adolescents engage in online peer

communication on SNS with a strong tie, they generate more positive attitudes toward social advertising than when they chat with a weak tie. At the same time, they also activated lower levels of persuasion knowledge toward social advertising. These tie strength effects were not found when adolescents were exposed to a non-social advertisement.

6. General Discussion

The objective of the present research was to investigate how adolescents' peer communication on a SNS influences cognitive (persuasion knowledge) and attitudinal (attitudes toward the ad) elaboration of social advertising. Social advertising refers to targeted ads on SNSs that use a person's social ties as endorsers for the ad – i.e. a news feed post that includes the likes of friends as social proof such as "*friend X, friend Y and 7 other friends like brand Z*". This issue was examined in two between-subjects experiments on a mock SNS that contained a social ad. In Experiment 1, we found that social advertising (compared to non-social advertising) on the SNS generated a more positive A_{ad} . In addition, results also revealed that when adolescents engage in online peer chatting on a SNS, they evaluated the social ad more favorably than those who did not. Thus, online peer chatting on a SNS causes a greater impact of the social proof in a social ad, hereby generating more positive attitudes. Put simply, online peer communication reinforces the effect that the social proof heuristic exerts on adolescents' attitudinal evaluations.

With regards to persuasion knowledge, we did not find that showing social advertising leads to activating less persuasion knowledge. However, we did find an interaction effect revealing that when adolescents engaged in online communication with peers, they generate less persuasion knowledge for social advertising compared to adolescents that were not assigned to chat. This shows that if adolescents were to be exposed to a sponsored post that includes the likes of friends right after having chatted with these friends on the very same platform,

they are less likely to think about the possibility that this specific post might actually be a true commercial attempt with underlying persuasion motives. Put differently, after a chat with peers (i.e. their friends), their minds are less likely to be oriented toward the direction of persuasion when they encounter a sponsored post being liked by their friends. This could indicate that peer communication evokes social proof (i.e. the likes of friends) in disguising the persuasive intent of social advertising, and thus, suppressing the use of persuasion knowledge among adolescents.

In Experiment 2, we aimed to further examine under which conditions online peer communication could exercise different levels of influence. To do this, we introduced tie strength (i.e. the relational closeness) as a moderating variable. Our analyses revealed that engaging in online peer communication on a SNS with a strong tie generates a more positive attitude toward a social ad, as compared to a weak tie. At the same time, we also found that chatting with a strong tied peer triggers less persuasion knowledge toward social advertising, as compared to weak-tied peers. In sum, these results are in line with Experiment 1, additionally showing that the interpretation and responses toward social advertising also depend on the depth of the relationship between the user and his/her affiliated peer.

6.1 Theoretical Implications

First, the present studies contribute to research on the Persuasion Knowledge Model (Friestad and Wright 1994). As argued by Campbell and Kirmani (2008), more research is needed on the antecedents of persuasion knowledge. Our studies have shown that online peer chatting can act as a significant trigger that (negatively) influences the activation of persuasion knowledge in the case of social advertising. When adolescents are chatting with peers, and particularly strong tied peers, they might be less able to interpret a message that contains social elements (the likes of friends) as being content originating from a persuasive agent. We

argue that a chat mentally primed adolescents' peers in their minds (i.e. made them cognitively accessible), which may have shifted their focus away from the possibility that a socially endorsed ad might be a persuasive attempt. This might explain why their persuasion knowledge decreased significantly in the peer communication condition. Based on this reasoning, we conclude that peer communication on SNSs might function as an antecedent that effects the relationship between social advertising and persuasion knowledge.

Second, this research also contributes to online peer influence theory. More precisely, Walther et al. (2011) articulated a research agenda to understand how peer influence occurs on platforms where online peer communication co-appears with institutionally authored messages. On a more specific level, Rozendaal, Slot, van Reijmersdal, & Buijzen (2013) stressed that more research efforts are needed focusing on the effects of peer influence on advertising outcomes in a social media environment. As a response to these calls, the current studies show that peers may have a significant influence (through chatting) on attitude and persuasion knowledge. Based on this evidence, we have showed that juxtaposing a peer communication channel with commercial communication can alter the interpretation and response with regards to these commercial messages (Walther, Tong, et al. 2011).

