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## Effects of Influencer Marketing on Instagram

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**ISBN 978-3-945456-19-4**

**Received Dec. 2018, revised Feb. 2019, v5.2 published March 2019**

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### Keywords

Influencer marketing, print advertising, attitude, two-component theory, emotion, cognition, involvement, situational factors, personal traits, big five, cosmetics, GLM.

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<sup>1</sup> The authors would like to thank Prof. Dr. Oliver Gansser for his valuable suggestions.

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## Abstract

This study examines the effects of medium-range influencer Instagram postings compared to traditional print ads. Using cosmetic products as an example, the study examines how these alternative forms of advertising influence attitude components and consumers' propensity to buy.

As a result, the advertising impact of the Instagram posting is lower than that of the classic print ad. The Instagram posting has its greatest effect where consumers already follow influencers (follower status).

The situational variable (type of advertising) proves to be more powerful in explaining consumers' attitudes as personal variables. Among the latter, product involvement has more explanatory power than the general personality traits of the Big Five. To explain the propensity to buy, product involvement is even more meaningful than the type of advertising. Overall, this shows that the effect of situational and personal factors on dependent variables of consumer behaviour cannot be generalised, but that it is generally recommended to include both situational and personal determinants in the analysis.

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## 1 Introduction

The so-called social media such as Facebook, YouTube and Instagram have become an integral part of many branded companies' customer communication due to their distribution and intensive user behaviour (cf. Schulten et al., 2012, p. 3). More and more advertising spendings are flowing into influencer marketing. At the same time, many advertisers limit themselves to measuring the advertising effect on the basis of click rates, page views, participation rates in sweepstakes, etc. Such easily measurable response rates, however, do not provide insights into the psyche of the target groups and thus fall short of the long achieved level of an elaborate advertising impact measurement (cf. e.g. Steffenhagen, 1995). First, a measurement approach based on the neo-behaviorist model cannot do without measuring effects (also) in the form of intrapersonal processes. Such are to be examined with common hypothetical constructs of consumer behaviour such as attitudes, involvement and behavioural intentions. Secondly, it is not only direct target group responses that are to be regarded as an undifferentiated whole, as expressed, for example, in click rates. Rather, it is interesting to know whether a contingency approach can identify certain types of persons who are more or less open-minded about

advertising in the social media due to personality traits and who can be influenced to varying degrees, because market segmentation has by no means become superfluous in the age of online marketing (Riedl, 1998).

## **2 Fundamentals and research questions**

In recent decades, the media environment with its derived content has created increasingly significant competition for the real world of consumer experience and direct personal experience (cf. Kroeber-Riel et al., 2009, p. 598 ff.). Within this media environment, the social media have become widespread. In June 2018 Instagram had 1 billion users worldwide (see n.p. 2018a), YouTube had 1.9 billion users in July 2018 (see n.p. 2018b), Facebook had 2.3 billion users in October 2018 (see n.p. 2018c). At the individual level, this has led, among other things, to interpersonal relationships gradually shifting into the digital world (cf. Faßmann, Moss, 2016, p. VII-1). Social media have opened up new platforms for consumers to engage in personal discourse on topics of all kinds, including branded goods. In principle, consumers thus gain greater independence from manufacturer communication via classic mass media, because they can expand their knowledge of the advantages and disadvantages of branded products on the basis of experience reports and comments by other users (cf. Brexendorf, Henkel, 2012, pp. 16-18).

Not only for the mainstream of society, but also for niche groups, there are many new opportunities to find, exchange and communicate (cf. Faßmann, Moss, 2016, p. VII-1). This makes online media doubly interesting for manufacturers of branded goods, both as a source of information about target groups and as an opportunity for customer communication in a form adapted to the new media (cf. Riedl, Busch, 1997).

With regard to social media content, a distinction must be made between user-generated content (UGC) and firm-generated content (FGC) or brand-generated content (BCG) (cf. Kumar et al., 2016, Burmann et al., 2015, p. 217 et seq.). In the BGC, brand-related activities in social media are carried out or controlled by the responsible employees of the company. Within the content created by consumers (UGC), a further distinction can be made between "brand-related UGC", which is not only concerned with the private affairs of users, but also with brand-related content. Brand-related UGC can be understood as the personal interpretation of the meaning of a brand by the individual. Characteristic are the voluntary nature of the posting and the non-existence of an employment relationship with the brand company. In addition, there is a minimum of creative content of the posting, because the pure reposting of content of the branded article manufacturers is not classified as UGC (cf. Arnhold et al., 2010, pp. 31-32). The creative implementation by users can take place in the form of text, photos or video formats within the framework of different content types.

The brand-related UGC results in a multifaceted "integration of users into all brand management activities" (Burmann, Arnhold, 2008, p. 40), which was not possible in the classical media. The content disseminated in this way has an effect on the brand image, with the result that the company partly loses sovereignty over its public image. For this reason, professional management of the brand-related UGC, the "user-generated branding" (UGB), is now required (cf. Arnhold et al., 2010, p. 48). The most common method for this is sponsoring users with a large number of followers and a corresponding role model function (Cha et al., 2010), the so-called influencers (for the term influencer see De Veirman, 2017a). Such paid product reviews as part of a blog post or a post on media sharing platforms are referred to as "sponsored conversations" (cf. Tuten, Solomon, 2014, pp. 130-132).

UGB has recently experienced enormous increases, as can be seen from the Instagram platform. Between 2013 and 2017, the number of so-called "sponsored posts" increased from 3,500 per month to over 100,000 (cf. Brandt, 2017). The number of business profiles of companies and very active influencers increased from 1.5 million in September 2016 to 25 million in November 2017, the number of active advertisers rose from 200,000 to 2 million (see Richter, 2017). This results in a dilemma, because on the one hand companies want to intervene purposefully in the preparation of the UCG. On the other hand, this changes the character of the social media, which are no longer perceived by consumers as an independent peer-to-peer platform. For users, social networks such as Facebook, online communities, forums, chats and wikis originally had the purpose of personal, "private" communication and sharing of news by means of status and direct messages. This is described by the terms "social component of interaction" (Burmann et al., 2015, p. 221) and "social community" (cf. Tuten, Solomon, 2014, p. 109-111). Another use by users was self-presentation, "social publishing" (Burmann et al., 2015, p. 224). But the increase in advertising activities is shifting the character of social media towards a commercial channel.

Users sometimes show reactance when they detect that they are to be influenced by postings. According to inoculation theory (cf. McGuire, 1964, Cialdini et al., 1991), this could be understood as a protest by users against unwanted influence (cf. e.g. Lim, Ki, 2007, Pfau et al., 2007, Sagarin et al., 2002). This is indicated by increasing complaints about unmarked surreptitious advertising in social media (cf. e.g. Knitterscheidt, 2017). While advertising in the traditional media regularly has a transparent commercial purpose, this was not the case in the social media for a long time. In the meantime, however, all major operators have laid down rules of conduct according to which support for UGC must be labelled by companies (cf. e.g. n.p., 2018d).

The main research question for the present study is how brand related user generated content in social media affects consumers in contrast to classical advertising. Due to the necessary

limitation of an empirical study, the platform Instagram is focused upon as an example for a social media channel and the posting of medium-range influencers as an example for UGC.

The confrontation of test subjects with a stimulus can be understood as a situational influence. According to the basic idea of market segmentation, it is also assumed that existing characteristics of the target persons moderate the effect of communication measures, similar to the fundamental statement made by Saunders in 1956: "There are many examples of situations in which the validity of some psychological measure varies systematically in accord with some other psychological variable" (Saunders, 1956, p. 209). The formulated research question must therefore be supplemented by the assumption that the influence of consumers is moderated by different types of advertising of a) general and b) product-related personality traits. The former are measured using the dimensions of the so-called Big Five, the latter using the example of product involvement.

### **3 Relevant constructs and hypotheses**

#### **3.1 Attitude and propensity to buy**

Attitudes are probably the most frequently studied construct of social psychology (Fabrigar et al., 1993). Trommsdorff defines attitude as the learned, relatively permanent tendency of an individual to react positively or negatively to an object (Trommsdorf, 1975, p. 8). This makes it clear that the attitude is not innate, that it is to be measured at the level of the individual person, that it has an object reference and that it can take on expressions in two directions. The question of temporal stability is problematic, firstly because "relative permanence" is not an operational definition and secondly because recent studies show that attitudes are less stable over time than was assumed for a long time (cf. Olson, Zanna, 1993, Schwarz, Bohner, 2001, Riedl et al., 2018). Relations between characteristics of persons, their intentions and their behaviour have a historical origin, the constructs influence each other. On the basis of measurements taken at a certain point in time, in the best case, correlations can be established, an understanding of the historical meeting can be developed and forecasts of further developments can be derived, but always *ceteris paribus* of the stock of findings for the individual measurements. In the present study it is explicitly assumed that all measurements of hypothetical constructs are time-related.

