

**Social Networking Sites as a Source of Normative Information –
Empirical Investigations on Social Norm Perceptions and Consequences for Offline
Behavior**

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Abstract

Social networking sites (SNS) provide the opportunity to keep up with friends and acquaintances and to access information about friends' and peers' attitudes and behaviors. Owing to their prevalent use, permanent availability, and due to the interconnectedness of different reference groups, they represent a relevant source for the perception of social norms. Building on psychological theories on social influence, social norms, and observational learning, this dissertation empirically investigates the potential of behavioral displays on SNS to shape receivers' perceived social norms and to influence their behaviors in the offline world.

In a first study, (potential) social influence effects in the context of Facebook use were explored by means of qualitative interviews. Based on the example of alcohol content, the results reveal that the exposure to friends' behavioral displays on SNS can elicit thoughts about the friends' behavior, their approval of the displayed behavior, and their expectations. The anticipated effects on users' own behaviors are small; stronger effects are expected for others. Moreover, several factors, such as the source of a post, or the frequency of exposure to similar posts, were identified that could facilitate the effects from the users' perspective.

In addition, two experimental studies were conducted to investigate the effects of other persons' behavioral displays on SNS in a more systematic way for the context of prosocial behavior: Study 2 comprises a laboratory experiment, in which participants were shown either descriptive or injunctive norm cues on prosocial behavior in status updates, in order to investigate, whether the specific norm focus can influence their prosocial behavioral intentions. Moreover, either Facebook friends or unknown peers were presented as a source of the posts. The results show that users who saw injunctive norm cues about prosocial behavior in the status updates of friends had greater volunteering intentions than persons who saw no prosocial norm cues in the posts of friends. However, no significant effect of the normative cues was found for donation intentions. Moreover, effects on the perception and accessibility of prosocial norms were explored, revealing mixed results concerning the accessibility of prosocial norms and no effects on the perception of descriptive and injunctive norms of volunteering for different types of reference groups.

In the third study, the influence of different rates of exposure to prosocial behavioral displays in status updates was investigated by means of a 6-week online experiment with a between-subjects design and a repeated measures approach. Results reveal that individuals

who saw a high number of prosocial behavioral displays had a higher perceived ability to perform prosocial behavior than individuals who did not see any prosocial behavioral displays. Moreover, mediation analyses showed that a positive evaluation of the posts could facilitate the impact of a high exposure rate on receivers' own prosocial behavior and future intent. No effects of the repeated exposure to prosocial behavioral displays in status updates were found on participants' perceived social norms regarding prosocial behavior.

The present research enhances the knowledge on social norm perceptions and normative influence in the realm of SNS. The findings concerning the impact of behavioral displays in SNS on receivers' normative perceptions and offline behavioral outcomes are discussed in the light of potential explanatory mechanisms derived from the psychological literature on social norms and social learning.

Zusammenfassung

Soziale Netzwerkseiten (SNS) bieten Nutzenden die Möglichkeit, mit Freunden und Bekannten in Kontakt zu bleiben und Informationen über die Einstellungen und Verhaltensweisen von Freunden und Peers zu erhalten. Durch ihre hohe Prävalenz der Nutzung, permanente Verfügbarkeit und durch die soziale Vernetzung verschiedener Bezugsgruppen stellen sie eine relevante Quelle für die Wahrnehmung von sozialen Normen dar. Vor dem Hintergrund psychologischer Theorien zu sozialem Einfluss, sozialen Normen und zum Beobachtungslernen untersucht diese Dissertation das Potenzial von Verhaltensdarstellungen auf SNS wahrgenommene soziale Normen von Rezipienten zu formen und ihr Verhalten in der Offline-Welt zu beeinflussen.

In einer ersten Studie wurden mit Hilfe von qualitativen Interviews (potenzielle) Effekte von sozialem Einfluss im Kontext der Facebook-Nutzung erforscht. Die Ergebnisse zeigen am Beispiel von Alkohol-Darstellungen, dass das Betrachten von Verhaltensdarstellungen von Freunden auf SNS Gedanken über das Verhalten der Freunde, ihre Akzeptanz des dargestellten Verhaltens sowie ihre Erwartungen auslösen kann. Die antizipierten Effekte von Nutzenden auf das eigene Verhalten sind klein; stärkere Effekte werden für andere erwartet. Des Weiteren konnten verschiedene Faktoren, wie die Quelle eines Posts oder die Häufigkeit der Rezeption von ähnlichen Posts, identifiziert werden, die die Effekte aus Sicht der Nutzenden begünstigen können.

Darüber hinaus wurden zwei experimentelle Studien durchgeführt, um die Effekte von Verhaltensdarstellungen anderer Personen auf SNS systematisch für den Kontext von prosozialem Verhalten zu untersuchen: Studie 2 umfasst ein Laborexperiment, in dem den Teilnehmenden implizite deskriptive oder injunktive Norm-Hinweise zu prosozialem Verhalten in Status-Updates gezeigt wurden, um zu prüfen, inwieweit die jeweilige Norm-Fokussierung prosoziale Verhaltensintentionen beeinflussen kann. Zudem wurden als Quelle der Posts entweder Facebook Freunde oder unbekannte Peers präsentiert. Die Ergebnisse zeigen, dass Personen, die injunktive Norm-Hinweise über prosoziales Verhalten in den Status-Updates von Freunden sahen, eine größere Intention hatten, sich freiwillig zu engagieren, als Personen, die keine Hinweise auf prosoziale Normen in den Posts von Freunden sahen. Es wurde jedoch kein signifikanter Effekt für Spendenintentionen gefunden. Außerdem wurde exploriert, inwieweit die Wahrnehmung und die Verfügbarkeit von prosozialen Normen durch Status-Updates mit prosozialen Norm-Hinweisen beeinflusst

werden kann, wobei sich gemischte Ergebnisse bezüglich der Verfügbarkeit von prosozialen Normen zeigten und keine Effekte auf die Wahrnehmung von deskriptiven und injunktiven Normen zu freiwilligem Engagement für verschiedene Referenzgruppen gefunden wurden.

In der dritten Studie wurde der Einfluss der Anzahl von Status-Updates mit prosozialen Verhaltensdarstellungen untersucht, die Personen im Rahmen eines 6-wöchigen Experiments mit Between-Subjects Design und einer Wiederholungsmessung sahen. Die Ergebnisse zeigen, dass Personen, die viele prosoziale Verhaltensdarstellungen sahen, ihre Fähigkeit sich prosozial zu verhalten größer einschätzten, als Personen, die keine prosozialen Verhaltensdarstellungen sahen. Darüber hinaus konnten Mediationsanalysen zeigen, dass die Wirkung einer hohen Anzahl von prosozialen Verhaltensdarstellungen auf das eigene prosoziale Verhalten von Rezipienten sowie auf ihre Verhaltensintentionen durch eine positive Bewertung der Posts begünstigt werden könnte. Es wurden keine Effekte der wiederholten Betrachtung von prosozialen Verhaltensdarstellungen in Status-Updates auf die wahrgenommenen Normen der Teilnehmenden hinsichtlich prosozialen Verhaltens gefunden.

Die vorliegende Forschungsarbeit erweitert den Wissensstand zur Wahrnehmung von Normen und zu normativem Einfluss im Bereich sozialer Netzwerkseiten. Die Ergebnisse bezüglich der Wirkung von Verhaltensdarstellungen auf SNS auf die Wahrnehmung von Normen und die Auswirkungen auf Offline-Verhalten werden vor dem Hintergrund potenziell erklärender Mechanismen aus der psychologischen Literatur zu sozialen Normen und sozialem Lernen diskutiert.

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Supplementary Information

For additional information about the stimulus materials, the interview guide (Study 1), and the questionnaires (Study 2 and Study 3) used in the present dissertation, please contact the author.

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I. Introduction

On social networking sites (SNS), such as Facebook, users receive and interact with a constantly updating feed of information composed of different forms of content, created, shared, or reacted upon by their network contacts (Ellison & boyd, 2013). Examples include vacation pictures and selfies, news items, discussions about current topics, entertaining content, posts about friends' life events, leisure time activities, and other things that matter to users. Some of this content, displaying their friends' thoughts and actions, can be considered highly influential as it provides cues based on which users might gauge the popularity and approval of certain behaviors in their personal networks.

Imagine a young adult Facebook user scrolling through her News Feed. In this stream of personalized updates of information (Facebook, 2017b), she might encounter posts reporting about her friends and peers' latest drinking occasions, their healthy food choices, or about their engagement in social initiatives, such as supporting charity work or volunteer projects. These documentations of what personal contacts do and the communication about their behaviors might affect her perception of how much or how frequently her friends and peers drink alcohol, eat healthily, or engage in prosocial activities and might lead to the perception that the respective behavior is approved and well respected. In this regard, it seems vital to ask whether the exposure to SNS posts that display friends and peers' behaviors can shape users' normative beliefs and provide a guideline for their own behaviors.

To pursue this question, the psychological literature on social influence and social norms could provide a theoretical basis to its investigation: A long history of psychological research has shown that individuals are highly susceptible to social cues in their environments (Cialdini, Reno, & Kallgren, 1990) and conform to salient perceived social norms of relevant reference groups (Turner, 1991). In this regard, the literature indicates that social norms have been conceptualized as a key predictor for human behavior in a variety of well-established theories, such as the theory of reasoned action (TRA; Fishbein & Ajzen, 1975), the theory of planned behavior (TPB; Ajzen, 1985), the focus theory of normative conduct (Cialdini et al., 1990), and the theory of normative social behavior (TNSB; Rimal & Real, 2005). From a psychological point of view, concerned with the individual's perspective, it is essential to note that individuals conform to what they *perceive* is normative, which does not necessarily match the actual norms of a group on the collective level (e.g., Berkowitz, 2005). These normative perceptions are derived through the continuous interactions with group members

and the reception of information about the group, for example, from the media (Tankard & Paluck, 2016). Interpersonal communication processes and social observations are key mechanisms by which individuals gain and modify their impressions about social norms (Lapinski & Rimal, 2005; Rimal & Lapinski, 2015). Building on social cognitive theory (Bandura, 1986), observing actions of other people or symbolic models in the media could affect the acquisition and learning of normative behavior or, in line with the focus theory of normative conduct (Cialdini et al., 1990), serve to activate the perception of a social norm. A great body of research has investigated and extended the norm focus approach (Bator, Tabanico, Walton, & Schultz, 2014; Cialdini et al., 2006; Cialdini, Kallgren, & Reno, 1991; Kallgren, Reno, & Cialdini, 2000; Reno, Cialdini, & Kallgren, 1993) and social modeling effects in face-to-face contexts (see Bandura, 1986; Cruwys, Bevelander, & Hermans, 2015; M. D. Wood, Read, Palfai, & Stevenson, 2001) as well as in media environments (e.g., Bilali, Vollhardt, & Rarick, 2017; Pajares, Prestin, Chen, & Nabi, 2009). Little research has, however, been conducted to examine the assumptions in the context of social media. In this regard, the advent of SNS in particular offers a new theoretical perspective on these processes and an agenda for research, as these sites comprise unique properties that might affect the way information about social norms is acquired and perceived, and how normative influence operates.

Since SNS link users to the broadcasted displays of their social contacts' thoughts and actions, they provide the unique opportunity to observe highly relevant models, like friends, referent groups, and social contacts from a person's real life, at a similar frequency and availability as symbolic models from traditional media. Owing to their high popularity and facilitated by the increasing availability of high-speed Internet connections and the exponential increase in mobile Internet use, SNS have multiplied the opportunities for acquiring and forming normative perceptions based on social observations. As millions of SNS users have these opportunities, studying the potentials, boundaries, and influence mechanisms of norm perceptions and normative effects in the realm of SNS is not only theoretically relevant but can provide meaningful insights and implications for society.

Many studies concerned with the usage of SNS have focused on questions of how and why users *contribute* content to the platform (Wenninger, Lee, Cheung, Chan, & Wong, 2016). Regarding potential effects of passive *consumption* of content, prior work started to investigate the potential of SNS to shape normative perceptions and influence behaviors through the exposure to content about the respective behavior. This research has predominantly focused on adolescents' and young adults' risky health behaviors and has

shown that the exposure to displays of risky health behavior in posts on SNS (e.g., alcohol consumption) is significantly related to corresponding normative perceptions (e.g., Rui & Stefanone, 2017) as well as to the conduct of the respective offline behavior (e.g., Branley & Covey, 2017). However, more research is needed on the direction of the relations as well as on the circumstances under which individuals derive normative perceptions and are influenced by SNS posts. In this regard, the research demands for a more systematic investigation of particular factors underlying the effects, for instance, the type of normative content, the source of normative displays, or the frequency of exposure. Moreover, other areas apart from the context of risky health behaviors have largely been neglected by prior work, which emphasizes the need to determine whether the potential normative influences of behavioral displays on SNS are generally valid for other types of behaviors, such as more desirable outcomes of prosocial conduct.