Third, this study also contributes to the body of knowledge on persuasion heuristics (Cialdini 2006). Although applications of social proof in online communication have been investigated thoroughly (e.g. online product recommendations through reviews, stars, likes, etc.), scant knowledge is available on the effectiveness of this lower-order persuasion heuristic in a SNS environment, *and*, among adolescents. This study showed that integrating social proof in an ad (i.e. social advertising) aimed at adolescents generated more favorable attitudes compared to an ad without social proof. Thus, this heuristic may be effective in offering them a quick decisional shortcut to guide their attitudes in a SNS environment. In addition, we also showed

that the effectiveness of a social proof message can even be increased when the exposure to this message is preceded by a chat conversation with peers or friends.

6.2 Practical Implications

The current study has implications for advertising practice. On the one hand, we revealed that social proof might be an interesting tool to persuade adolescents on SNSs. Practitioners could thus benefit from showing adolescents advertising that includes this heuristic, as does social advertising. This approach should prove to be particularly effective to increase attitudinal ad effectiveness. However, advertisers should also be vigilant: our findings also give empirical ground to claim that social ads can trigger less persuasion knowledge among these young consumers. As mentioned earlier, persuasion knowledge can be considered as an important defense mechanism that enables adolescents to critically resist advertising persuasion in an online environment. Lower levels of persuasion knowledge imply that adolescents are less likely to think about the commercial motives of a message, which could result in less resistance and critical counterarguments. For the sake of responsible advertising practice, we therefore encourage practitioners to become aware of the difficulties that adolescents might have in consciously recognizing social advertising as a persuasive attempt when they are active on a SNS.

Furthermore, we can also address some relevant implications for social caretakers (e.g. parents, teachers, etc.), who are concerned about the well-being of adolescents. From their perspective, persuasion knowledge is a very important cognitive tool that functions as ‘critical radar’, enabling adolescents to evaluate persuasion attempts critically. In the current study, the results revealed that, under some conditions (i.e. when adolescents chat on a SNS, and certainly with a strong tie), the persuasive nature of social advertising might not always be clear for adolescents (i.e. lower persuasion knowledge). Therefore, it would be advisable to

teach adolescents about social advertising (and SNS advertising in general) by explaining that these ads try to sway people based on a simple, but very persuasive heuristic rule (i.e. social proof). Furthermore, adolescents should also be provided information about how and why these persuasive messages are created and presented. They should be aware of the fact that advertisers have access to data about their *social ties* which may then be used to deliver socially-targeted ads based on the expectation that these ads become more relevant to users, and thus, more persuasive. By informing adolescents of such practices, they could be empowered to become critical and conscious consumers when they engage with persuasive stimuli in a SNS environment.

6.3 Limitations and Directions for Future Research

Despite these relevant implications, this study has also some limitations that provide future research venues. First, the current studies were conducted on computers. However, nowadays, adolescents increasingly go online aided by the convenience and constant access provided by smartphones (Lenhart 2015). As they carry a smartphone with them all the time, they might consider communication through mobile technology as more personal and intimate (compared to other devices, such as computers, laptops or tablets). This means that more profound social influence dynamics might transpire via mobile applications. Future research should therefore introduce experimental set-ups that focus on how adolescents deal with social advertising on mobile (social) platforms.

Second, our experimental data collections took place in computer classrooms. Although this is a very practical environment to conduct studies among young individuals, it may have a disadvantage as well: it is a highly familiar setting for adolescents. This familiarity might have installed social influences that could possibly have interfered in our experimental design. Although we did everything to prevent this (e.g. by spatially separating the participants,

maintaining complete silence, etc.), it can still be interesting to see if the results hold in a setting in which social influence is completely controlled (e.g. lab experiment).

Third, in Experiment 2, we randomly paired every participant to another peer within their classroom, and thereafter asked to indicate the strength of this tie. An alternative could have been to use a sociometric nomination approach. This means that every adolescent would have been asked in advance to indicate his/her *three closest* and *three least close* peers from a list of the names of all the other adolescents in the class. This might have led to a more accurate taxonomy of strong and weak ties. Future research could take this suggestion into account when focusing on the role of tie strength.

Finally, in the present studies, we have revealed the association between online peer communication and the evaluation and interpretation of social advertising on a SNS.

However, we have not investigated *why* this relationship occurred. Therefore, future research should consider to investigate the psychological mechanisms at play in this relationship. By exploring relevant mediating variables, we may improve our understanding of the underlying processes through which peer communication can influence responses toward socially-targeted marketing communications.

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