It has long been undisputed that attitudes have to be measured multidimensionally (cf. Thurstone, 1928, Schwarz, 2008, p. 48), but there are many direct and indirect measurement approaches that cannot be referenced in this article (cf. e.g. the descriptions in Crano, Prislin, Eds. 2008, and Albarracin, Johnson, eds. 2018). According to the two-component theory, the attitude has an affective-emotional component, in which primarily feelings of the individual are expressed, as well as a cognitive component, which reflects more strongly consciousness-driven

evaluation processes (Böhler, 2004, p. 115 f.). This dualism is taken up by the definition of Crano and Prislin: "An attitude represents an evaluative integration of cognitions and affects experienced in relation to an object. Attitudes are the evaluative judgments that integrate and summarize these cognitive/affective reactions. These evaluative abstractions vary in strength, which in turn has implications for persistence, resistance, and attitude-behavior consistency" (Crano, Prislin, 2006, p. 347).

In a print advertisement, the advertiser must focus on a few and primarily emotional aspects due to the limited observation time on the part of the consumer. Such content is professionally prepared by the branded goods company and advertising agencies for the purpose of emotional conditioning, while an influencer posting in the social media focuses more on conditions of use and advantages of use of the product, i.e. on cognitive aspects. Postings are also far less elaborate than professional advertising and reveal the spontaneity and subjectivity of the creator in their design and wording. From this we can conclude:

H1: The emotional component of attitude is more positively influenced by a professionally designed print ad than by an Instagram posting.

On the other hand, the advertising of a consumer good in the social media can be much more detailed than in the classical media. According to the "cognitive response approach", the individual will add such information to his or her own set of topic-relevant knowledge. If positive thoughts are evoked in this way, the information thus conveyed acts in the direction of an increasing conviction (Cialdini et al., 1981, p. 360 f.). It has long been researched that the credibility of the communicator influences the perception, memory and evaluation of messages (cf. e.g. Hovland, Weiss, 1951), so that the credibility of the poster influencer should also positively influence the cognitive evaluation of the products advertised by her. Therefore, we conclude:

H2: The cognitive component of attitude is more positively influenced by an influencer posting than by an application via print advertisement.

Some attitude models also contain a conative component that is intended to represent the consumer's tendency to behave (cf. e.g. Kothandapani, 1971, Breckler, 1984). This is not followed in the present study, since consumer behaviour is regularly understood as a dependent variable of the overall attitude (cf. e.g. Lee, Ma, 2012, Goldsmith et al., 2000, Shah et al., 2012) and a clear separation of independent and dependent constructs is to be maintained (cf. e.g. García-Santillán, 2012, p. 2012). Therefore, the propensity to buy as an example for the induced behavioural propensity is understood in the present study as a separate dependent variable of the advertising use. The overall attitude results from the mean value of the emotional and cognitive components (cf. chapter 5.3).

Influencers with an increased number of followers obviously manage to appear attractive to the relevant target groups (Cha et al., 2010). This gives rise to the hope of a positive image transfer from the influencer to the product. Such an image transfer is not to be expected in classical print advertising without prominent testimonials (cf. e.g. the results in Riedl et al., 2017, p. 164). We therefore conclude:

- H3.1: The influencer posting leads to a better overall attitude towards the advertised product than a print ad without a prominent testimonial.
- H3.2: The influencer posting leads to a higher propensity to buy the advertised product than a print ad without a prominent testimonial.

### **3.2 Number of followers**

According to the source credibility model, the effectiveness of a statement depends on the credibility of the source (Hovland, Weiss, 1951). The credibility of a communicator is based on two elements: Competence (expertise) is determined by the communicator's knowledge, experience and abilities, depending on how strongly such characteristics are perceived by the addressees. The communicator's trustworthiness is determined by his seriousness, reliability and honesty. Credibility is positively related to attitudes towards advertising in social media (cf. Raktham et al., 2017). Due to the assumed connection between attitude and behaviour, credibility should also have a positive influence on the intention to buy.

According to the source attractiveness model, the success of the testimonial is determined by its attractiveness (McGuire, 1985). This is based on optical and physical characteristics, as well as on familiarity, sympathy and perceived similarities between the testimonial and the recipient. If users have decided to follow an influencer, it can be assumed that she is perceived as credible and attractive and that her postings are not understood as unwanted influence. In this case, particularly high advertising effects of the influencer on the follower are to be expected. We therefore postulate:

- H4.1: If the user is a follower of the influencer, an increased effect of the posting on the follower's attitude can be expected.
- H4.2: If the user is a follower of the influencer, an increased effect of the posting on the follower's propensity to buy is to be expected.

### **3.3 Personality dimensions of the Big Five and involvement**

In a broad research tradition dating back to the 1960s and earlier precursors (cf. e.g. Thurstone, 1934) it is assumed that essential personality dimensions of individuals can be traced back to five stable factors, independent of time and situation (Norman, 1963, p. 574, Tupes, Christal, 1961, summarizing Goldberg, 1993).

The five dimensions are Extroversion (greatly simplified: sociability versus withdrawal), agreeableness (altruism vs. mistrust), conscientiousness (discipline vs. negligence), neuroticism (stability vs. instability) and openness (curiosity vs. conservatism) (cf. Goldberg, 1993, p. 27). The so-called Big Five (also known as the FFM, five factor model) have been empirically tested under a variety of conditions and are now seen by some authors as a standard tool for the analysis of populations of persons (cf. e.g. Chung, 2017).

Although the prognostic content of personality traits could be found in individual studies (cf. e.g. Zuckerman et al., 1977), summarizing contributions on the research results come to the conclusion that general personality traits and attitudes provide disappointing results in the prognosis of behavior (cf. e.g. Wicker, 1969, Aizen, 1991). On the other hand, the representatives of the Big Five emphasize that they have proven to be meaningful in explaining numerous sociological and psychological phenomena (cf. Goldberg, 1993, Ozer, Benet-Martínez, 2006), so that their use also appears to be purposeful for economic purposes and "an improved description and prediction of scientifically and socially relevant processes and phenomena" can be expected (Rammstedt et al., 2010, p. 236). This is investigated in the present study, whereby several hypotheses have to be tested for all five dimensions.

Extroversion is understood as a disposition focused on external emotional incentives. It therefore can be concluded:

H5.1: Depending on extroversion, people are more emotionally influenced than cognitively.

The effects of general personality traits as moderators of other contexts have often been investigated (cf. e.g. the overview in Schmitt, 1990), for example that of responsibility (or its defence) on the relationship between norms and behaviour (cf. Sykes, Matza, 1957) or that of need for cognition on the relationship between the quality of arguments and attitude formation (cf. Cacioppo et al., 1986). In the analysis of such moderating influences, a statistical interaction effect of a variable is assumed. Such interaction effects are examined in the following for all dimensions of the Big Five. First, it can be assumed that for sociable (extroverted) persons the "lonely" viewing of a print ad has less incentive value than the contact to others, as it is expressed in the influencer posting. We postulate:

H5.2: With increasing extroversion, the influencer posting has a more positive effect on the attitude than the print display.

H5.3: With increasing extroversion, the influencer posting has a more positive effect on the intention to buy than the print ad.

Agreeable individuals are more receptive to others and show less distrust of the views of others as expressed by an influencer in the Instagram posting. Agreeableness is a trait that relates primarily to social exchange. Therefore, it is postulated:

H6.1: With increasing agreeableness, the influencer posting has a more positive effect on the attitude than the print ad.

H6.2: With increasing agreeableness, influencer posting has a more positive effect on the propensity to buy than print advertising.

Conscientious persons are more cognitive type, collect information themselves and will not be strongly influenced by singular information. This should apply to all types of information. Therefore, it is concluded:

H7.1: Increasing conscientiousness reduces the difference in advertising impact (attitude) between print ad and Instagram posting.

H7.2: Increasing conscientiousness reduces the difference in advertising impact (propensity to buy) between print ad and Instagram posting.

Neuroticism is understood as the opposite of personal stability. Stable persons are less influenceable than unstable ones. Therefore it is concluded:

H8.1: Increasing personal stability (decreasing neuroticism) reduces the difference in advertising impact (attitude) between print advertising and Instagram posting.

H8.2: Increasing personal stability (decreasing neuroticism) reduces the difference in advertising impact (propensity to buy) between print advertising and Instagram posting.