In light of these research demands, the present dissertation builds on social psychological theories on social influence, social norms, and social learning mechanisms to enhance the studies on potential influences of behavioral displays in SNS on receivers' normative perceptions and behavioral outcomes. Therefore, the present work, first, provides a conceptualization of social norms (Chapter 1), reviews the classic (Chapter 2) and current theoretical approaches to the research on social norms and social influence (Chapter 3) as well as the literature on the formation of normative perceptions (Chapter 4) from a social psychological perspective. Building on this theoretical framework, the subsequent chapter summarizes literature on social media and SNS and presents SNS as a venue for social norm perceptions and normative influence (Chapter 5). Building on the literature review and shortcomings of prior work, Chapter 6 provides a synopsis of the theoretical elaborations and presents the key research objectives and the empirical approach of the present dissertation. To address the research aims, three empirical studies were conducted. The first study comprises qualitative interviews and explores the potential of SNS to convey normative information and influence from a user perspective (Chapter 7). Subsequently, a laboratory experiment, focusing on short-term effects of normative information in SNS posts (Chapter 8), and a 6-week online experiment, investigating the effects of repeated exposure to SNS posts over time, were conducted (Chapter 9). The key findings of these studies are summarized and discussed in the light of the theoretical background and prior work (Chapter 10), and theoretical as well as practical implications are presented (Chapter 11). Subsequently, general limitations of the empirical approach are discussed and an outlook for future research is offered (Chapter 12) before a final conclusion is drawn (Chapter 13).

II. Theoretical Background

1 A Conceptualization of Social Norms

Social norms have been studied from many different disciplines, including psychology, sociology, communication, public health, philosophy, economics, and legal studies (for a current review, see A. Chung & Rimal, 2016). They have a long research tradition in sociology and psychology, and were more recently adopted in other social disciplines (Hechter & Opp, 2001), for example, in game theoretical studies in the field of economics as well as in a variety of applied domains, such as public safety, health, and sustainability.

Initiated by the classic work of Emile Durkheim, sociologists view norms as a cultural foundation of human life and understand them as regulating forces that govern social behavior and interaction (Hechter & Opp, 2001). Durkheim (1893/1933) refers to a “*collective or common conscience*” (p. 79) that is formed by the “totality of beliefs and sentiments common to average citizens of the same society” (p. 79). Psychologists consider norms essential for a stable society as well as for interpersonal and individual behavior by providing order and guidance (Turner, 1991). In addition to the macro-level perspective on norms at the cultural and societal layer, social norms and their influences are examined in smaller groups (e.g., Sherif, 1936/1973). A definition from the psychological literature characterizes social norms as “rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws” (Cialdini & Trost, 1998, p. 152).

As they are the shared and negotiated rules and regularities for social behavior in groups, cultures, and societies, social contact of individuals is the basis for social norms (e.g., Sherif, 1936/1973). Drawing on instrumental theory, sociologists argue that social norms emerge on the collective level with a higher probability when they serve the function of alleviating negative outcomes or facilitate positive ones, and when individuals believe that they are beneficial for achieving the aims of a society or group (Hechter & Opp, 2001; see also Opp, 2001). When a social norm is established in a group or society, it is not fixed but can evolve or change over time as individuals reformulate, modify, and recreate social norms, a process that has been called social norming (Critto, 1999). On the individual level, norms and normative perceptions are developed from early childhood on (e.g., Brinck, 2014). Research has shown that children develop an understanding of social conventional norms (tested in the context of rule-based games) around the age of three and not only derive the

norms from instructions or observations of adults, but also actively enforce them toward others (e.g., Rakoczy & Schmidt, 2013; Rakoczy, Warneken, & Tomasello, 2008; Schmidt & Tomasello, 2012). From the early age, individuals learn the norms of the groups and social contexts they grow up in (Simons-Morton & Farhat, 2010). Depending on these groups and contexts, children are taught how they should and should not behave in the specific situations relevant in their social environment. For example, a child born in a devout Catholic family will learn to pray before dinner, while a child raised in a less religious family will probably not. Parents and caregivers have a strong influence on the development of norms in early childhood (Rossano, 2012). When children grow older and extend their social circles, social institutions, such as school (Dreeben, 1967), as well as friends and peer groups become additional important sources of socialization (e.g., Biddle, Bank, & Marlin, 1980; Kandel & Andrews, 1987; Scalici & Schulz, 2014). The social network of an individual, existing of persons from diverse social contexts, such as parents, family members, friends, schoolmates, colleagues, neighbors, etc., has a primary impact on the social norms a person acquires and adopts. However, social norms are not only shaped by the social network, they can also affect the social network structure (Simons-Morton & Farhat, 2010).

Since the research on social norm is shaped by various perspectives with varying definitions and conceptualizations, it is important to provide an overview on the different meanings and dimensions of social norms at the outset of this dissertation.

In fact, it has been argued that the term “social norm” is conceptualized and understood differently from field to field as well as from scholar to scholar, even within the same discipline (Hechter & Opp, 2001). Current literature reviews on social norms (A. Chung & Rimal, 2016) or norms in the behavioral and social sciences (J. E. Anderson & Dunning, 2014) as well as attempts to systematize the existing concepts of social norms from different fields (M. W. Morris, Hong, Chiu, & Liu, 2015) confirm this view and show that scholars are challenged by the varying definitions and often inconsistent use of terminology. Dubreuil and Grégoire (2013) argue that scholars have approached the challenge of categorizing the social phenomenon of norms in two different ways, either by “splitting” the concept into different types and sub-concepts of norms or by reconciling different facets in one comprehensive definition. Thus, in the following chapter, I will give an overview of the basic conceptions, definitions, and types of norms to clarify the concept of social norms for the present research.

1.1 Classifying Different Types of Norms

That norms can fall into different categories has early been demonstrated by sociologists who long ago started to classify different types and conceptualizations of norms. Sumner (1906), for example, noted that some norms in a society are merely expected to be followed but not strongly enforced (i.e., folkways), while others have more severe consequences if violated (i.e., mores). In 1956, R. T. Morris proposed to classify norms based on characteristics that refer to the distribution of the norm (e.g., how many others know about and accept the norm), the means of enforcement (e.g., by whom, by what means, and how severely the norm is enforced), the transmission process (e.g., when and how the norm is learned), and the degree of conformity (e.g., how many others attempt to conform or to deviate). Gibbs (1965) criticized this classification for mixing general aspects of norms, that can serve for defining and distinguishing various types of norms, and more specific aspects, that vary within norms of a same type and are, therefore, not suitable for setting up a typology. He proposed to classify norms based on three definitional attributes: a *collective evaluation* of the behavior, a *collective expectation* of the behavior, and specific *reactions* to the behavior (Gibbs, 1965). According to Gibbs, collective evaluation refers to the existence of a mutual belief about the oughtness of a behavior (i.e., individuals in some kind of collective have a common understanding about whether a behavior should or should not be done). Collective expectation, on the other hand, describes the common expectation about the actual conformity to a norm (i.e., individuals reciprocally expect that others conduct the behavior or refrain from doing so). With reactions, Gibbs refers to sanctions and differentiates between the probability and severity of sanctions as well as between different sources that exert the sanctions. Based on these characteristics, he built combinations that illustrate distinct types of norms. For example, the type of norm that represents behaviors which are collectively evaluated as something one ought to do and collectively expected but little likely to be sanctioned, is called collective convention. When sanctions are to be anticipated for a similarly evaluated and expected behavior, Gibbs talks about collective morals, mores, rules, or laws, depending on whether the sanction is applied by an authority person (by force: laws; without force: rules) or not (by force: mores; without force: morals). The types of norms that build on a collective evaluation of behavior without the existence of a collective expectation (i.e., belief about the oughtness of a behavior but disbelief about the actual performance) are labeled *problematic* conventions, morals, mores, rules, and laws, respectively. When, on the other hand, a behavior is expected to be performed by others although it is not collectively

evaluated as something one should do, it is described by the type of norm called custom (for further details, see Gibbs, 1965).

The labels of the identified types of norms in Gibbs's typology might be controversial since customs (e.g., Bicchieri, 2017) and conventions (e.g., Southwood & Eriksson, 2011) have been disassociated from norms and defined differently by other scholars. However, Gibbs's definitional attributes of norms, described by a collective evaluation (*ought* dimension) and expectation (*is* dimension) of a behavior and potential sanctions, are key dimensions that have been stressed throughout the literature in attempts to define social norms.

1.1.1 Descriptive and Injunctive Social Norms

In fact, the distinction between two functional characteristics of social norms, in terms of a) defining a mutual understanding about what ought and ought not to be done and b) providing information about what is actually done, is very prominent in psychology and the social sciences: For example, in a seminal article about social norms in the field of social psychology, Shaffer (1983) distinguishes between a descriptive and a prescriptive function of social norms. He argues that social norms can be informative in nature, when they are understood in a rather statistical sense, in terms of describing, what is "normal" or "typical" behavior, or they can emphasize how members of a group should behave, by prescribing what is acceptable, appropriate, or approved behavior. This distinction was later revisited by Cialdini and colleagues (1990), who established the notion of *descriptive* and *injunctive* social norms, which is most prominently used in the psychological literature and will also be used in the present dissertation. Drawing on early research on social influence mechanisms and the distinction between informational and normative social influence (Deutsch & Gerard, 1955; see Chapter 2.2), Cialdini and colleagues (1990) argue that the two dimensions of social norms appeal to different sources of motivation: descriptive norms describe what other people typically do and affect individuals when they are motivated to act effectively and accurately in a situation; injunctive norms, on the other hand, refer to what other people approve of and affect behavior when individuals are motivated to avoid social sanctions and obtain acceptance by others (see also, Cialdini & Goldstein, 2004; Cialdini & Trost, 1998).

According to a contemporary definition of social norms from Bicchieri, these two dimensions are similarly conceptualized as empirical and normative expectations (Bicchieri, 2006). Specifically, Bicchieri characterizes social norms as informal rules that are followed

based on an individual's expectation about what others do (empirical), and his or her expectation about the normative beliefs of others (i.e., perceptions about what other people think one should do). These expectations have a high resemblance to the attributes of a collective expectation and evaluation of behavior in Gibbs's (1965) original definition of norms. However, Gibbs referred to a *collective* dimension of norms, in terms of the overall expectations and actual representations of norms in a society or group, while Bicchieri (2006) described a *subjective* perspective on norms, focusing on an individual's normative perceptions and beliefs.

1.1.2 The Subjective and Collective Dimension of Social Norms

Norms, in fact, can be investigated on a collective and on a subjective level (see Lapinski & Rimal, 2005). While sociologists and economists are typically concerned with norms on a collective level that effectively operate in a society or group, psychologists are rather interested in the subjective manifestations of norms, in terms of an individual's perceptions and beliefs about what is normative (M. W. Morris et al., 2015). One prominent example for an operationalization of perceived social norms in the psychological research is the construct of *subjective norms* from the TRA (Fishbein & Ajzen, 1975). Conceptualized as a key predictor for behavioral intentions, subjective norms are described by an individual's perception of important others' expectations regarding his/her own behavior and the individual's motivation to comply with these expectations. The construct of subjective norms will be presented in more detail in Chapter 3.1.

According to Cialdini and Trost (1998), both perspectives, the subjective and collective, are relevant since "norms are shared belief systems and must be examined from the perspective of both the individual's psychological system and the sociocultural system in which that individual is embedded" (p. 153). However, the subjective level is of particular importance in the psychological literature, because individuals are usually not aware of the actual prevalence or approval of behaviors in their groups and communities and rather rely on their subjective impressions (Tankard & Paluck, 2016). In fact, actual and perceived norms often diverge and individuals are substantially influenced by what they believe others think or do, rather than by others' actual beliefs and actions (Berkowitz, 2005). This can be problematic when the norm of an undesirable or risky behavior, such as excessive alcohol consumption, is overestimated or the norm of a desirable or beneficial behavior, such as

helping, is underestimated. Thus, a promising approach in the social norms research is to detect and correct misperceptions (Berkowitz, 2005, see Chapter 4.4.1).