After all, openness stands for greater curiosity. It can be assumed that open-minded people are more receptive to information from the social media. This results in:

H9.1: As openness increases, the Instagram posting has a greater impact on the overall attitude of people than the print ad.

H9.2 With increasing openness, the Instagram posting has a greater influence on people's propensity to buy than the print ad.

Product involvement is understood as the personal significance of a product for the consumer (cf. Zaichkowski, 1985), or the relevance of the characteristics assigned to a product by the individual (cf. Antil, 1984). Involvement is seen as a prerequisite of the purchase intention (cf. e.g. Cox, 2009). Product involvement has a concrete object reference and should therefore make a greater explanatory contribution to consumer behaviour than general personality traits without such reference. Therefore, it is postulated:

H10.1: Involvement in cosmetics makes a greater explanatory contribution to advertising impact (attitude) than general personality traits.

H10.2 Involvement in cosmetics makes a greater explanatory contribution to advertising impact (propensity to buy) than general personality traits.

For hypothetical constructs such as the personality dimensions of the Big Five, there are various operationalization approaches that can only approximate intrapersonal disposition. The dimensionality of a multi-factorial construct must be re-examined in every empirical study, whereby random sample-dependent differences in the charge structure are completely normal

even with a frequently validated survey instrument (cf. Goldberg, 1993, p. 30). In contrast, the difference in the form of the application (print vs. Instagram) as a situational criterion is a directly ascertainable fact that is not subject to any corresponding measurement problem. It can thus be assumed that the statistical relationship between the situation criterion and the dependent variables is stronger than that of the personality trait. It is postulated:

H10.3: The type of advertising (print vs. Instagram) has a greater impact on consumer attitudes than the personality traits of Extroversion, tolerance, conscientiousness, neuroticism and openness.

H10.4: The advertising type (print vs. Instagram) has a stronger effect on the propensity to buy than the personality traits Extroversion, tolerance, conscientiousness, neuroticism and openness.

## 4 Research methodology

### 4.1 Survey design

A quasi-experimental four-field research design with two experimental groups was carried out (see table 1). The respondents were randomly divided into two groups. For two product areas of cosmetics (brands: Nivea, Estee Lauder), the groups were confronted either with a classic print ad or with an Instagram posting. The participants were not informed that the study was concerned with the effect of the influencer influence; rather, the "brand evaluation" was generally declared as survey content.

**Table 1. Research design and treatments.**

		Group 1	Group 2
Stimulus 2	Type of ad	Instagram posting	Instagram posting
	Brand	<i>Estee Lauder Double Wear Nude – Water Fresh MakeUp</i>	<i>Nivea Urban Skin Protect Tagespflege (Daily Care)</i>
	Testimonial	<i>Ana Johnson</i>	<i>Carmushka</i>
Stimulus 2	Type of ad	Print ad	Print ad
	Brand	<i>Nivea Urban Skin Protect Tagespflege (Daily Care)</i>	<i>Estee Lauder Double Wear Nude – Water Fresh MakeUp</i>
	Testimonial	No name face	none

## 4.2 Influencers and treatments

Whereas in the study of Veirman et al. (2017) follower numbers of 21,200 and 32,200 were classified as "high", in view of the rapid growth of Instagram today influencers with far more followers have to be considered. At the time of this study, the influencers Yuya (12.8 million) and Zoella (10.5 million) had the most followers on Instagram worldwide. For reasons of generalizability, Carmushka (200,000 followers) and Ana Johnson (250,000 followers) were chosen as influencers with a higher range for this study. The selected Instagram postings of these two influencers had a picture and a text of about 100/140 words and had already been likened 16,400/17,700 times. The two presented brand products from the area of cosmetics were relatively new, so that it can be assumed that the potential users did not develop yet a completely solidified and/or habitualized purchase behavior and can still be influenced by social media marketing.

The print advertisements used were real advertisements of the two brand manufacturers, which were published in high-circulation media. They corresponded to the classic design practice based on positive emotion, with reduced text content and high-quality graphic presentation. They were presented to the respondents as a full-page stimulus for evaluation.

## 4.3 Questionnaire and scales

Six questions cover the useful life and significance of the online media for the test subjects, the use of Instagram and its significance, unsupported associations with the online media, and a query of motives for using Instagram. Together with the sociodemographic data (age, country of origin, level of education) and questions on spending behaviour in cosmetics, these questions were primarily used to check whether the two experiment groups match on essential criteria.

**Attitude measurement:** The emotional component of the attitude was measured immediately after confronting the respondents with the stimulus. The question was: *Please give us your first impression of the cosmetic article. What rating would you give the product?* For scaling, the school grading scale, which is spread throughout the German-speaking area and does not require explanation, was given with grades from 1 (correspondingly very good) to 6 (very poor), but without verbalizing grades 2 to 5, in order to be able to maintain the fiction of the interval scale level of the resulting data.

Among the many possibilities for measuring the cognitive component, the focus was on what was described and investigated in other studies as "Perceived Usefulness" (cf. e.g. Wang, 2016). It can be assumed that usefulness is also a determinant of the intention to buy (cf. Raktham et al., 2017, p. 32). To measure this, the stimulus was shown again and asked: *If you take a closer look at the properties of the product, how advantageous do you think it is to choose this product? Grade the product with this in mind.* According to the Expectancy-Value Model of attitude

formation, the cognitive aspect of the attitude is expressed here in the assessment process that the individual undertakes about what he considers reasonable (see Fishbein, Ajzen, 1975, Ajzen, 1991, p. 191). The school grade scale was also specified for the cognitive attitude component, so that a value for the overall attitude can be calculated from the mean value of the two uniformly scaled subcomponents.

**Propensity to buy:** The question was: *How great is your propensity to buy the product in the next three months?* A scale from 0 (not existing) to 100 (extremely large) was given. This scaling has proven to be advantageous in previous studies by the authors (cf. e.g. Riedl et al., 2017), as test persons are used to thinking in decimal or related percentage systems. The scale therefore needs no further explanation and can be very quickly applied by subjects to rating questions of all kinds.

**Involvement in cosmetics:** In the literature, multidimensional involvement models are mostly used (cf. e.g. Laurent, Kapferer, 1985, Mittal, 1995). One-dimensional measurements are also based on elaborated multi-item scales (see e.g. Zaichkowski, 1985). In contrast, the measurement of involvement in the present study was carried out in the simplest possible way, as was already the case with attitude measurement and the propensity to buy. On the one hand, this is based on the assumption that the simplest form of survey in empirical research is the one with the lowest sources of error. Comparative tests in previous studies showed that the elaborated forms of involvement measurement have no higher predictive power than the direct, simple question of personal importance (cf. e.g. Riedl et al., 2018, p. 6).

Furthermore, it can be assumed that the constructs, if they prove to be explanatory in simple operationalization, are in any case robust indicators for the examined phenomena. With an answer scale from 0 to 100, the following question was asked: *Please state how important cosmetics are for you personally.* This operationalization asks for an actual state at the time of the survey, independent of its occurrence, it is related to the individual and product (class) specific. It is assumed that the product involvement collected in this way is a determinant of purchase intention and purchase behaviour (cf. Cox, 2009).

**Evaluation of influencers:** In order to control the influence of the influencers at a later stage, the interviewees should assess them in the five criteria of credibility, professional competence, likeability, attractiveness and fit for the product. The question was: *How do you rate the credibility (etc.) of Carmushka (Ana Johnson) on a scale from 0 to 100.*

**Big Five:** The personality dimensions were measured with the so-called BFI-10 questionnaire in the version by Rammstedt et al. (2013, p. 249). Due to the experiences in previous studies of the authors, some pejorative formulations of the ten original items were slightly changed (cf. the questionnaire excerpt in Appendix 1), but both the order and the polarity of the questions were kept. For reasons of comparability, the five-step answer scaling with verbalizations of all

five scale values was also retained, although this obviously only corresponds to the ordinal scale level. As with Rammstedt et al., the model requirement of the interval scale level of the variables included is therefore violated in numerous data evaluation procedures.

## 5 Results

### 5.1 Description of the sample

Instagram users of the core advertising target group between the ages of 14 and 49 were interviewed online in a convenience sample. During the three-week survey period at the beginning of 2018, 844 complete answers were collected. Incomplete and inconsistent questionnaires were sorted out. Only women were interviewed, as branded products from the cosmetics sector had to be evaluated. The average age of the interviewees is just under 24 years, so that the higher online affinity of the younger ones is met. However, all age groups are sufficiently occupied (14-19: n=157, 20-29: n=596, 30-49: n=91). Due to the different dropout behaviour during the survey, the two experiment groups (EG) are slightly different in size (EG1: n= 392, EG2: n= 452). However, this has no effect on the results, since the two groups do not differ significantly in all the tests carried out. For example, the average age of EG1 is 23.71 years (SD 5.315), that of EG2 23.26 years (SD 5.593), the difference is not significant ( $t=1.669$ ,  $p=.095$ , Levene test:  $F=.025$ ,  $p=.874$ ). The daily Instagram usage in EG1 is 78.14 minutes (SD 68.89), for EG2 82.12 minutes (SD 72.24), again there is no significant difference ( $t=-1.159$ ,  $p=.247$ , Levene test:  $F=2.033$ ,  $p=.154$ ).

### 5.2 Transformation of the data set

The data were checked to see whether the assessment of the two influencers differs significantly. The absolute differences are small and not significant in the criteria duration of consequences, likeability, credibility and fit to the product (see appendix 3). Ana Johnson was only given a significantly ( $p= .025$ ) higher value in the criterion professional competence, but the absolute value (63) is not far from that for Carmushka (51). In addition, it was examined whether the judgments for the two brands examined differ irrespective of the form of the ad. For Nivea, the mean setting was 2.5, for Estee Lauder's slightly higher-positioned product 2.9. This difference is also significant, but in terms of height, both setting values are in a similar order of magnitude. Further tests with the influencers and the brands as independents and different dependent variables did not bring any significant differences, so that for all subsequent evaluations no distinction is made between influencers and brands.

Based on the concordance found between the two experiment groups and the similarities in the influencer and product evaluation, the database was transformed in such a way that each statement of a respondent on a branded product represents a separate data set. This results in a total database of n=1688 data sets, in which differences can be investigated depending on the form of the application (print vs. Instagram).

### 5.3 Two or three components of attitude?

The research hypotheses of this study are based on an attitude construct which, according to the 2-component theory, is composed of emotion and cognition and thus does not include the behavioral intention. Supplementary analyses support this assumption that the attitude components and the behavioural tendency are obviously heterogeneous parameters. Cronbach's  $\alpha$  on the three variables emotion, cognition and behavioural intention provides a value of .621, which is per se a not very satisfactory value for a 3-item scale of a construct (the items affective and cognitive adjustment were previously recoded to a scale of 0 to 100, since Cronbach's  $\alpha$  requires concurrent variables).

Since Cronbach's  $\alpha$  cannot prove the unidimensionality of an indicator set (Vaske et al., 2017, p. 165, Cortina, 1993), an exploratory main component analysis with Varimax rotation was additionally performed. The Eigenvalue would speak *prima vista* for a one-dimensional construct (cf. Appendix 4). But if one considers the factor loadings of a two-factor solution, especially those after factor rotation (cf. Appendix 5), the picture is different: The emotional and cognitive components clearly load on a common factor, which justifies the combination of the measured values of these two partial constructs into a common "two-component" concept of attitude. On the other hand, the intention to behave represents an independent second dimension, which is a concrete argument against calculating an inhomogeneous attitude value from three components by adding this "conative component".

### 5.4 Effects of the Instagram posting

On average, the respondents spend 198.4 minutes per day (min=30, max=720, SD=126.7, median=180) using the social media, of which 80.3 minutes per day (min=0, max=360, SD=70.7, median=60) are spent on Instagram. As determined in the previous research for this study, the social media have a high relevance for the female target group. To test hypotheses 1 and 2, single factor variance analyses were performed with the advertising type (print vs. Instagram) as factor and the affective or cognitive attitude component as the dependent.

At 2.53, the affective attitude component is slightly better on the basis of the print ad than on the basis of the Instagram posts (Table 2). The difference is statistically highly significant (Table 3), **H1 is supported**.

**Tab. 2. Mean values attitude and propensity to buy.**

Type of ad		Attitude affective	Attitude cognitive	Attitude total	Propensity to buy
Print	Mean (n=844)	<b>2.53</b>	<b>2.48</b>	<b>2.50</b>	<b>24.0</b>
	SD	1.02	1.077	.957	2.662
Instagram	Mean (n=844)	<b>2.76</b>	<b>3.03</b>	<b>2.89</b>	<b>13.9</b>
	SD	1.065	1.245	1.031	2.089
Total	Mean (n=1688)	<b>2.64</b>	<b>2.75</b>	<b>2.70</b>	<b>18.9</b>
	SD	1.049	1.196	1.013	2.445

On the basis of the Instagram posting, the cognitive attitude component is clearly and highly significantly lower than after showing the print advertisement. **H 2 must be rejected.**

The Instagram posting also generates a lower value than the print ad for the overall setting and the propensity to buy (due to the scales used, the *lower* number corresponds to the *better* value for attitude, while the propensity to buy is better with increasing numerical value). Thus, **H3.1 and H3.2 are also rejected.**

**Tab. 3. Analysis of variance.**

Dependend * independent	Type of variance	Sum of squares	df	Mean of squares	F	p
Affective * type of ad	Between groups (combined)	22.758	1	22.758	20.938	.000
	within groups	1832.547	1686	1.087		
	Total	1855.306	1687			
Cognitive * type of ad	Between groups (combined)	126.448	1	126.448	93.259	.000
	within groups	2286.014	1686	1.356		
	Total	2412.462	1687			
Total attitude * type of ad	Between groups (combined)	64.124	1	64.124	64.835	.000
	within groups	1667.495	1686	0.989		
	Total	1731.618	1687			
Propensity to buy * type of ad	Between groups (combined)	429.029	1	429.029	74.922	.000
	within groups	9654.563	1686	5.726		
	Total	10083.592	1687			

## 5.5 Relationship between user and influencer

All attitudinal values as well as the propensity to buy depend on the relationship between the user and the influencer (Table 4):

**Tab. 4. Means attitude and propensity to buy by follower status.**

User's relationship to the influencer (follower status)		Attitude affective	Attitude cognitive	Attitude total	Propensity to buy
<i>I know her and follow her on Instagram</i>	Mean (n=27)	<b>2.48</b>	<b>2.78</b>	<b>2.63</b>	<b>33.3</b>
	SD	1.122	1.121	1.034	29.35
<i>I know her, but I do not follow her on Instagram</i>	Mean (n=61)	<b>2.70</b>	<b>2.89</b>	<b>2.79</b>	<b>20.3</b>
	SD	1.145	1.279	1.018	22.65
<i>I don't know her</i>	Mean (n=756)	<b>2.77</b>	<b>3.05</b>	<b>2.91</b>	<b>12.7</b>
	SD	1.056	1.274	1.013	19.97

The lowest attitudes result if a user does not know the influencer. The attitude is slightly better if the influencer is already known without the user following her. If the user is already a follower of the influencer, the attitude values on the basis of the Instagram posting are best.

**Tab. 5. Analysis of variance.**

Dependend *		Sum of Squares	df	Mean of squares	F	p
Total attitude * follower status	Between groups (combined)	2.712	2	1.356	1.278	.279
	within groups	892.547	841	1.061		
	Total	895.259	843			
Propensity to buy * follower status	Between groups (combined)	138.570	2	69.285	16.451	.000
	within groups	3541.961	841	4.212		
	Total	3680.531	843			

The absolute tendency of the attitudinal values corresponds to the assumption of hypothesis 4.1, but the analysis of variance does not yield a significant result (Table 5). This is also due to the group sizes, as the sample contains only 27 users who were already random followers of the influencer shown. Based on the available data in the limited sample, **H4.1 is not supported**. In contrast, the propensity to buy rises not only in absolute values but also highly significantly, depending on the follower status, so that **H4.2 is supported**.

## 5.6 Big Five

To check the dimensionality of the 10 items of the BFI-10, an explorative principal components factor analysis with Varimax rotation and iteration was performed. The KMO criterion results in a measure of sampling adequacy of .573, so that the data matrix is just suitable for performing the factor analysis. Five factors with an eigenvalue greater than 1 together represent 68.7 percent of the initial variance.

**Tab. 6. Principal components analysis. Rotated component matrix.<sup>a</sup>**

	Extro-version	Open-ness	Conscientiousness	Neuroticism	Agreeable-ness
1 I am rather reticent and reserved (recod)	.827				
2 I easily trust others, believe in the good in people					.923
3 I am lazy and avoid efforts (recod)			.764		
4 I am relaxed (recod)				.805	
5 I have little artistic interest (recod)		.795			
6 I am sociable and extroverted	.785				
7 I tend to criticize others (recod)			.342	-.596	.373
8 It's important to me to do tasks thoroughly			.711		
9 I get easily nervous and insecure	-.665			.455	
10 I'm full of ideas and have an active imagination		.847			

- a. All factor loadings less than .025 suppressed in the output.
- b. The colors indicate which factors the items are assigned to in the original version of the BFI-10.