This dissertation is guided by the subjective rather than the objective perspective on norms and investigates normative perceptions from the individual's point of view. Thus, the theoretical and empirical background presented in the following chapters primarily focusses on the impact of perceived social norms on behavior and on the mechanisms by which individuals' norm perceptions are formed and affected, not the formation or influence of norms at the collective level. Moreover, it addresses particularly *social* norms, which characterize a specific sub-type of the more global concept of norms, which is explicated in more detail in the following.

1.1.3 The *Social* Dimension of Social Norms

Regarding the variety of different types of norms identified by Gibbs (1965; see Chapter 1.1), the question arises whether all of them can be considered *social* in nature. On closer consideration, it can be noted that some norms – specifically those that rely on enforcement through formal sanctions by authorities (e.g., laws) – can be distinguished from social norms in a narrower sense. In fact, the terms “norm” and “social norm” are often used interchangeably in the literature; however, sometimes *social* norms are more narrowly understood as a specific type of norms. Building on psychological literature and the works of Cialdini and colleagues in particular (e.g., Cialdini & Goldstein, 2004; Cialdini et al., 1990; Cialdini & Trost, 1998), social norms are conceptualized for the present dissertation as rules and guidelines for social behavior that are socially negotiated, shared, and understood by the members of a society, population, group, or collective, and established *without external legal enforcement*. Moreover, social norms are typically informal, not explicitly codified, and have been characterized as “unspoken” (Sanderson, 2010, p. 250) or “unwritten” (Gavac, Murrar, & Brauer, 2017, p. 334) rules of conduct. They are not enforced by the state, but rather by other members of the society, population, group, or collective in which the norms were established. The only sanctions that can be expected for violating a social norm are informal and social in nature (Bicchieri, 2006; Cialdini & Trost, 1998), and can take forms of, for example, infamy, disgrace, or social exclusion of the violator. In that, they differ essentially from formal norms, which are explicitly codified and typically described as legal norms, which take the form of laws or contracts (e.g., Bicchieri, 2006; Elsenbroich & Gilbert, 2014; Elster, 1989). Although these legal norms are certainly humanmade – and in this regard social

constructs – they define binding rules that are formally established in a state and enforced by authorities (Bicchieri, 2014). They are essentially different from social norms in how they are created, enforced, and how violations are sanctioned (Hechter & Opp, 2001), although they can certainly overlap (Posner & Rasmusen, 1999). For further information about the distinction between social and legal norms, see Baier (2016).

In addition to their informal nature and social enforcement, a key attribute of social norms, vital to their conceptualization, is the reference network of individuals (e.g., a society, population, group, or collective), for whom a social norm exists through a shared understanding and mutual expectations regarding the prescribed or proscribed behavior in question (Mackie, Moneti, Shakya, & Denny, 2015). It is important to know the reference network of a norm, because it is essential to know whose expectations matter. Individuals can, however, belong to a variety of different groups and social categories with their individual norms and standards (Turner, 1991). Thus, research on social norms requires specifying a reference group when social norms are measured (Shulman et al., 2017). Except for the subjective norms construct stemming from the TRA (Fishbein & Ajzen, 1975), which provides a loose predefinition of the reference group (i.e., important others), most instruments, such as measures of perceived descriptive and injunctive norms based on Cialdini and colleagues' conceptualization, have to be specified by the researcher. Typically, the reference group is chosen based on the research question studied.

Against this background, social norms are characterized as socially interdependent constructs (Bicchieri, 2017); they can only exist based on reciprocal beliefs and expectancies within a reference group. For instance, individuals must believe that a sufficient number of people actually do a certain behavior and expect others to do it. Social norms exist between the members of a society, population, group, or collective and cannot exist when they are not shared among the respective members (Cialdini & Trost, 1998). This differentiates norms from values, as values can be held by single individuals (R. T. Morris, 1956).

Social norms represent a group's standards for typical and appropriate behavior. Thus, they differ from norms that relate to an individual's internal standards, such as moral norms: Moral norms differ from social norms in that they are derived from a moral value instead of a social behavioral expectation (Elsenbroich & Gilbert, 2014). They are followed independent from one's expectations about the behaviors or beliefs of others (Bicchieri, 2006) and have been characterized as "internalized, unconditional imperatives" (Bicchieri, 2014, p. 212). It is important to emphasize that moral norms are not categorized as moral based on their content, but that the reason why someone complies matters. Norms that may sound moral can operate

as social norms when individuals follow the norms not because it is a moral thing to do, but to comply with empirical and normative expectations (Bicchieri, 2017).

Norms that are followed based on the expectations an individual has imposed for him/herself have also been characterized as personal norms (Schwartz, 1973, 1977) or private norms (Elster, 1989). According to Schwartz (1973), these norms can coincide with norms that are socially shared in a society or group and can be derived from the latter. However, individuals follow personal norms because they feel morally obligated to. Since personal norms build on the internal standards and expectations that a person has set for him-/herself, they are not enforced by social sanctions, but sustained by sanctions that are linked to the person's self-concept. According to Schwartz (1973), the "anticipation or actual violation of the norm result in guilt, self-deprecation, loss of self-esteem; conformity or its anticipation result in pride, enhanced self-esteem, security" (p. 353). In sum, social, legal, and moral/personal norms are all rules for behavior; the difference is, that social norms bear on social expectations, legal norms on laws, and moral norms on personal moral values (see Elsenbroich & Gilbert, 2014, p. 4).

In addition, it is important to distinguish descriptive and injunctive social norms from other social practices, such as customs, habits, and conventions: Conventions (such as driving on the right side) are followed in order to coordinate with others (Southwood & Eriksson, 2011). The reason to follow a convention is, however, based on self-interest (desire to coordinate with others) and not based on a desire to satisfy social expectations (Bicchieri, 2014). The same holds true for habits or customs. Only because many people are following some form of regularity (e.g., sleeping with the lights off), have positive attitudes about it and know that other people also have these positive attitudes, sleeping with the lights off is no social norm. The crucial point of a social norm is that these attitudes and the knowledge of others' attitudes toward the behavior must be at least partly the explanation for the regulated behavior (Brennan, Eriksson, Goodin, & Southwood, 2013). Thus, if the motivation to sleep with the light off stems from a personal need (to sleep easy) and is not motivated by others, it is not normative. This need might be widespread among individuals and the habitual behavior of turning off the lights becomes customary (Bicchieri, 2017). Descriptive social norms (i.e., what other people typically do) seem to be similar to customs. The understanding of a descriptive norm simply in terms of what is normal or what people typically do, is, however, too vague. It is important to add that the fact that many others engage in the behavior *causes* an individual's desire to do the same (Bicchieri, 2017). In that, descriptive social norms differ from customs, which are followed independent of others. The same applies to injunctive

social norms, which differ from customs, habits, and conventions as they are not followed based on self-interest, but because of a desire to meet other individuals' approval or to avoid social sanctions (Cialdini et al., 1990). Turner (1991) similarly argues that:

There is more to social norms than the idea of liking or preferring some form of behavior. It is not just that people have shared preferences about what they like doing. The idea of a norm conveys a feeling of 'oughtness' about certain behaviours: there are things that we ought to see, believe, feel and do (whether we want to or not); there is an element of moral obligation, duty, right, justice. (p. 3)

For example, leaving instead of returning the food trays in the canteen or throwing litter on the floor instead of in a trash bin around the corner would be more comfortable, however, many people engage in these more inconvenient behaviors when they observe others doing it.

1.2 Summary

In sum, social norms are rules and guidelines for social behavior, which are established in a society, population, group, or any other form of collective. They are socially negotiated, shared, and understood by the members of the respective society, population, group, or collective and followed based on social expectations, not because of a moral principle or personal standard. Moreover, social norms are informal and differ from explicitly codified formal rules that are enforced by external authorities and regulated by laws. Instead, social norms are enforced by social sanctions through members of the respective society, population, group, or collective.

Two distinct types of social norms can be classified: descriptive and injunctive norms. Descriptive social norms express what is commonly done and typical in a society, population group, or collective and what is not, while injunctive social norms indicate what is acceptable and approved or unacceptable and disapproved in the respective society, population, group, or collective. Descriptive and injunctive social norms can exist on a collective level, in terms of the actual norms in a society, population, group, or collective as well as on a subjective level, in terms of individuals' perceptions and mental representations of the prevailing social norms.

The present dissertation is concerned with the subjective view on social norms and investigates the formation and influence of normative perceptions in the context of social networking sites from the individual's point of view. To enhance social norms research in online social media, the theoretical distinction between descriptive and injunctive norms is taken into account when the psychological processes involved in the perception and influence of social norms are investigated.

Before the specific characteristics of social networking sites and the mechanisms of normative influence in this realm are introduced, the following sections will first address the theoretical background on what is known about the perception and influence of social norms from classic research and theories outside the framework of social media. First, an overview will be given on the early research on social norms and the underlying theoretical principles and mechanisms of their influence. This is important because it provides a fundamental theoretical understanding of the psychological processes involved in the perception of social norms and their influences on behavior, and of the explanations for why individuals follow social norms.

2 Early Approaches to Study Social Norms and Social Influence

In the social psychological literature, the study of social norms is one core area of social influence research, which was significantly influenced by a series of classic experiments that demonstrated the influence of norms in groups and their impact on individuals' behavior.

Social influence is an umbrella term used for a variety of phenomena studied in the field of social psychology. In fact, a most broad definition of social influence is congruent with what has been defined as the aim of the discipline of social psychology itself, which has been described by Allport in 1954 as "the scientific investigation of how the thoughts, feelings and behaviours of individuals are influenced by the actual, imagined or implied presence of others" (as cited in Hogg & Vaughan, 2008, p. 4). Underneath this umbrella, social influence research has proceeded in different directions, and discovered various processes of influence, including the perspective of the influencing agent (e.g., principles of persuasion, power, leadership) as well as the perspective of the influence target (e.g., yielding reactions, such as conformity, compliance, and obedience). The areas of study cover interpersonal processes of influence as well as the influence of groups, direct/explicit forms of social influence as well as more indirect/implicit forms of influence (Forgas & Williams,

2001), and many more (see Pratkanis, 2006). Social norms are a core element of this research. In fact, it has been argued that “the key idea in understanding what researchers mean by social influence is the concept of a *social norm*” (Turner, 1991, p. 2). As they define socially negotiated rules for proper and acceptable behavior, influence processes are involved in the formation and establishment of social norms as well as related to their effects (Turner, 1991). The roots of the psychological research on social norms and their influence lie in early studies on conformity behavior. This research investigates the convergence of peoples’ perceptions, emotions, opinions, or behaviors and the adjustments of their feelings, thoughts, and actions to act in accordance with a social norm (E. R. Smith & Mackie, 2007).

2.1 The Foundations of Conformity Research

One of the first and most formative works in this area are the experiments by the social psychologist Muzafar Sherif. In his work on ‘The Psychology of Social Norms’ (1936/1973), Sherif argues that social norms can provide guidance and serve as reference points or comparative standards for a person in a specific situation. He uses the term “social frame of reference” (p. 44) and experimentally shows how such a frame of reference (i.e., social norm) can develop in a group situation and affect the experiences and judgments of individuals.

In his experiments, he used the autokinetic effect (a visual perceptual phenomenon) to illustrate that individuals use others as a frame of reference when making a perceptual judgement in ambiguous situations, where no external reference point or comparison standard was present. Participants’ task in the experiment was to judge the movement of a light point in a dark room, which in fact did not move but gave the impression of moving, due to a perceptual phenomenon. When individuals were alone in the room and judged the light movement, their estimations varied significantly. However, when they entered the room subsequently with one or two other persons, who likewise had judged the movement on their own beforehand, their estimates converged. Moreover, Sherif (1936/1973) analyzed the judgements of individuals, who first judged the light movement in a group situation and later individually. He found that the convergence was even stronger when individuals had not yet established their individual frame of reference, and showed that once a social frame of reference was established in a group, it also determined individuals’ subsequent private judgements.

This experiment is one of the landmark studies in the research on conformity and highlights the impact of social influence in ambiguous situations. It shows that individuals,

when the validity of a behavior is not clear, look for guidance in others and follow the decisions of a group (i.e., conform to the group norm). These group norms were privately accepted and can persist and influence the behavior of individuals even in the absence of others.