As table 6 shows, the factor structure proposed by Rammstedt et al. is not fully replicated: item 9 loads more on extroversion than on neuroticism, item 7 has double loadings on conscientiousness and neuroticism. In terms of content, however, all three double loadings can be interpreted in such a way that they only give the factors a slightly different direction without having to derive a completely different factor structure (cf. similarly Goldberg's report on his many years of studies on dimensionality: "I couldn't shake the fact that analyses of any reasonably representative pool of common trait adjectives always provided evidence for five broad factors", Goldberg, 1993, p. 29). For the further analyses, factor scores generated by SPSS on the basis of the loadings structure shown in table 6 are therefore used. The naming of the five factors is retained.

To test hypothesis 5.1, a multivariate regression analysis was calculated with extroversion as an independent variable and the emotional and cognitive attitude components as dependent variables. The SPSS procedure GLM multivariate was used: "Multivariate GLM is the general linear model now often used to implement two long-established statistical procedures - MANOVA (multiple analysis of variance) and MANCOVA (multiple analysis of covariance)" (Garson, 2015, p. 12). GLM multivariate (instead of univariate) is required in the present case because the two dependent variables are not independent (*ibid.*, p. 13); the affective and cognitive attitude components correlate with .628,  $p=.000$ .

As Table 7 shows, the overall effect of extroversion on the two attitude components is very small: Based on all four multivariate test variables,  $\eta^2$  is only .003, the observed power of .500 is below the recommended value of .80, which is the rule of thumb for an acceptable type II error (Garson, 2015, p. 32).

**Tab. 7. GLM, multivariate tests.<sup>a</sup>**

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial $\eta^2$	Observed Power <sup>c</sup>
Intercept	Pillai's Trace	.878	6091.109 <sup>b</sup>	2	1685	.000	.878	1.000
	Wilks' Lambda	.122	6091.109 <sup>b</sup>	2	1685	.000	.878	1.000
	Hotelling's Trace	7.230	6091.109 <sup>b</sup>	2	1685	.000	.878	1.000
	Roy's Largest Root	7.230	6091.109 <sup>b</sup>	2	1685	.000	.878	1.000
Extroversion	Pillai's Trace	.003	2.482 <sup>b</sup>	2	1685	.084	.003	.500
	Wilks' Lambda	.997	2.482 <sup>b</sup>	2	1685	.084	.003	.500
	Hotelling's Trace	.003	2.482 <sup>b</sup>	2	1685	.084	.003	.500
	Roy's Largest Root	.003	2.482 <sup>b</sup>	2	1685	.084	.003	.500

a. Design: Constant + Extroversion.

b. Exact statistics.

c. Computed with alpha = .05.

Parameter estimation shows that the cognitive attitude component is not explained by extroversion (table 8). The influence is also very small for the affective attitude component, but still significant at  $p=.028$ . In summary, **H5.1 does not have to be rejected**, extroversion obviously has a stronger effect on the emotional than on the cognitive attitude component.

**Tab. 8. Parameter estimates.**

Dependent variable		Regression coefficient B	Standard error	T	Sig.	Partial eta <sup>2</sup>	Observed power <sup>a</sup>
Affective	Intercept	2.643	.025	103.678	.000	.864	1.000
	Extroversion	-.056	.026	-2.196	.028	.003	.593
Cognitive	Intercept	2.755	.029	94.649	.000	.842	1.000
	Extroversion	-.032	.029	-1.083	.279	.001	.191

Hypotheses 5.2 and 5.3 postulate that with increasing extroversion the Instagram posting has a more positive effect on the attitude and propensity to buy than the print ad. This means the assumption of an interaction effect of extroversion.

(Hypotheses 5.2 to 9.2 make similar assumptions for the five personality traits of the Big Five. For reasons of the methodological diversity of the presentation, different forms of testing were chosen for these hypotheses: For the hypotheses 5.2 and 5.3 separate regression analyses, extreme group comparisons with respect to extroversion with T-tests of mean value differences, for the hypotheses 6.1 and 6.2 multiple regression analyses with analysis of a specially calculated interaction variable advertising type \* tolerance, for the hypotheses 7.1 to 9.2 the univariate general linear model (GLM) and for the hypotheses 8.1 and 8.2 supplementary the graphical representation of mean values. GLM univariate was also performed for hypotheses 5.2 to 6.2, but is not presented below, since the same results are achieved as with the other methods described).

To verify the value characteristics, the respondents were divided into three groups corresponding to low extroversion (percentile from 0 to 40%, factor scores from -2.87 to -.233), medium extroversion (41-59%, -.234 to .288) and high extroversion (60-100%, .289 to 2.49). In the group with low extroversion, the total setting is 2.75, the propensity to buy is 17.3. In the group with high extroversion, the total setting is 2.65, the propensity to buy is 19.5. Higher extroversion is therefore accompanied by a slightly better overall setting and a slightly higher propensity to buy, but in the analysis of variance (ANOVA) these group differences are significant neither for the propensity to buy ( $F=2,705$ ,  $p=.100$ ) nor for the setting ( $F=3,298$ ,  $p=.070$ ).

In a multiple regression analysis with the interval-scaled Independent Extroversion and the dummy variable Advertising Type (1= Print, 2= Instagram) as well as the overall attitude as dependent, a combined R of .197 results (Tab. 9). With a  $\beta$  of .192 ( $p=.000$ ), the situational variable advertising type has a much greater influence on the overall attitude than the personality trait extroversion ( $\beta = -.043$ ), and the latter is no longer significant. Due to the scaling of the attitude (lower numerical value = better attitude) and the dummy variables, a positive correlation expresses that print advertising exerts a stronger influence. The same is expressed in a positive beta for the propensity to buy. Considering the propensity to buy as a dependent variable, again with the independent extroversion and the dummy variable

advertising type (0= print, 1= Instagram), a combined R of .211 results. Again, the advertising type with a  $\beta$  of -.206 ( $p=.000$ ) has a greater influence on the overall attitude than the extroversion ( $\beta = .047$ ,  $p= .050$ ).

**Tab. 9. Multiple regression analysis. Coefficients.**

Model	Independend variables	Regression coefficient B	Standard error	Standardized coefficient $\beta$	T	Sig.
1a	(constant)	2.504	.034		73.202	.000
	Extroversion	-.044	.024	-.043	-1.809	.071
	Type of ad	.390	.048	.192	8.057	.000
2b	(constant)	2.397	.082		29.124	.000
	Extroversion	.114	.058	.047	1.961	.050
	Type of ad	-1.008	.116	-.206	-8.663	.000

a. Dependend variable: attitude.  $R= .197$ ,  $R^2= .039$ , adjusted  $R^2= .038$ .

b. Dependend variable: Propensity to buy.  $R= .211$ ,  $R^2= .045$ , adjusted  $R^2= .044$ .

What the  $\beta$  values of the regression analyses already suggest is confirmed by the mean values of attitude (Tab. 10) and propensity to buy (Tab. 11) as a function of advertising type and extroversion: High extroversion results in better attitude and higher propensity to buy, but the relationship is clearer in the case of print ads than in Instagram posting. It is irrelevant that this effect of extroversion is only just significant in relation to the print ad, but no longer significant in the case of Instagram posting: it is clearly a minor effect that runs in the same direction, so that an interaction effect cannot be assumed. **H5.2 and H5.3 are rejected.**

**Tab. 10. Attitude as a function of extroversion and advertising type.**  
(mean values, T-tests for independent samples)

		Type of ad		
		Print ad	Significance Print vs. Instagram	Instagram posting
Extro-version	High	2.47	$t=-5.382$ , $p=.000$ $df=676373$	2.86
	Significance high vs. low	$t=1.786$ , $p=.075$ $df=674704$		$t=.863$ , $p=.388$ $df=674457$ ,
	Low	2.58	$t=-4.553$ , $p=.000$ $df=665595$	2.93

**Tab. 11. Propensity to buy as a function of extroversion and advertising type.**  
 (mean values, T-tests for independent samples)

		Type of ad		
		Print ad	Significance Print vs. Instagram	Instagram posting
Extro- version	High	25.0	t=5.812, p=.000 df=646199	14.0
	Significance high vs. low	t=-1.640, p=.101 df=672325		t=-.630, p=.529 df=667431,
	Low	21.7	t=4.988, p=.000 df=628518	13.0

Hypotheses 6.1 and 6.2 claim an interaction effect of the personality trait agreeableness on the effect of the advertising type. A multiple regression analysis was carried out to check this, with the dummy variable advertising type (1= print, 2= Instagram), agreeableness and the calculated interaction variable advertising type \* agreeableness as independent and attitude as dependent variable.

The Levene test is significant ( $F=4.220$ ,  $df_1=1$ ,  $df_2=1686$ ,  $p=.040$ ), so that it can be assumed that the error variance of the dependend variable in the groups are unequal. However, the analysis of variance is robust against this violation of the model assumptions if the variance inequality is low and the sample is large (cf. Garson, 2013, p. 18).

**Tab. 12. Multiple regression analysis. Coefficients.**

	Model	Regression coefficient B	Standard error	Stand. coefficient $\beta$	T	Sig.
1a	(Constant)	2.114	.076		27.642	.000
	Type of ad	.390	.048	.192	8.058	.000
	Agreeableness	-.072	.077	-.071	-.941	.347
	Type of ad * agreeableness	.014	.048	.023	.299	.765
2b	(Constant)	3.405	.184		18.494	.000
	Type of ad	-1.008	.116	-.206	-8.659	.000
	Agreeableness	-.146	.184	-.060	-.794	.428
	Type of ad * agreeableness	.146	.116	.094	1.252	.211

a. Dependend variable: Attitude.  $R=.199$ ,  $R^2=.040$ , adjusted  $R^2=.038$ .

b. Dependend variable: Propensity to buy.  $R=.211$ ,  $R^2=.044$ , adjusted  $R^2=.042$ .

Table 12/Model 1 shows that in total only 4 percent of the attitude is explained by the three independent variables. The advertising type with  $\beta = .192$  has the greatest influence on attitude. The  $\beta$  for compatibility is only  $-.071$ , so that greater compatibility is hypothetically associated with a slightly better overall attitude. However, neither this value is significant for agreeableness nor for the interaction variable. If the  $\beta$  for the interaction variable is not significantly different from zero, there is no interaction (Baltes-Götz, 2018, p. 51), so that **H 6.1 is rejected.**

Multiple regression analysis also provides only small variance explanation for the dependent variable buying propensity. Table 12/Model 2 uses the  $\beta$  values to show that neither agreeableness nor the interaction effect are significant. The  $\beta$  value of  $-0.060$  even expresses, contrary to the assumption, that higher tolerability goes hand in hand with a somewhat lower propensity to buy. **H 6.2 is rejected.**

H7.1 and H7.2 assume an interaction effect of conscientiousness on the relationship between advertising type and attitude or propensity to buy. The SPSS procedure GLM/univariate was used to calculate the main effects for advertising type, conscientiousness and the interaction variable. The Levene test shows a slight inequality of error variances in the groups ( $F=5.156$ ,  $df_1=1$ ,  $df_2=1686$ ,  $p=.023$ ). A clear variance inequality results for the propensity buy ( $F=85.749$ ,  $df_1=1$ ,  $df_2=1686$ ,  $p=.000$ ).

**Tab. 13. Parameter estimates.**

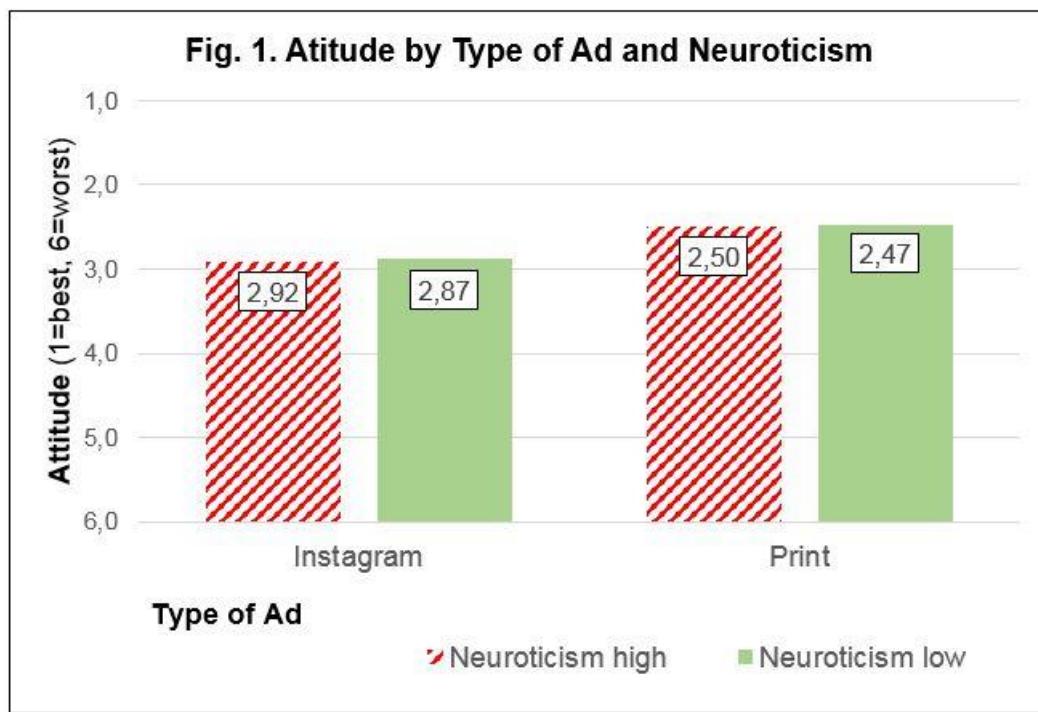
Model	Parameter	Regression coefficient B	Standard error	T	Sig.	Partial eta <sup>2</sup>
1 <sup>a</sup>	Constant	2.894	0.034	84.509	0.000	0.809
	Type of ad	-0.390	0.048	-8.049	0.000	0.037
	Conscientiousness	-0.009	0.034	-0.276	0.782	0.000
	Type of ad * conscientiousness	-0.019	0.048	-0.395	0.693	0.000
2 <sup>b</sup>	Constant	1.389	0.082	16.853	0.000	0.144
	Type of ad	1.008	0.117	8.653	0.000	0.043
	Conscientiousness	-0.058	0.082	-0.705	0.481	0.000
	Type of ad * conscientiousness	0.109	0.117	0.935	0.350	0.001

a. Dependent variable: attitude.  $R^2 = .037$ , adjusted  $R^2 = .036$ .

b. Dependent variable: Propensity to buy.  $R^2 = .043$ , corr.  $R^2 = .041$ .

As Table 13 shows, neither conscientiousness nor the interaction variable advertising type \* conscientiousness have a significant influence on attitude or propensity to buy. Eta<sup>2</sup>, which is to be understood as a measure of effect strength (Baltes-Götz, 2018, p. 55 and 71), is close to zero. **H7.1 and H7.2 are rejected.**

H8.1 and H8.2 postulate an interaction effect of neuroticism on the relationship between advertising type and advertising effect. In order to check the value profile, the interviewees were divided into three groups corresponding to low neuroticism (percentile from 0 - 40%, factor scores from -2.68 to -.242), indifferent (41 - 59%, -.241 to .259) and high neuroticism (60 - 100%, .260 to 2.59). As an alternative to calculations, it can already be seen from the graphic representation of the two groups with high and low neuroticism that there is no interaction effect. In the case of both print ads and Instagram postings, high neuroticism is accompanied by a marginally worse attitude (fig. 1), but no statistical significance test is required for effects on the second digit after the decimal point. The parallelity of the bars indicates the absence of an interaction effect (cf. Garson, 2013, p. 56), **H 8.1 is rejected.**



While high neuroticism leads to an increased propensity to buy in the case of a print ad, it is associated with a low propensity to buy in the case of an Instagram posting. This looks optically like a slight interaction effect (fig. 2).

The categorization of interval-scaled independents is a widespread method for checking mean value differences using a simple analysis of variance (cf. Frazier et al., 2004, p. 117). However, as in the present case (extreme group comparisons of persons with high or low neuroticism), a large part of the variance of the independent variable is lost (similar to the widespread high/low grouping of involvement: Antil, 1984, p. 205). Also, the definition of group boundaries (high/low) is a normative process that influences the result in relation to dependent variables. Calculations based on the interval-scaled data material are therefore more reliable. In order to

verify whether there is a significant interaction effect in the effect on the propensity to buy, the SPSS procedure GLM univariate with the independent advertising type, neuroticism and the interaction variable was additionally carried out.