A further line of research, here exemplarily illustrated by the famous line experiments by Solomon Asch (1955, 1956), complemented the study of conformity processes in unambiguous situations. Asch tested whether individuals would even conform to an irrational norm set by a majority in a public group situation: Participants in his experiments were asked to judge the length of lines. They were shown one single line and asked to find a matching line of equal size from a set of three lines, which differed clearly recognizable in their length and of which only one matched the first line. The task was easy and obvious; control participants, who completed the task alone, gave almost 100% accurate answers (the error rate was 0.7%). In the experimental conditions, study participants were asked to express their judgements publicly in a group setting in front of 7 to 9 'other participants' after hearing the judgements of the other persons. The 'other participants' were Asch's confederates and gave intentionally the wrong answer in 12 of the 18 trials. Although the answer was obviously wrong, 76% of the participants conformed to the (wrong) answer of the majority at least once; on average, participants conformed in four of twelve times. Thus, Asch showed that people even follow irrational norms of a group when they are in a public group situation.

Building on a variation of the experiment in which study participants made their judgements silently in written form and conformed significantly less to the (wrong) answers of the majority, Asch (1956) concluded that the conformity reactions observed in the main experiment can be mainly attributed to the public nature of the setting. Thus, other than in Sherif's (1936/1973) experiment, the influence here led to public conformity but not to private acceptance.

In further exploring potential facilitators and boundaries of conformity, Asch found that the size and unanimity of the group made a difference: Varying the number of confederates in his experiment from 1 up to 15, he found that conformity increased with an increase in group size, however, only up to a group size of three (Asch, 1955). In line with this, social impact theory posits that the influence of others on an individual increases with the number of influencing agents; however, the relative impact of every additional person decreases (Latané, 1981). Moreover, the unanimity of the group in Asch's experiment was even more influential than the size of the group: When study participants had just one ally in the group, who expressed the correct answer, conformity to the false majority answer dropped

dramatically (Asch, 1955). The increase was even noticeable when one other person simply gave an answer that was incongruent to the majority opinion but also wrong (e.g., if line c was the correct match, the majority indicated a as the correct answer and one person chose b). In addition to the size and unanimity of the group, the theory of social impact (Latané, 1981) posits two further forces that determine the impact of other persons on an individual: the strength of others (in terms of their importance, power and relation to the individual) and their immediacy (in terms of their physical and temporal closeness).

Thus, it can be concluded that individuals – in ambiguous as well as in public unambiguous situations – are highly susceptible to other people's behaviors and judgements and align their own behaviors to that what establishes or shows to be the norm in a group. A question that remained open and that influenced the scientific discussion following these experiments is *why* people conform to behaviors of others. The following chapter explicates the motivations for individuals' conforming to other peoples' behaviors and describes different processes of conformity that exceed the conformity reactions shown in the face-to-face experiments by Sherif and Asch.

2.2 Motivations and Processes of Conformity

In order to gain some preliminary insights about the potential reasons underlying individuals' decisions to go conform with a group, Asch (1956) conducted subsequent individual interview sessions with the participants of his experiments. These interviews revealed that the most prominent answers of his participants referred to increasing self-doubts about their own ability to judge the lines correctly as well as the fear of being publicly shamed in front of the others and the rejection and disapproval of the group (Asch, 1956).

These reasons are basically in line with the mechanisms conceptualized in the well-established two-process model of social influence by Deutsch and Gerard (1955): Building on the different demonstrations of social influence in, for example, Sherif's (1936/1973) and Asch's experiments, Deutsch and Gerard (1955) argue that there are two distinct types of social influence, which relate to different processes and underlying motivations of conformity. Specifically, their dual-process model of influence postulates two routes to conformity, one characterized by informational, and the other by normative influence. In case of *informational influence*, individuals' conformity is characterized by their motivation to do the right thing. In order to act correctly and efficiently, other persons are used as anchor and source of information to gain an accurate interpretation of reality. This seems to have been the primary

driving factor for conformity reactions in Sherif's (1936/1973) experiments. In case of *normative influence*, individuals are primarily motivated by their desire to satisfy the expectations of others (or one's self; see Deutsch & Gerard, 1955, p. 629). This type of influence has been linked to the goal of affiliation and the motivation to be liked and accepted by others (Cialdini & Goldstein, 2004) and seems to have been operative, probably in combination with informational social influence, in Asch's experiments (Deutsch & Gerard, 1955). In this sense, conformity can be understood as a goal-driven process that is based on different desires, such as the desire to belong or to be accurate (Cialdini & Goldstein, 2004).

Similar, but not identical, motivations for conformity were identified by Kelman (1958), who has conceptualized a three-process model of social influence including different forms of private and public acceptance. He describes *compliance* as a superficial, public reaction to influence, which, like conformity to normative social influence, occurs when some individual aims to be liked or accepted by others and conforms to achieve approval or to avoid social sanctions. Compliance leads to temporal and outward changes only, not to enduring changes in behavior and beliefs. *Internalization*, in contrast, is a form of private acceptance of influence, which leads to long-lasting changes in behavior and beliefs. The decision, behavior, or attitude of others is internally adopted and conformity shows independent of others' presence or absence. In addition, Kelman discerns a third process, *identification*, which describes conformity to the norms of a socially relevant group whose membership is valued. Individuals conform when the group membership is salient because they identify as group members and therefore accept the norms as part of this group identity. An underlying goal that has been attached to this type of conformity is the desire to attain or maintain a positive self-concept (Cialdini & Goldstein, 2004).

Conformity to social norms based on the identification with a relevant social group has also been called *referent information influence* (Turner, 1982), which is grounded in social identity and self-categorization theory and differs from informational and normative social influence in that it relies on group membership rather than interpersonal dependence (Abrams, Wetherell, Cochrane, Hogg, & Turner, 1990).

Social identity theory builds on the premise that a person holds different cognitive representations of his/herself, including a personal identity, which represents the unique personal characteristics of the person, as well as different social identities, reflecting his or her belongings to relevant social groups (Tajfel, 1974; Turner & Oakes, 1986). A social identity is, however, determined by more than mere group membership: According to Tajfel (1974), it includes the knowledge about belonging to a social group as well as some form of emotional

attachment and appreciation toward the group. These social identities are established on a cognitive level by categorizing the self and others into different social categories (see self-categorization theory; Turner, 1991; Turner & Oakes, 1986). People of a specific social category as well as the categorized self, can then be perceived in a group-prototypical way, instead of as individual persons, which is called depersonalization (Hogg, Abrams, Otten, & Hinkle, 2004). When a person perceives him- or herself as a prototypical member of a social group, the norms of the group will become directive of behavior as the person acts as a representative of the respective social group and conforms to the internalized group norms. In this way, the social identity approach and self-categorization theory, characterize social influence by one single process of group influence, termed referent informational influence (Turner, 1982). Contrary to the dual process model of informational and normative social influence suggested by Deutsch and Gerard (1955), Turner (1982) argues that individuals conform to social norms of a group because they perceive themselves as a part of the group and its norms, and not because they think that others know better what is proper and correct or in order to please others. In this regard, it has been argued that “the vehicle of influence is social identification (awareness of one’s social identity as an in-group member) rather than group pressure or social comparison” (Abrams et al., 1990, p. 99). In that, other group members do not have to be physically present for this influence to occur; individuals also conform to their memorized representations of the perceived group norms (Yanovitzky & Rimal, 2006).

In sum, conformity can be a goal-driven process, determined by different motivations, such as an individual’s desire to be accurate, to be liked or accepted by others, or to attain or maintain a positive self-concept (Cialdini & Goldstein, 2004), and triggered by the salience of a relevant social identity. However, conformity is not necessarily always a conscious decision. Social influence is sometimes subtle and implicit (see Petty, 2001) or even automatic (see Dijksterhuis, 2001), and individuals can be influenced without being aware of being influenced and conform without any intention to do so (E. R. Smith & Mackie, 2016). Concerning the influence of social norms, it has been argued that “the operation of norms is to a large extent blind, compulsive, mechanical or even unconscious” (Elster, 1989, p. 100) and research has shown that conformity to a social norm can, in fact, be unintentional and nonconscious (Nolan, Schultz, Cialdini, Goldstein, & Griskevicius, 2008). In this regard, norms can be understood as *default rules*, which are activated through certain cues in the environment and guide behavior by a *heuristic route* (Bicchieri, 2006, p. 5); nevertheless,

conformity can be both, an automatic process or a deliberate choice (Bicchieri, 2006, pp. 4–7).

In the present work, the mechanisms of social norms are investigated in the computer-mediated context of SNS. Since SNS connect users to their relevant peers and provide a realm for social interactions and the sharing of information without a physical connection, it seems relevant to examine whether psychological mechanisms of the perception, formation, and influence of social norms identified in offline contexts are applicable to social media settings. Before more detailed assumptions about normative influence and the formation of normative perceptions on SNS are presented, the following chapters illustrate what is currently known about the impact of perceived social norms on behavioral outcomes and the underlying mechanisms of their influence.

3 Current Approaches in Social Norms Research

The current research on social norms in the psychological literature builds on five major theories (Shulman et al., 2017): the theory of reasoned action (TRA; Fishbein & Ajzen, 1975), the theory of planned behavior (TPB; Ajzen, 1985), the theory of normative social behavior (TNSB; Rimal & Real, 2005), the focus theory of normative conduct (Cialdini et al., 1990), and the social norms approach (Berkowitz, 2005). These approaches set different priorities in their research and can be classified into those interested in the predictive power of perceived social norms to explain variance in behavioral outcomes (TRA and TPB), those interested in the mechanisms of the norm–behavior relation (TNSB and focus theory), and those concerned with the formation and change of normative (mis-)perceptions (social norms approach).

The present chapter is structured as follows: First, theoretical propositions and empirical findings of the TPB, the TRA, and their refinements (conceptualized as the reasoned action approach, see Fishbein & Ajzen, 2010) are presented (see Chapter 3.1). These highlight the importance of normative perceptions in behavioral predictions and underline the relevance of studying mechanisms and preconditions of norm influence. In addition to the presentation of empirical evidence for the association between norms and behavior (see Chapter 3.1.1), the measurement and operationalization of the social norms component in the TPB and TRA are discussed based on the propositions of the social identity perspective and the refinements suggested by Cialdini et al. (1990) (see Chapter 3.1.2).

Subsequently, processes and mechanisms of the norm–behavior relation are presented (see Chapter 3.2) based on research building on the TNSB (see Chapter 3.2.1) and the focus theory of normative conduct (see Chapter 3.2.2). Both approaches provide insights on how and when social norms are predictive of behavior. First, mechanisms and moderators of the relation between norms and behaviors are outlined and discussed. Then, the explanatory factor of norm salience is described and discussed in more depth based on empirical findings of the focus theory of normative conduct.

The social norms approach employs a different line of research: It is concerned with (mis-)perceptions of social norms and strategies to influence these perceptions to change behavior (Berkowitz, 2005). Therefore, it is presented in the subsequent chapter concerned with the factors influencing the formation of normative perceptions (see Chapter 4.4).

3.1 Social Norms as a Predictor of Behavior

3.1.1 The Reasoned Action Approach

A theoretical framework that is widely used to study predictors of behavioral outcomes and that considers social norms as one key determinant is the reasoned action approach (Fishbein & Ajzen, 2010), which has its origins in the TRA (Fishbein & Ajzen, 1975), its extension, the TPB (Ajzen, 1985), and their refinements. The TRA originally posits that behavioral intentions can be essentially predicted by a person’s personal attitudes, on the one hand, and his or her subjective norms, on the other hand. While attitudes are determined by a person’s beliefs about and evaluation of potential outcomes of performing the behavior, subjective norms are defined as the perceived normative pressure that originates from a person’s perception that important others would want her or him to perform the behavior and his/her motivation to comply with these expectations. Behavioral intentions, in turn, are conceptualized as a direct predictor of the actual behavior (Fishbein & Ajzen, 1975). That is, it is anticipated that attributes of the person, in terms of his/her attitudes, as well as social processes, in terms of normative influence, affect the intentions to engage in a behavior.