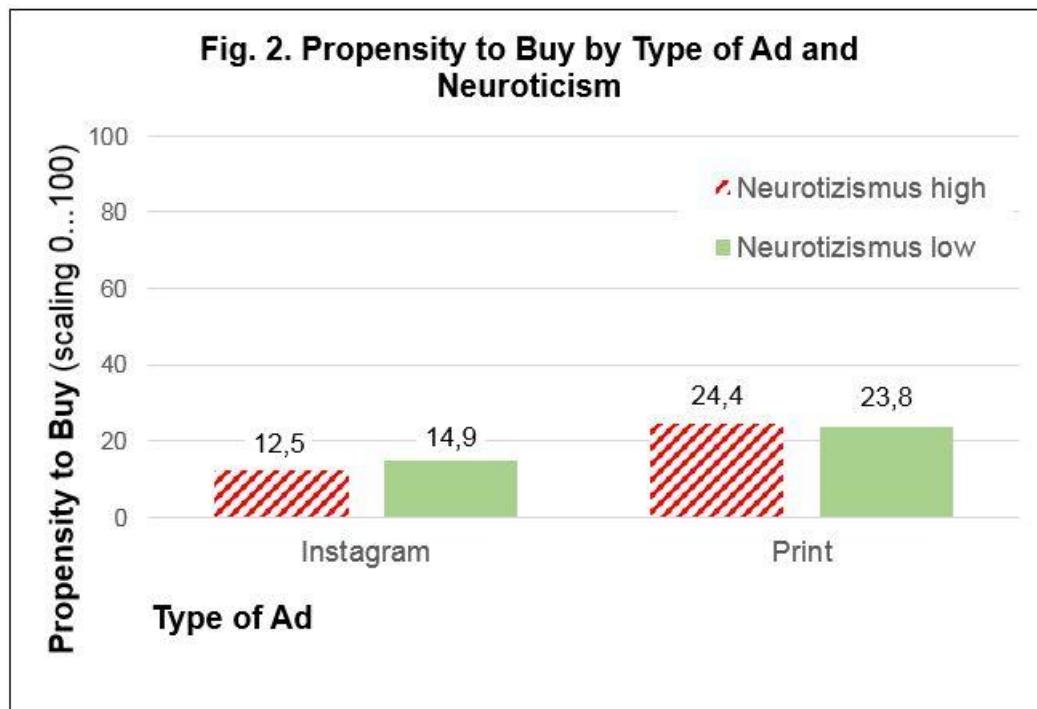


Table 14 shows that neither neuroticism itself nor the interaction variable contribute significantly to the explanation of the propensity to buy, **H 8.2 is rejected**.

**Tab. 14. Tests of between-subjects effects.<sup>a</sup>**

Source	Sum of squares of type III	df	Mean of squares	F	Sig.	Partial eta <sup>2</sup>	Observed Power <sup>c</sup>
Corrected Model	435.254 <sup>b</sup>	3	145.085	25.323	0.000	0.043	1.000
Intercept	6047.408	1	6047.408	1055.502	0.000	0.385	1.000
Type of advertising	429.029	1	429.029	74.882	0.000	0.043	1.000
Neuroticism	0.115	1	0.115	0.020	0.887	0.000	0.052
Type of ad * Neuroticism	6.110	1	6.110	1.066	0.302	0.001	0.178
Error	9648.338	1684	5.729				
Total	16131.000	1688					
Corrected Total	10083.592	1687					

a. Dependent variable: Propensity to buy.

b. R<sup>2</sup> = .043 (adjusted R<sup>2</sup> = .041).

c. Computed using alpha = .05.

Hypotheses H9.1 and H9.2 postulate an interaction effect of openness on the relationship between advertising type and advertising effect. GLM univariate shows that openness does not provide a significant explanation for attitude and that there is also no significant interaction effect (Table 15/Model 1), so that **H 9.1 is rejected**.

**Tab. 15. Tests of between-subjects effects.**

Model	Source	Sum of squares of type III	df	Mean of squares	F	Sig.	Partial eta2	Observed power
1 <sup>a</sup>	Corrected model	64.481 <sup>a</sup>	3	21.494	21.711	0.000	0.037	1.000
	Intercept	12296.882	1	12296.882	12421.260	0.000	0.881	1.000
	Type of ad	64.124	1	64.124	64.772	0.000	0.037	1.000
	Openness	0.245	1	0.245	0.247	0.619	0.000	0.079
	Type of ad * openness	0.112	1	0.112	0.114	0.736	0.000	0.063
	Error	1667.137	1684	0.990				
	Total	14028.500	1688					
2 <sup>b</sup>	Corrected total	1731.618	1687					
	Corrected model	474.197a	3	158.066	27.700	0.000	0.047	1.000
	Intercept	6047.408	1	6047.408	1059.779	0.000	0.386	1.000
	Type of ad	429.029	1	429.029	75.185	0.000	0.043	1.000
	Openness	43.081	1	43.081	7.550	0.006	0.004	0.784
	Type of ad * openness	2.087	1	2.087	0.366	0.545	0.000	0.093
	Error	9609.395	1684	5.706				
	Total	16131.000	1688					
	Corrected total	10083.592	1687					

a. Dependent variable: Attitude.  $R^2 = .037$  (adjusted  $R^2 = .036$ ).

b. Dependent variable: Propensity to buy.  $R^2 = .047$  (adjusted  $R^2 = .045$ ).

c. Computed using alpha = .05.

Tab. 15/Mod. 2 shows that openness makes a marginal, significant explanatory contribution to the propensity to buy, but there is no significant interaction effect here either, so that **H 9.2 is also rejected**.

Hypotheses 10.1 to 10.4 deal with the influence of personality traits and the situational variable advertising type on the advertising effect. For the test, two multiple regression analyses with the attitude and the propensity to buy as dependents were calculated. In both models, the advertising type (print vs. Instagram), the Big Five and the involvement in cosmetics were used as independent variables.

**Tab. 16. Regression analysis. Coefficients**

Model		Regression	Stand.	B	T	Sig.	Tolerance	VIF
		coefficient						
1a	(Constant)	2.246	0.086		26.124	0.000		
	Type of ad	0.390	0.048	0.192	8.084	0.000	1.000	1.000
	Involvement with cosmetics	-0.025	0.008	-0.079	-3.305	0.001	0.989	1.011
	Extroversion	-0.040	0.024	-0.040	-1.676	0.094	0.998	1.002
	Openness	0.012	0.024	0.012	0.491	0.623	1.000	1.000
	Conscientiousness	-0.024	0.024	-0.023	-0.983	0.326	0.997	1.003
	Neuroticism	0.011	0.024	0.011	0.473	0.636	0.998	1.002
2b	(Constant)	2.307	0.199		11.595	0.000		
	Type of ad	-1.008	0.112	-0.206	-9.035	0.000	1.000	1.000
	Involvement with cosmetics	0.212	0.018	0.274	11.955	0.000	0.989	1.011
	Extroversion	0.086	0.056	0.035	1.545	0.122	0.998	1.002
	Openness	-0.158	0.056	-0.065	-2.833	0.005	1.000	1.000
	Conscientiousness	0.036	0.056	0.015	0.641	0.522	0.997	1.003
	Neuroticism	-0.020	0.056	-0.008	-0.356	0.722	0.998	1.002
	Agreeableness	0.113	0.056	0.046	2.026	0.043	0.996	1.004

a. Dependent variable: Attitude. R=.219, R<sup>2</sup>=.048, adjusted R<sup>2</sup>=.044.

b. Dependent variable: Propensity to buy. R=.353, R<sup>2</sup>=.124, adjusted R<sup>2</sup>=.121.

As Table 16 shows, the tolerance values are high and the variance inflation factors (VIF) are close to one, so that collinearity cannot be assumed (Urban, Mayerl, 2006, p. 232). The involvement in cosmetics has a slightly negative but highly significant correlation with attitude (in the sense of the higher the involvement, the better the attitude). The explanatory contributions of Extroversion, openness, conscientiousness and neuroticism are not significant. Only the contribution of agreeableness to the explanation of attitude is significant, but the β value here is below that for involvement. In summary, **H 10.1 does not have to be rejected**. Involvement also contributes more to explaining the propensity to buy (model 2) than all dimensions of the Big Five. Thus, **H 10.2 does not have to be rejected**.

The situational variable advertising type (print vs. Instagram) makes a significantly higher explanatory contribution to attitude than all measured personality traits, so that H 10.3 is supported. The advertising type also explains significantly more of the dependent variable buying propensity than the Big Five; **H 10.4 is supported.**

It is noteworthy that the involvement compared to cosmetics makes a higher contribution to explaining the propensity to buy than the situational variable advertising type. This shows that it is not possible to make a general statement as to whether situational or person-related influencing factors make the greater contribution to explaining questions of consumer behaviour.

## 6 Conclusion

The findings of this study are to be interpreted against the background of the product category (branded products of the cosmetics industry), the target group (women aged 14-19), the media compared (print versus Instagram) and the influencers used (around 200,000 followers). Many more such studies have to be conducted under different conditions of use in order to gain more certainty about the conditions of use and the effects of social media marketing. Exploratively, some statistically well-documented findings can be obtained from the study.