In the TPB, perceived behavioral control was added as a third predictor to the model, conceptualized as a person’s perception of how much the performance of the behavior is under his/her control. Depending on how much people can differ in the degree of control that they have over performing a behavior, taking perceived control into account as a proxy for the actual control a person has over performing the behavior was expected to increase behavioral

predictions (Ajzen, 1985; Ajzen & Fishbein, 2005). According to Ajzen and Fishbein (2005), there is good empirical evidence that the explained variance in behavior, in fact, increases, when control perceptions are included in the prediction (see meta-analysis by Armitage & Conner, 2001).

3.1.2 Empirical Support for the Influence of Subjective Norms on Behavior

Overall, the reasoned action approach has been applied to numerous domains and is a pervasive, well-established, and empirically approved theoretical framework concerned with understanding, predicting, and changing behavior (Ajzen, 2012).

With regard to the impact of subjective norms on explaining behavioral outcomes, research findings are generally in line with the theoretical predictions, finding a distinct proportion of variance in behavioral intentions explained by subjective norms; however, the effects of the social norm component are typically rather small (e.g., Armitage & Conner, 2001; Godin & Kok, 1996; Trafimow & Finlay, 1996): A meta-analysis of 56 studies using the TPB framework in the context of health behaviors (e.g., addictive practices, such as alcohol or drug consumption, hygiene behaviors, eating habits, exercising etc.) revealed that subjective norms were overall a weaker predictor than attitudes and behavioral control perceptions (Godin & Kok, 1996). While attitudes as well as perceived behavioral control were, on average, correlated with behavioral intentions at .46, the average correlation between intentions and subjective norms was only .34. Moreover, the relationship between subjective norms and behavioral intentions was only significant in half as many applications examined in the analysis, as it was for attitudes and behavioral control (Godin & Kok, 1996). However, the strength of the relationships varied by behavioral domain, showing, for example, for the norm–intentions relations, that the correlation coefficients were highest for driving (.48), oral hygiene (.42), and HIV/AIDS-related behaviors (.43) and lowest for eating (.16). Trafimow and Finlay (1996), in addition, showed that the impact of subjective norms on behavioral intentions not only varies with the type of behavior, but also in individuals. On the basis of survey data ($N = 148$), including behavioral intentions, attitudes, and subjective norms regarding 30 randomly selected behaviors, they found – although acknowledging the overall lower effects of subjective norms compared with attitudes on behavioral intentions – that their study participants differed in how much weight they attach to normative and attitudinal aspects. For some participants (albeit only 21%), the correlation between subjective norm and intention was greater than the attitude–intention correlation. For these persons, including

subjective norms in the prediction of behavioral intentions adds a large proportion to the explained variance. Similar analyses for behaviors from the health domain support these results and additionally show that individuals who are predominantly controlled by normative considerations have higher intentions to behave healthily than do individuals under high attitudinal control (Finlay, Trafimow, & Jones, 1997; Finlay, Trafimow, & Moroi, 1999). In line with this, research on exercising behavior revealed fear of negative evaluation as a significant moderator in the norms–intentions relationship (Latimer & Martin Ginis, 2005), highlighting that subjective norms were significant predictors of behavioral intentions only for individuals who are generally concerned with what opinions others hold of them.

3.1.3 Criticism and Refinements of the Conceptualization of Norm Influence in the TPB/TRA

On the basis of a large meta-analysis, including 161 published articles on behavioral predictions in the realm of the TPB framework that revealed generally weak effects of subjective norms, Armitage and Conner (2001) argue that the weak effects of subjective norms found throughout the literature can be, at least partially, explained by two aspects: their poor measurement and their insufficient conceptualization as normative influence. With regard to the first aspect, they emphasized that subjective norms were often measured by one-item scales, which had significantly weaker correlations with behavioral intentions than did multi-item measures. Regarding the second aspect, it was discussed that the operationalization of subjective norms as directly perceived social pressure might neglect important aspects of more indirect and subtle forms of social influence. In fact, this issue was raised previously, for example, by Terry and Hogg (1996), who argue that it would be more in line with the basic social psychological conceptualization of norms to measure them not in terms of how much a person thinks that important others expect her/him to perform the behavior, but in a broader sense, including the perceptions of the behaviors and attitudes of other members of the group.

Building on the social identity perspective, Terry and Hogg (1996; see also Terry, Hogg, & White, 2000) criticize the conceptualization of subjective norms for its limitation to capture only influence that builds on the aspect of pleasing the expectations of external others, and suggest a shift from focusing on external pressure only to examining also internal forces of norm influence (see also Reynolds, Subašić, & Tindall, 2015). In addition, a substantial theoretical difference between the understanding of normative influence in the TPB framework and the social identity approach is that the latter is concerned with the norms of a psychologically relevant social *group* while the former instead measures the cumulated

normative influence of *individual persons* viewed as important (Terry & Hogg, 1996). Regarding this aspect, the TPB does not consider that individuals might differ in their level of identification with the different referent groups and persons that are considered important for an individual, and that the perceived norms of some important groups or persons will have an effect on behavioral outcomes, while others do not (Terry et al., 2000).

Empirically, in a study on the predictors of sun protective behaviors, Terry and Hogg (1996) showed that when the norm of a reference group (conceptualized as “friends and peers at university,” p. 786) and the level of identification with that group were measured in addition to the TPB variables (attitude, subjective norms, and behavioral control), the reference group norm was predictive of behavioral intentions for high levels of identification. Attitudes were more predictive at low levels of identification with that group, and subjective norms, measured across different referents (“boyfriend/partner, parents, other family members, doctor/medical groups,” p. 786), did not affect intentions. This significant interaction effect between a reference group norm and identification with the reference group in the direction outlined above (significant influence of reference group norms on behavioral outcomes for individuals who highly identify with the respective group) has also been found for other outcome behaviors such as household recycling (Terry, Hogg, & White, 1999; K. M. White, Smith, Terry, Greenslade, & McKimmie, 2009).

In addition, building on the argument that important others can also be members of the psychologically and behaviorally relevant reference group, Bodimeade et al. (2014) investigated indirect effects of reference group norms (for the group of students of the same university) on behavioral outcomes via subjective norms. For the context of sun protective behavior, the authors found support for the assumed mediation: Results revealed a significant indirect effect of reference group norms on behavioral intentions via the descriptive subjective norm. Bodimeade et al. (2014) interpreted this finding as follows: “Whenever significant others come from salient referent groups, subjective descriptive norms in particular may mediate effects of group norms” (p. 747). With regard to the reconceptualization of the normative component in the reasoned action framework, taking the perceived norm of a psychologically salient and behaviorally relevant reference group into account might explain some of the variance in behavioral outcomes that has previously been undetected.

In addition to the critique from advocates of the social identity perspective, the reasoned action approach was influenced by related work from the field of social influence research, especially by the research of Cialdini and colleagues (e.g., Cialdini et al., 1990), who proposed a distinction between two different meanings of social norms: As a reaction to

the critics, who judged the concept of social norms as too generic and abstract for empirical research (see Darley & Latane, 1970; Krebs, 1970; Krebs & Miller, 1985; Marini, 1984; cited by Cialdini et al., 1990), Cialdini and his colleagues proposed a refinement of the term by emphasizing a distinction between descriptive and injunctive norms, two “conceptually and motivationally distinct” (p. 1015) types of social norms, and their mutual consideration for the prediction of behavior (see Chapter 1.1.1). The distinction between descriptive (i.e., what other people do) and injunctive (i.e., what other people approve of) norms and the necessity to extend the subjective norms component in the reasoned action framework by the element of descriptive norms was recently acknowledged by Ajzen and Fishbein (2005; see also Fishbein & Ajzen, 2010), who recognize that the perception that important others are themselves engaged in a behavior (i.e., descriptive norms) can also lead to perceived social pressure. They describe their original conceptualization of subjective norms as only injunctive in nature and recommend that it should be extended by the perceived descriptive norm component. Cialdini and colleagues’ characterization of injunctive norms, however, differs from Fishbein and Ajzen’s (2010) subjective norms, in that the former refers to the perception of how much others socially approved or disapproved of a behavior, while the latter describes the perception of how much important others would want the person to perform the behavior. This had led to some confusion in the literature because the concepts are sometimes equated and sometimes treated differently (Park & Smith, 2007). Park and Smith (2007) argue that “pressure from one’s reference groups (i.e., subjective norms) can be differentiated from approval (i.e., injunctive norms) and popularity (i.e., descriptive norms)” (p. 198), and empirical support for the distinctiveness of these concepts and their different effects was shown for the context of organ donation behavior (Park & Smith, 2007) as well as for alcohol consumption (Park, Klein, Smith, & Martell, 2009). However, only few studies have distinguished all three concepts (see for exceptions, S. Kim, Lee, & Yoon, 2015; Paek, Oh, & Hove, 2012; Rimal & Mollen, 2013). Many studies have, however, incorporated measures of perceived descriptive norms in the TPB framework and meta-analyses have shown that, across different behavioral domains, descriptive norms significantly predict behavioral intentions (Rivis & Sheeran, 2003) as well as behavior (Manning, 2009). Rivis and Sheeran (2003) emphasize that descriptive norms significantly increased the explained variance in behavioral intentions even after attitudes, perceived behavioral control, and subjective norms had been controlled for. In addition, Manning (2009) showed that descriptive norms are directly linked to behavior and that this relation is stronger than the relation between behavior and the injunctive norm component. These findings reveal that descriptive norms can

strengthen the prediction of behavioral outcomes; however, they also highlight that the effects of descriptive and subjective/injunctive norms differ and provide unique contributions to the explained variance. Thus, they should not be confused in one concept of “total social pressure” (Fishbein & Ajzen, 2010, p. 131), but treated separately (Manning, 2009). This would also be in line with Cialdini’s conceptualization of descriptive and injunctive norms (Cialdini et al., 1990, see above).

3.2 Processes and Mechanisms of the Norm–Behavior Relation

3.2.1 The Theory of Normative Social Behavior (TNSB)

In their theory of normative social behavior, Rimal and Real (2005) build on the distinction between descriptive and injunctive norms (Cialdini et al., 1990; see Chapter 1.1.1) and propose a model to describe the mechanisms and determinants under which social norms affect behavior. Being communication scholars, Rimal and Real (2005) saw a need to investigate the underlying mechanisms in the *descriptive norms*–behavior relation, because most norm-based communication campaigns focus on descriptive normative perceptions in their attempts to change behavior (for more details on social norms campaigns, see Chapter 4.4). Therefore, they suggested a model that conceptualizes descriptive norms as a primary predictor of behavior and posits three normative mechanisms that moderate the relation between descriptive norm perceptions and behavioral outcomes: injunctive norms, operationalized as perceived social approval, outcome expectations, and group identity (Rimal & Real, 2005).

The TNSB was mostly applied to health-related research, especially research on substance use such as young adult drinking behavior, and was suggested as a framework for the creation of social marketing campaigns (Mabry & Mackert, 2014). The model is, however, compatible with a wider range of other behavioral contexts, as it has already been applied to, for example, yoga practice (Rimal, Lapinski, Cook, & Real, 2005), water conservation (Lapinski, Rimal, DeVries, & Lee, 2007), and energy conservation behavior (Göckeritz et al., 2010). Several studies have tested the theoretical assumptions of the TNSB as well as the effects of potential further moderators in the descriptive norms–behavior relation (see Rimal & Lapinski, 2015). In the following, the key findings concerning the three normative mechanisms of the theory (injunctive norms, outcome expectations, and group identity) will be summarized with special emphasis on two aspects: the proposed moderation effect of

injunctive norms in the descriptive norms–behavior relation and the role of identification with the normative reference group, which is enhanced by the aspect of group proximity.

The Interaction Between Descriptive and Injunctive Norms

Injunctive norms are understood in the TNSB as an independent source of normative influence, which can strengthen the impact of a descriptive norm on behavioral outcomes, in a way that the influence of a perceived high descriptive norm is intensified when a high level of behavioral approval (i.e., injunctive norm) is perceived. The greatest normative influence is expected when both norms – descriptive and injunctive – are high and unidirectional, for example, when a behavior is perceived to be popular (performed by many others) and not engaging in this behavior is believed to be punished by social sanctions (Rimal & Real, 2005).