### 6.1 Effects depending on advertising type

Contrary to expectations, the classic print ad achieves significantly better advertising effects in many analyses than influencer marketing via Instagram. For example, it could not be confirmed that the Instagram posting with its extended possibilities of argumentative advertising of brand products actually has a better effect on the cognitive attitude of consumers than a print ad. In addition, the print ad in various tests has a better overall effect and a higher propensity to buy than the Instagram posting.

Due to the unexpectedly weak effects of the Instagram posting, analyses of the age of the respondents and the attractiveness of the influencers were carried out in addition to the hypothesis tests. It was found that the poorer performance of the Instagram posting compared to the print ad was significant in all age groups (cf. appendix 2). Among the youngest respondents (age group 14-19) this effect is the greatest. This means that it is precisely the younger target group, which uses the medium most intensively, that takes the relatively most critical attitude towards the medium. Since the present study explicitly makes time-related statements, further analyses in this direction are indicated in order to verify whether the loss of credibility of Instagram discussed in the media (cf. Hohensee, 2018, p. 65) is already apparent here. Instagram postings with influencers with an average number of followers were selected as the situational stimulus for the study. Their assessment by the consumers was examined in

the five criteria credibility, professional competence, likeability, attractiveness and fit to the product, whereby the resulting values for the two influencers were by no means bad (cf. appendix 3). The lack of incentive effect on the part of the influencers does not explain the unexpectedly weak effects of the Instagram posting either.

Influencer marketing works best when it comes to testimonials that users are already following. Although not significant in this study, the follower status tends to have a positive effect on the attitude effect. There is a positive and significant influence on the propensity to buy if the test person is already a follower of an influencer.

Advertising brand companies should re-evaluate the costs and effects of the different types of advertising on the basis of the results. Since advertising in a high-circulation print medium costs more than the occasional support of a mediocre known influencer (cf. Bolotaveva, Cata, 2010), many companies are planning increased influencer marketing. As has been shown, the number of followers is of great importance for the advertising effect, especially since consumers usually do not come into contact with a posting at all as long as they do not follow an influencer. However, influencers with a high number of followers have often already decided on certain product brands and are therefore no longer available for competing products. In addition, the cost advantage for social media marketing is quickly reduced if influencers with high numbers of followers are hired (footballer Cristiano Ronaldo is currently to receive 750,000 dollars for a single posting with advertising content, 21-year-old Kylie Jenner up to 1 million dollars, see Hohensee, 2018, p. 65). On the other hand, it must be taken into account that the measurable effect of a print ad tends towards zero a few weeks after delivery of the issue. Online postings in most social media remain available for a longer period of time and can still have a positive advertising effect even after months or years. Not to forget the hope that once an influencer has been chosen, he or she will increasingly win followers over time and thus increase the impact of his postings.

## 6.2 Effects of person and situation

The assumed interaction effects of the personality traits of the Big Five on the advertising effect could not be confirmed in the present study. Nevertheless, the characteristics measured by the BFI-10 in some analyses show small but significant explanatory contributions for dependent variables: For example, openness makes a significant contribution to the explanation of the propensity to buy, agreeableness is weakly correlated with the overall attitude and the propensity to buy. In addition to the hypotheses reported, it was examined whether the usage intensity of the social media can be explained by the Big Five. As appendix 6 shows, the results are similar to those in the hypothesis tests, namely small but in individual cases quite significant explanatory contributions. Neuroticism is associated with a somewhat higher use of social media, conscientiousness with a somewhat lower use.

A significantly higher and highly significant explanatory contribution for the two dependent variables attitude and propensity to buy is made by the involvement compared to the advertised product cosmetics. As expected, this confirms that concrete product-related personality traits are more explanatory than general traits of the individual.

The situation criterion in the study is the stimulus, i.e. the type of ad (which means at the same time the medium). In all analyses, this situation criterion proves to be more powerful in explaining the dependent variables than the general personality traits of the Big Five. The type of ad contributes more to explaining the overall attitude than the involvement of consumers in cosmetics. Conversely, it is in the explanation of the dependent variable buying propensity: The involvement makes the greater contribution to this than the type of ad. In summary, it is found that for every analysis of consumer behaviour, both situation-related and person-related indicators are of essential importance. The contributions of singular hypothetical constructs to explaining consumer attitude and behavior cannot be predicted ex ante and without empirical investigation in individual cases. Identical constructs can provide different explanatory contributions under different situational circumstances and if different dependent variables are included.

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## Appendix

### Appendix 1. Slightly modified version of the BFI-10. (English version: see table 6)

**Bitte bewerten Sie bei den nachfolgenden Aussagen, inwieweit Sie diesen zustimmen.**

1 = ich stimme überhaupt nicht zu, 5 = ich stimme voll und ganz zu

	1 ich stimme überhaupt nicht zu	2	3	4	5 ich stimme voll und ganz zu
Ich bin eher zurückhaltend und reserviert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich schenke anderen leicht Vertrauen, glaube an das Gute im Menschen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich bin bequem und vermeide Anstrengungen wenn es geht	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich bin entspannt, lasse mich durch Stress nicht aus der Ruhe bringen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich habe eher wenig künstlerisches Interesse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich bin gesellig und gehe aus mir heraus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich neige dazu, andere zu kritisieren	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich lege Wert darauf, Aufgaben gründlich zu erledigen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich werde leicht nervös und unsicher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich bin fantasievoll und habe eine aktive Vorstellungskraft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Appendix 2. Attitude by type of advertising

Age group	Attitude <sup>1</sup> by type of ad			Analysis of variance <sup>2</sup>				
	Print	Instagram	Difference between the mean values	Sum of squares	df	Mean of squares	F	Sig.
14-19	2.31	2.74	-0.43	between groups	14.510	1	14.510	18.321 0.000
				within groups	247.105	312	0.792	
				Total	261.615	313		
20-29	2.50	2.88	-0.38	between groups	43.039	1	43.039	44.010 0.000
				within groups	1163.751	1190	0.978	
				Total	1206.790	1191		
30-49	2.85	3.23	-0.38	between groups	6.731	1	6.731	5.373 0.022
				within groups	225.500	180	1.253	
				Total	232.231	181		

1. Attitude measured on a scale from 1 (best) to 6 (worst).

2. Separate analyses of variance were performed for each of the three age groups.

### Appendix 3. Evaluation of the two testimonials.

	Likeability	Credibility	Professional competence	Attractiveness	Fit to product
Mean <sup>2</sup>	56	44	47	64	64
Median <sup>2</sup>	60	40	50	70	70
Minimum	0	0	0	0	0
Maximum	100	100	100	100	100

- 1 All Items measured on a scale from 0 to 100.  
 2 Common value for both influencers since marginal differences between the two influencers are not significant.

### Appendix 4. Total variance explained.

Component	Initial Eigenvalues			Extraction sums of squared loadings			Rotated sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	1.968	65.611	65.611	1.968	65.611	65.611	1.593	53.092	53.092
2	0.661	22.045	87.657	0.661	22.045	87.657	1.037	34.564	87.657
3	0.370	12.343	100.000						

Extraction method: Principal components analysis.

### Appendix 5. Principal components analysis.

	Component matrix <sup>a</sup>		Rotated component matrix <sup>b</sup>		
	Component		Component		
	1	2		1	2
Propensity to buy	0,715	0,698	Propensity to buy	0,230	<b>0,973</b>
Affective attitude recod.	0,846	-0,331	Affective attitude recod.	<b>0,892</b>	0,175
Cognitive attitude recod.	0,860	-0,255	Cognitive attitude recod.	<b>0,863</b>	0,246

a. Extraction method: Principal components Analysis. 2 components extracted.

b. Rotation method: Varimax with Kaiser normalization. Rotation converged in 3 iterations.

**Appendix 6. Multiple Regression Analysis. Coefficients.<sup>a</sup>**

	Regression coefficient B	Standard error	Stand. coefficient $\beta$	T	Sig.
(Constant)	198,412	3,046		65,148	0,000
Extroversion	-5,513	3,046	-0,044	-1,810	0,071
Openness	-4,235	3,046	-0,033	-1,390	0,165
Conscientiousness	-17,523	3,046	-0,138	-5,752	0,000
Neuroticism	8,893	3,046	0,070	2,919	0,004
Agreeableness	3,497	3,046	0,028	1,148	0,251

a. Dependend variable: Social media usage minutes per day. R = .167,  $R^2 = .028$ , adjusted  $R^2 = .025$ .