That the inclusion of both descriptive and injunctive social norms in a model to predict behavior can increase the explained variance has already been discussed in the previous section in the context of the reasoned action approach (see Chapter 3.1.2). The TNSB, however, investigates the interaction between descriptive and injunctive norms as a mechanism for normative influence. Empirical investigations of this interaction in the context of college drinking have, however, revealed mixed results: Some found support for the interaction effect proposed in the TNSB (i.e., intensified influence of a high descriptive norm when perceived approval is high, e.g., Foster, Neighbors, & Krieger, 2015), while others found a negative correlation between social approval perceptions and drinking intentions and a disordinal interaction with high descriptive norm perceptions affecting drinking when low approval is perceived (Rimal & Real, 2003), or no interaction at all (Rimal & Real, 2005). The three example studies, however, used different items to assess injunctive norms. While Foster et al. (2015) asked for the perceived acceptability of drinking among students, Rimal and Real (2003) asked for the general approval of drinking behavior in the society at large. In their study from 2005, the measure also included an item about the approval of drinking by the university administration (Rimal & Real, 2005). This global operationalization of injunctive norms, assessed for people in the societal and the university context in general does not match the operationalization of the descriptive norm, which referred to perceived prevalence of drinking among students. Thus, it seems more likely to find the predicted interaction (i.e., stronger influence of positive descriptive norms on behavioral outcomes for high positive injunctive norms) when the perceived prevalence and approval of a behavior are measured for the same reference group.

The interplay of (conflicting) descriptive and injunctive norms has also been examined for other behavioral contexts in correlational as well as experimental studies with incongruent results: Some studies showed that a supportive injunctive norm had a positive influence on behavioral outcomes even when the descriptive norm was not supportive (e.g., for sun protective behavior, Bodimeade et al., 2014; or for signing a petition, J. R. Smith & Louis, 2008, Study 1). Others found that a supportive injunctive norm only increased behavioral outcomes when also the descriptive norm was supportive; in other words, when the descriptive norm was low or not supportive of behavior, a supportive injunctive norm was largely ineffective (e.g., for conservation behavior, Göckeritz et al., 2010; energy conservation, J. R. Smith et al., 2012; or for signing a petition, J. R. Smith & Louis, 2008, Study 2). These latter findings are, however, in contrast to findings of Reno et al. (1993, Study 1), which showed that an anti-littering injunctive norm prevented undesirable effects of pro-littering descriptive norm cues in the environment.

Bodimeade et al. (2014) suggest that the interaction pattern might be dependent on the difficulty of the behavior, in that supportive aligned descriptive and injunctive norms are needed to affect behavioral outcomes for more difficult tasks (such as conservation behavior compared with sun protective actions). J. R. Smith and Louis (2008) attribute their different findings for the same type of behavior (signing a petition) to the relevance of the topic: When the issue was fictitious and of low personal relevance, effects were only found when both descriptive and injunctive norms were supportive.

The rationale behind expecting descriptive norms as a direct source of normative influence on behavioral outcomes and injunctive norms as a moderator is, however, worth questioning. Since the decision was based on practical reasons from a communication practitioner perspective rather than on a deeper theoretical argument, and empirical findings regarding the proposed mechanisms are inconclusive, descriptive and injunctive normative perceptions are probably better conceptualized on an equal level in the model as two distinct sources of influence that can have independent direct effects as well as a combined influence on behavior. Indeed, this seems to be in line with more recently proposed theoretical frameworks of normative influence (A. Chung & Rimal, 2016). In addition, recent work also considers subjective norms from the TPB framework as an additional normative predictor of behavioral outcomes (e.g., A. Chung & Rimal, 2016; Rimal & Mollen, 2013).

Outcome Expectations

In addition to the interaction between the different dimensions of social norms, outcome expectations have been investigated as explanatory mechanisms in the relation between descriptive norm perceptions and behavioral intentions. Building on the premise that individuals are more likely to engage in a behavior when they expect positive benefits, it is proposed that outcome expectations increase the impact of descriptive norm perceptions on behavioral outcomes, in that behavioral intentions are higher when outcome expectations are positive *and* the perceived prevalence of the behavior is high (Lapinski et al., 2007). It is reasoned that, when positive outcomes are expected for a behavior and the behavior is perceived as highly prevalent among others, behavioral intentions will increase because individuals' might fear missing a potential advantage if they are not taking part (Lapinski & Rimal, 2005). For the context of alcohol consumption by college students, Rimal and Real (2005) proposed three dimensions of outcome expectations: perceived benefits to the self, perceived benefits to others, and anticipated socialization (i.e., the belief that drinking increases social life experiences). Based on a survey completed by incoming students, their analyses revealed that students' drinking intentions were positively associated with perceived benefits to the self as well as anticipated socialization. The impact of these predictors was moderately increased when students perceived college drinking to be prevalent (high descriptive norm perception), which is in line with the assumptions of the TSNB (Rimal & Real, 2005). Moreover, Rimal et al.(2005) found that individuals who read about positive benefits of yoga and perceived the prevalence of practicing yoga as high, had greater intentions to initiate the practice of yoga.

Group Identity and Proximity of the Reference Group

Group identity is characterized in the TNSB by individuals' perceived similarity to other group members and their aspirations to be like them (Rimal & Real, 2005). It is proposed that when an individual believes that a behavior is highly prevalent among members of a group that he or she highly identifies with, intentions to engage in the behavior are expected to increase or likewise decrease when the prevalence is perceived as low, while behavioral intentions will be unaffected by descriptive normative perceptions when identification with the group is low (Rimal & Real, 2005). Empirical findings revealed that perceived similarity to other university students as well as the aspiration to emulate them were significantly related to drinking intentions (Rimal & Real, 2005). Moreover, and in line with the TNSB, a weak interaction between similarity and descriptive norm perceptions was found,

indicating that the positive relation between a high perceived prevalence of drinking among students and one's own drinking intentions is stronger when a high level of similarity is perceived between the self and other students. For the context of yoga, similarity with other yoga practitioners did not directly, or in interaction with a perceived descriptive norm, affect the intention to start with practicing yoga. However, when yoga was perceived to be highly prevalent and other practitioners to be similar to the self, participants were more confident that they could practice yoga (Rimal et al., 2005).

The moderating influence of identification with a group is also central to the conceptualization of normative influence from the social identity perspective. According to the social identity theory, the influence of social norms on individuals' behaviors proceeds internally based on a process of self-categorization (Reynolds et al., 2015). In this regard, the social norms of a reference groups can have a substantial impact on group members' behaviors for individuals who categorize themselves as members of the group and highly identify with it (Terry & Hogg, 1996).

This interaction has been empirically investigated in prior work, showing a stronger relation between social norm perceptions and behavior for individuals who highly identify with the reference group (e.g., for alcohol consumption, Neighbors et al., 2011; Reed, Lange, Ketchie, & Clapp, 2007; for exercising and sun protection, Terry & Hogg, 1996; or for household recycling, Terry et al., 1999; K. M. White et al., 2009). For the context of alcohol consumption, Rinker and Neighbors (2014) examined the effects of perceived descriptive drinking norms on drinking behavior as a function of different dimensions of group identification. Specifically, they assessed aspects of group importance, commitment, deference, and superiority and found significant interactions between descriptive norms and group importance, commitment, and deference. A high prevalence of drinking was significantly associated with drinking for students who perceived the group to be highly important, were highly committed to the group, or showed low deference to leaders of the group. In addition, it was shown that group identification moderated the influence of drinking norms on drinking behavior for different levels of proximity of the reference group (e.g., same-sex student or same-race student, Neighbors et al., 2010). Similar patterns were found for marijuana use for students who identified strongly with other users (Neighbors, Foster, Walker, Kilmer, & Lee, 2013).

Moreover, a consistent line of research has shown that the influence of normative perceptions of the reference group varies with the proximity of the group (e.g., Borsari &

Carey, 2003; Cho, 2006; LaBrie, Hummer, Neighbors, & Larimer, 2010; Neighbors et al., 2007). In order to provide a systematization of different reference groups, it has been suggested to classify them by social domain, type of group, or functions (Grote & Hall, 2013). Based on these dimensions, different reference groups can be distinguished along: (a) the contexts they stem from, for example, family, work, education, friends; (b) the type of group, in terms of whether the group compasses a combination of people one knows or whether the group represents an abstract category, such as “students”; and (c) their functions, which can vary between normative, comparative, and supportive (Grote & Hall, 2013). According to reference group theory (see Hyman, 1960), the normative function describes how groups serve as a frame of reference and represent sources for norms of attitudes and behaviors, while the comparative function reflects that group members can serve as a rule to evaluate the personal standpoint.

For the context of drinking behavior, it was shown that norms of friends were more predictive than norms of other students (Cho, 2006; LaBrie et al., 2010). Moreover, Neighbors et al. (2008) found that injunctive norms of more distal reference groups (e.g., students) were even negatively related to alcohol consumption, while their descriptive norms were, however, positively related. Larimer et al. (2009) found that perceived descriptive drinking norms of more specific and closely related reference groups (such as students of the same gender, race, and residence) significantly predicted undergraduate students’ drinking behavior and explained a unique amount of variance, in addition to the perceived drinking norms of the “typical student.” Sometimes the perceived norms of the peer group (e.g., other students) differ from the perceptions about the prevailing norms of friends or family members. For the context of gambling behavior, it was shown that perceived approval of gambling by other students was negatively related to actual gambling behavior, while perceived approval of friends and family was positively related to gambling (Neighbors et al., 2007). For smoking behavior, an important source of influence is also whether the romantic partner smokes and approves of smoking (Etcheverry & Agnew, 2008). For the context of exercising, descriptive and injunctive norms of proximal peers seem to be more important than more distal peer norms (Yun & Silk, 2011).

In addition, research has shown that the impact of social norms varies as a function of the physical proximity or geographical closeness of the reference group (e.g., for charitable donations, Agerström, Carlsson, Nicklasson, & Guntell, 2016; hotel towel reuse, Goldstein, Cialdini, & Griskevicius, 2008; or energy reduction, Loock, Landwehr, Staake, Fleisch, & Pentland, 2012). Normative information about more proximate referents (e.g., people in the

neighborhood) seems to have a stronger influence on norm-congruent behavior than information about the norms of more distal groups (e.g., Looock et al., 2012).

Further Moderators of the Norm–Behavior Relation

Several additional moderators and refinements of the model have been proposed throughout the literature in applications of the TNSB in empirical studies. In addition to identification with the reference group, as discussed earlier, social support was revealed as a significant moderator of the relation between college students' (descriptive) drinking norms on their drinking behavior (Cullum, O'Grady, Sandoval, Armeli, & Tennen, 2013). Cullum and colleagues found that perceived drinking norms were significantly associated with drinking behavior for students reporting low perceived social support, but not for students who perceived higher social support.

Moreover, research has addressed the role of interpersonal communication with peers in normative influence processes (e.g., Geber, Baumann, & Klimmt, 2017; Holman & Sillars, 2012; Real & Rimal, 2007). For the context of drinking behaviors among students, Real and Rimal (2007) showed that the perceived prevalence of alcohol use among peers is more likely to influence individuals' drinking intentions when they talk a lot about alcohol consumption with their friends. Furthermore, the study revealed high correlations between peer communication and descriptive norms, which indicates that communicating with friends about alcohol is associated with higher perceptions of descriptive drinking norms among students (Real & Rimal, 2007). In this regard, Geber et al. (2017) argued for the inclusion of peer communication as a precondition for norm influence and as a predictor of normative perceptions. A similar suggestion was made by Mabry and Mackert (2014) with regard to media exposure. Specifically, they proposed to incorporate media effects in the TNSB model as direct predictors of descriptive norms and of the moderator variables. The impact of communication, social interaction, and media influences on normative perceptions will be discussed in more detail in Chapter 4.

Further research enhancing the TNSB showed that issue familiarity significantly moderates the relation between descriptive norms and behavioral intentions (Rimal & Mollen, 2013): Descriptive normative perceptions significantly increased drinking intentions for individuals who were highly familiar with drinking, while the effect was not significant for students who were less familiar with drinking issues (Rimal & Mollen, 2013). In addition, it was proposed that ego involvement has an impact on how individuals' behavior will be influenced by norms (Lapinski & Rimal, 2005). It was argued that persons for whom the

behavior is highly linked to self-concept, the influence of positive descriptive norms will be stronger. Empirical evidence for the college drinking context can be found in Rimal, Real, and Morrison (2004), who showed that the effect of perceived drinking prevalence (descriptive norms) on drinking behavior was stronger for students who identified themselves as “drinkers.” For the context of pro-environmental behavior, group orientation – defined in terms of how important group benefits are in comparison with self-benefits – was found to be a relevant moderator of the descriptive norm–behavioral intentions relation in the context of water conservation (Lapinski et al., 2007). Moreover, high personal involvement was found to increase the impact of normative perceptions on conservation intentions (Göckeritz et al., 2010).

An overview of many recent refinements of the model with its proposed moderators can be found in the review article by A. Chung and Rimal (2016), who have clustered potential moderators in the norm–behavior relation in three categories: attributes of the behavior (e.g., cost, privacy), attributes of the individual (e.g., group involvement, ego identity), and attributes of the context (e.g., time constraints, ambiguity). In addition to these factors that can strengthen or weaken the impact of norm influence, a pivotal factor for the influence of social norms that can explain why the degree of the impact that norms have on behavioral outcomes can differ from time to time or from case to case is norm salience. Norm salience is the key component of the focus theory of normative conduct, which will be explicated in detail in the following chapter.

3.2.2 Salience and Activation of Social Norms: The Focus Theory of Normative Conduct

With the focus theory of normative conduct, Cialdini and colleagues (1990) proposed a framework for studying norm influence on behavior that builds on the distinction between descriptive and injunctive norms (see above) as two independent sources of influence and the importance of norm salience in explaining human behavior. Besides the refinement of the norm concept, the primary proposition of the focus theory stresses the importance of norm salience for behavioral effect, that is, a norm should be focal in the moment of acting, to affect behavior. According to Cialdini et al. (1990, p. 1015), a social norm will “primarily” affect behavior when it was activated first. Thus, from this conceptualization, norm salience is understood as a key driving factor for norm influence.

Cialdini and colleagues tested their focus theory of normative conduct in a series of field experiments on littering behavior, in which they manipulated their study subjects’ focus

on a descriptive or injunctive norm toward littering and observed their subsequent littering behavior (Cialdini et al., 1991, 1990; Kallgren et al., 2000; Reno et al., 1993). In these studies, different techniques were proposed to activate a descriptive norm of littering (i.e., what other people do) or an anti-littering injunctive norm (i.e., what is dis-/approved), and their individual and combined effects in different combinations and settings were tested.

For example, Cialdini et al. (1990, Study 1) manipulated the descriptive norm of littering in the environment, operationalized by a littered (pro-littering norm) or a clean setting (anti-littering norm), and used a focusing procedure to increase the salience of the respective norm by exposing study subjects to a confederate, who either littered in the environment or just walked by. In line with their expectations, the experiment revealed a significant interaction effect, indicating that littering behavior by participants was increased when the descriptive norm was perceived as pro-littering (littered environment) and salient (observed in the confederate's behavior). Moreover, they argue, based on a (nonsignificant) trend in their data, that the observation of a littering person in an otherwise clean environment would focus individuals on the anti-littering descriptive norm and lead to a reduction in littering by highlighting that this person's behavior reflects an exception from what is typically done in the situation. In a follow-up study, using a different procedure of inducing norm focus, Cialdini et al. (1990, Study 3) found support for this claim: They could show that exposing subjects to one prominent piece of litter in an otherwise clean environment reduces littering significantly compared with behavior observed in a completely clean or completely littered setting.

In order to activate the injunctive anti-littering norm, Cialdini et al. (1990, Study 5) used a cognitive priming technique: They printed handbills with messages that either promoted the injunctive anti-littering norm (i.e., that littering is not approved), a closely related norm (e.g., recycling), a more distantly related norm (e.g., voting), or no norm at all (control message). These handbills were pinned on parking cars and it was observed that significantly more flyers with the control message were littered than flyers that stated the anti-littering norm. Moreover, a significant linear trend was observed, revealing an increase in littering for priming of more distantly related injunctive norms.

Using a similar priming procedure of the injunctive anti-littering norm by exposing study participants to short diary excerpts about closely, moderately, or distantly related norms, Kallgren et al. (2000, Study 1) extended prior findings by revealing a significant interaction between norm relatedness and physical arousal: The significant linear trend (i.e., increase in littering for priming of more distantly related norms) was only found when participants were

physically aroused. Based on this, Kallgren and colleagues argued that arousal functions as a norm-focusing procedure and that high arousal leads individuals to focus more intently on normative cues.

In addition to this rather explicit exposure to normative information (in the form of written messages on flyers or in diary excerpts), other field tests (Kallgren et al., 2000; Reno et al., 1993) employed a modeling procedure to induce focus on the injunctive norm, similar to the procedure described above for the descriptive norm focus: By exposing study subjects to a confederate who picked up a piece of litter, it was argued to communicate clear disapproval of other persons' littering (Reno et al., 1993). Using this manipulation of the injunctive norm focus, Reno et al. (1993, Study 2) found a significant decrease in littering behavior, compared with subjects who merely saw the confederate walking by. Moreover, this effect even persisted when the opportunity to litter was temporally and spatially lagged, that is, when subjects observed the confederate's behavior in another environment prior to entering the parking lot with the handbills on their cars.

All these experiments support the assumptions made in focus theory and show that the influence of descriptive as well as injunctive norms substantially increase when they are made salient. An interesting question, however, pertains to the interplay of descriptive and injunctive norms. Building on the premise that the injunctive anti-littering norm is widely held in American society, Cialdini et al. (1990) claim, based on their first studies, that a heightened focus on the contradictory descriptive norm increases conformity to the pro-littering descriptive norm. However, the authors do not suggest that descriptive norms are more influential than injunctive norms; instead they argue that, in order to determine a behavioral reaction, it is essential to know which norm is more salient in the moment of acting.

Further empirical support for this claim was offered by Reno et al. (1993), who report an experiment that compares the impact of descriptive and injunctive norms. In this study, Reno et al. (1993, Study 1) tested the influence of the descriptive and injunctive norm focus procedure in a littered versus clean environment and found that, in line with their predictions, a heightened focus on the descriptive norm increased littering in the littered environment compared with the clean setting, but under a high injunctive norm focus, subjects hardly littered at all, independent of the environmental cues. Thus, it was shown that when conflicting descriptive and injunctive norm cues were present, the more salient anti-littering injunctive norm was more predictive of behavior. Moreover, the study revealed a potential weakness of descriptive norm cues: In contrast to prior findings and the assumption of the

focus theory, that a heightened focus on the descriptive norm increases the respective behavior, this study showed the highest littering rate in the control group (low norm salience). The authors explain this finding by the fact that participants, in this study, did not observe the exact same behavior (the confederate littered a paper bag instead of the flyer). Thus, in order to increase the salience, and thereby the impact, of a descriptive norm, it seems important to highlight the exact same behavior, while the priming procedure of the injunctive norm has shown that even the activation of similar norms can be influential. In addition, Reno and colleagues (1993) found that the descriptive norm focus only affected behavior when the behavior occurred in the same setting, while a salient injunctive norm remained effective in a different setting.

To summarize, Cialdini and colleagues provided a compelling agenda of research in support of the norm focus theory: They showed that descriptive and injunctive social norms can be activated by procedures of exposure to behavioral models, cues in the environment, or priming approaches and that the norm that is more salient in the moment of acting seems to be predictive of behavior. In addition, injunctive norms appear to operate on a more general level, while for the influence of descriptive norms, the concreteness of the described behavioral act and its situational context seem more important. In sum, the experiments show that social norms have a pervasive impact on behavior when their salience is temporarily increased.

Further support for the importance of norm salience stems from Rhodes and colleagues' work on norm accessibility: Defined as the speed with which an individual brings normative perceptions to mind – independent of any particular cues in the environment – Rhodes and Ewoldsen (2009) measured the accessibility of injunctive smoking norms with a reaction time task and showed that highly accessible norms in favor of smoking were positively associated with smoking behavior. Moreover, the norm accessibility measure accounted for a significant amount of variance in college students' smoking behavior over and above that of attitude accessibility, and was a better predictor than the traditional measure of subjective norms. In another study with an adolescent sample, Rhodes, Ewoldsen, Shen, Monahan, and Eno (2014) measured injunctive norm accessibility separately for peer norms and family norms for four different risk behaviors (smoking cigarettes, smoking marijuana, drinking alcohol, and sexual activity). Across behaviors, peer and family norm accessibility was significantly related to risky behavior in addition to attitude accessibility. Moreover, the accessibility of family norms in favor of risky behavior was related to behavioral intentions.

In addition, Rhodes, Roskos-Ewoldsen, Edison, and Bradford (2008) examined the influence of accessible smoking norms and attitudes with regard to the processing of anti-smoking advertisements and found that smokers with highly accessible pro-smoking norms made fewer comments about central points of the message and more about peripheral features, indicating a rather peripheral processing of the advertisement and avoidance of the anti-smoking arguments. Thus, this line of research shows that norms vary in their level of chronic accessibility (i.e., how accessible the norm is in general, independent of situational primes) and that chronically accessible norms can be eminently predictive of behavior and influence the processing of behavior-relevant information. Drawing on social identity theory, Rhodes and Ewoldsen (2013) argue that norms of relevant social reference groups, important for self-concept, are more likely to be highly accessible than norms of less relevant groups. If norms are less chronically accessible, individuals might draw inferences from cues in the environment (Rhodes et al., 2014).

This research highlights that individuals' *perceptions* about what is typical (descriptive norms), approved (injunctive norms), or expected (subjective norms) can have a pervasive impact on their behaviors – especially when the normative perceptions are activated by cues in the environment or more chronically accessible. The experiments conducted in the realm of the focus theory of normative conduct have shown that social cues, such as other persons conducting the behavior or evidence of the behavior by others based on cues in the physical situation, can draw attention to social norms. What is missing in the literature review to date, and which will be presented in the next chapter, is a more detailed view on how individuals gain their perceptions of social norms in the first place and how these perceptions might be affected. In this regard, it is important to distinguish between the perception of a norm and its level of accessibility. For example, an individual might have a pro-littering normative perception (i.e., the belief that littering is typical and approved by others), an anti-littering normative perception (i.e., the belief that littering is not typical and disapproved by others), or no specific perception about littering norms. In addition, these normative perceptions can be more or less accessible.

The following sections present a systematic view of the sources of norm perceptions and processes by which these are acquired. Thereby, specific emphasis is placed on communication and social interaction processes as well as on media environments as sources of norm perceptions, as these are of specific relevance for the present work.

4 The Formation of Normative Perceptions

As outlined previously (see Chapter 1.1.2), this work focuses on the subjective perspective on social norms and builds on the argument that the influence of social norms on the individual level is substantially determined by an individual's *perception* about what is normative in his/her reference groups or among his/her important others. Since the perception of social norms is a dynamic process, individuals form and modify their impressions about the norms of their relevant groups through the continuous interactions with group members as well as through the reception of information about the groups (Tankard & Paluck, 2016). In the following sections, the key sources of normative information and the processes involved in the formation of norm perceptions are presented. In this regard, social cognitive theory and the mechanisms of social learning and social modeling will be introduced as a theoretical framework. Moreover, theoretical approaches addressing effects of normative messages and media exposure on normative perceptions and influence are presented and discussed.

First, mechanisms of deriving normative information from the social contact with other people are described, which can involve communication processes (see Chapter 4.1) as well as the observation of others' behaviors (see Chapter 4.2). Moreover, information about social norms can be received from external sources. For example, social norms can be signaled through institutions (e.g., schools, state, mass media; Tankard & Paluck, 2016) and perceived through *social exposure* to cues in the physical and media environments (Mead, Rimal, Ferrence, & Cohen, 2014). In this regard, it will be presented how normative information can be communicated in the media and how media exposure can contribute to the perception of social norms (see Chapter 4.3). In addition, explicit information about social norms can be received from summary information about the group, for example, presented in media reports or marketing messages (Tankard & Paluck, 2016). This is, for instance, used in the context of the social norms approach as a strategy to correct misperceptions of norms (see Chapter 4.4).

4.1 Social Interaction and Communication Processes

As social norms are negotiated and learned through communication and social interaction in the respective reference network (Rimal & Lapinski, 2015), these processes are pivotal to the formation and development of social norms on the collective level and key to shaping normative perceptions on the individual level (e.g., Yanovitzky & Rimal, 2006).

According to Lapinski and Rimal (2005), communication theories, such as the diffusion of innovation and the uncertainty reduction theory, illustrate the important function of interpersonal communication in the context of norm perception and influence, as norms could be verbally dispersed through networks by opinion leaders (as suggested by the diffusion of innovation theory) or transmitted through different forms of communication strategies proposed for uncertainty reduction.

There are several ways in which communication and interaction with other persons can facilitate the perception and acquisition of social norms. Normative information in interpersonal communication can, for example, vary in their level of explicitness (Geber et al., 2017). On the one hand, individuals might learn about the prevailing norms in a social group by directly communicating with other group members about what is appropriate or typical, for example, by asking others about the normative regularities in the group. On the other hand, information about norms can be implicitly interwoven in conversations and discussions (Geber et al., 2017).

In this regard, research has shown that peer communication in general is a significant moderator of the norms–behavior relation and highly correlated with descriptive norm perceptions (Real & Rimal, 2007). Moreover, Geber et al. (2017) argue that peer communication should be conceptualized as a precondition for norm influence rather than a moderator and showed that, for the context of risky driving, peer communication significantly predicted social norms, which in turn influenced speeding behavior. In addition, they found that the content of the communication (in terms of remarks about the valence of the normative topic, e.g., pro-speeding or anti-speeding) rather than mere frequency of peer communication is vital for the influence on normative perceptions. However, from a social identity point of view, Hogg and Reid (2006) posit that, “when group membership is salient, a significant portion of what is communicated within an interactive group or among members of larger social categories is directly or indirectly about or contextualized by group norms (Hogg & Tindale, 2005)” (p. 14). In this way, normative perceptions would be automatically transported in everyday conversations with group members. Moreover, Hogg and Reid (2006) argue that attitudinal norms, which are sometimes hard to identify because people do not always disclose their personal opinions, can be more reliably inferred from verbal expressions of other group members when the social identity is highly salient and identification with the group is high, because individuals would more likely express their “true” attitudes in this state.

In addition to the communication about norms, another way of gaining a perception about what is normative in a group is through the observation of social behavior. According to Hogg and Reid (2006), prototypical information about a group and its norms can often easily be obtained by observing what other group members do or how they react. These two mechanisms, that is, *communication about* and *observation of* norms, have been described as conceptual (i.e., through communication about behavior) and experimental (i.e., through observations of behavior) routes of norm acquisition (Kashima, Wilson, Lusher, Pearson, & Pearson, 2013). The latter can be explained by the principles of social modeling and observational learning, which are key elements of social cognitive theory. In fact, the observation of others modeling a behavior has already been presented as a mechanism by which a norm can be activated (see Chapter 3.2.2). Thus, social cognitive theory is presented in the next chapter as a key framework that brings together the processes of how norm perceptions may be acquired and prompted through observational learning and modeling mechanisms – even in a symbolic environment, such as social networking sites.

4.2 Social Observation and Social Learning

Bandura's social cognitive theory (1986) provides a theoretical framework for the study of human behavior, thought, and motivation. Building on his perspective on the mechanisms of social learning (e.g., Bandura, 1971) and his work on the concept of self-efficacy (e.g., Bandura, 1977), Bandura posits a view of human functioning that is characterized as a "triadic reciprocal causation" between factors of the person, the behavior, and the environment (Bandura, 2001). He emphasizes the agentic perspective of social cognitive theory by allocating a key role to human agency and cognitive processes in characterizing people as "self-organizing, proactive, self-reflecting, and self-regulating, not just reactive organisms shaped and shepherded by environmental events or inner forces" (Bandura, 2001, p. 266). Building on the central role of cognition, self-regulation, and self-reflection, and on the principles of observational learning and vicarious reinforcement, the theory can explain how people learn and acquire behaviors, values, beliefs, and competences, and how they motivate and regulate their actions.

A central proposition of Bandura's perspective on the process of learning is that individuals are assumed to have the ability to learn by observation, not necessarily by personal experience. That is, a behavior can be learned by observing another person performing the act instead to self-undergoing the action.

Bandura (2001) argues that, “virtually all behavioral, cognitive, and affective learning from direct experience can be achieved vicariously by observing people’s actions and its consequences for them” (p. 270f). The process involved here is termed “modeling,” which, according to Bandura (1986), exceeds mere imitation or mimicry of behavior. Modeling is characterized as an influential means of transmitting and instructing knowledge structures, skills, behavioral patterns as well as thoughts and values. In addition, modeling can motivate individuals to engage in or refrain from a behavior, serve as a social prompt that activates and encourages observers to adopt a modeled action, and shape perceptions of the social reality (Bandura, 2001).

Observational learning is determined by four processes: attention, retention, production, and motivation (Bandura, 1986). Attention is a necessary condition for learning; it governs which models are observed and what behaviors are extracted from the observations. Second, modeled behavior needs to be remembered in order to influence behavior; thus, a second sub-function of observational learning pertains to the cognitive process of coding, structuring, and storing observed information in memory. A third process involved in observational learning is the production of behavior based on the inferred behavioral representations. Since not all observations necessary lead to an enactment of behavior, a fourth sub-function involves motivational processes. The decision of whether a behavior that is learned by observation is actually performed, is, for example, affected by the perception of incentives. An observed behavior is more likely conveyed into action when a beneficial outcome is anticipated. The motivation to act can also be influenced vicariously, for example, through vicarious punishments or rewards: When a model is sanctioned for the observed behavior, this will reduce an observer’s motivation to perform the behavior, while observing positive consequences for the model serves as a positive motivator (Bandura, 1986). In addition to positive outcome expectations and (vicarious) reinforcement, self-efficacy is the key to predicting actual uptake of behavior (Pajares et al., 2009).

The concept of self-efficacy is central in social cognitive theory. According to Bandura (1986), self-efficacy beliefs are "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Thus, it is the belief of a person in his/her own abilities to accomplish something. A person acquires the beliefs about his/her self-efficacy from four main sources: (a) through mastery experiences, that is, prior personal success in performances; (b) through the vicarious experiences provided by social models; (c) through verbal persuasion, in terms of being talked

into believing that he/she can do it; and (d) through his/her somatic and emotional states, for example, by gauging their competency in dealing with a situation from their level of experienced emotional and aversive arousal (Bandura, 1994).

Self-efficacy is similar to the concept of perceived behavioral control from the reasoned action framework (Fishbein & Ajzen, 2010). According to Fishbein and Ajzen, perceptions of what others do (i.e., descriptive norms) can influence behavioral intentions indirectly through perceived behavioral control, which is compatible with social cognitive theory. The argument is that, when individuals perceive what other people do, they can learn (through observation) about potential barriers and the necessary abilities and resources that are needed for the action, thereby deriving a more accurate perception of behavioral control, which leads to an increase or decrease in intentions.

4.2.1 Empirical Research on Social Modeling Effects

Empirically, the process of learning from behavioral models is well supported. In an initial series of experiments, Bandura investigated modeling effects on aggressive play behavior in children (Bobo doll experiments): For example, in an experiment by Bandura, Ross, and Ross (1961), preschool children either observed a model behaving aggressively toward a Bobo doll toy (e.g., hitting the doll with a hammer, punching its nose, kicking it, etc.) or playing peacefully without it. They were then mildly aroused with aggression and observed in their play behavior. The observation results revealed that the children who had been exposed to the aggressive model imitated aggressive acts of the model and behaved more aggressively than children in the nonaggressive or control group (no model). In a further experiment, the authors found that the imitation of aggressive acts was similar when aggressive modeling was observed in a mediated way, by a video of either a human model or a cartoon character behaving aggressively toward the Bobo doll (Bandura, Ross, & Ross, 1963). Moreover, a follow-up study using a similar study design and set-up (Bandura, 1965) revealed the influence of vicarious reinforcement on the acquisition and adoption of behavioral patterns through observational learning: Children who observed a model being punished for behaving aggressively toward the Bobo doll used less aggressive actions in the subsequent playing session than children in the control group (no consequences for the model) or who observed the model being rewarded. However, children in all conditions seem to have learned the behavioral patterns, because they showed equal responses in their recall and demonstrations of the observed behaviors when they were incentivized to do so. This suggests

that there is a fundamental difference between learning/acquiring a behavior and adopting/enacting it. In further disentangling the sub-processes involved in observational learning (attention, retention, production, motivation), Bandura and Jeffery (1973) found support for the claim that the “acquisition of modeled patterns is primarily controlled by attention and retention processes, whereas performance of observationally learned responses is regulated by motor reproduction and incentive processes” (p. 122).

Social modeling effects have also been studied in the context of prosocial behavior, revealing similar effects: For example, a line of experiments has shown that children’s donation behavior increased when they observed an altruistic model making a generous donation (see Rushton, 1976, for an overview). In line with this, panel data revealed that parental modeling of charitable giving and volunteering as well as their communication with adolescents about donations to charity is significantly associated with adolescents own monetary donation behavior and volunteering (Ottoni-Wilhelm, Estell, & Perdue, 2014). Moreover, modeling influence on prosocial behavior was also found in adult samples, for example, for blood donations (Rushton & Campbell, 1977) and charitable tipping behavior (Guéguen, 2007).

4.2.2 Modeling and Learning of Norms

The influence of modeling, however, goes beyond the mere replication of actions and imitation of sequences of physical movements in a specific context or task. Modeling has the potential to influence more general patterns of behavior, such as moral orientations (Bandura & McDonald, 1963) and norms. Imitation not only serves the goal of acquiring new skills, but can also be socially motivated and a means to learn about cultural norms or conventions of a group (Over & Carpenter, 2013; Tomasello, 2016). In fact, it has been shown that children readily derive normative inferences from observed behaviors as they not only copy modeled action but also protest when observing someone else deviating from the actions (e.g., Kenward, 2012; Schmidt, Rakoczy, Mietzsch, & Tomasello, 2016). Their enforcement of these norms intensifies when norm enforcement is observed by an adult model (Hardecker & Tomasello, 2016). Moreover, a line of research has shown that children (and also adults, see Whiten et al., 2016) faithfully copy even causally unnecessary actions that are irrelevant to a task performance. This has been described as over-imitation (e.g., Chudek, Baron, & Birch, 2016; Over & Carpenter, 2013). It has been argued that an explanation for this over-imitation is children’s tendency to interpret irrelevant actions as normative or part of a conventional

norm (e.g., Kenward, 2012; Keupp, Behne, Zachow, Kasbohm, & Rakoczy, 2015). Empirical research has shown that children, in fact, over-imitate behavior with a higher fidelity when the instruction included convention-oriented language, such as “I always do it this way” (Clegg & Legare, 2016, p. 531), instead of outcome-orientated verbalizations (e.g., “I am going to make a necklace”), or when the model prompted a single solution to a task, instead of framing the behavior as one of multiple ways to complete the task (Moraru, Gomez, & McGuigan, 2016). In addition, children protested more when observing a puppet omitting the unnecessary action and described this behavior as a mistake when the model put more emphasis on the way the behavior is performed instead of on the end goal (Keupp, Behne, & Rakoczy, 2013) or when the behavior was performed in the same rather than in a different context (Keupp et al., 2015). This lends support to the assumption that children imitate and enforce irrelevant actions when they interpret the actions in normative terms. In addition, children seem to over-imitate adult behavior faithfully irrespective of cues for success or prestige in models (Chudek et al., 2016). However, regarding the process of social learning more generally, research suggests that certain model characteristics facilitate or bias social learning, for example, modeling effects are assumed to be more likely when a model radiates the willingness to teach or shows signs of success, expertise, high status, or similarity (L. A. Wood, Kendal, & Flynn, 2013).

In sum, the research has demonstrated that individuals can learn and adopt behaviors and norms that are modeled by another person. The influence of social models is not restricted to the learning of new practical skills; instead, the observation of behavior can have multiple functions: By observing another person’s actions, an individual might not only gain knowledge about the performance of a behavior but can also receive confidence about his/her self-efficacy of performing the behavior and be nudged or prompted to copy the action. Moreover, modeling can be a way of gaining a perception about what is normative, for example, by observing when a model is punished or rewarded, and, as has been shown by Cialdini et al. (1990), it can draw the focus of attention to a social norm and have a direct impact on the observer’s behavior.

In addition, Bandura (2001) suggests that the assumptions of the social cognitive theory also apply for *mediated* interactions with social models. In this regard, two types of models can be distinguished: live models, which are people, who are observed in real life, and symbolic models, which can be real or fictional persons who are observed through media formats such as TV, books, films, or other media. Social learning often takes place wittingly

or unwittingly by observing models in the direct environment; however, individual even more frequently learn from the various symbolic models presented in the media (Bandura, 2001).

4.3 Media Influences in Normative Perceptions

Media environments are a key source for acquiring normative perceptions (e.g., Mead et al., 2014). Building on the social cognitive theory outlined in the previous chapter, one means by which normative information can be obtained, learned, and adopted from mediated content is through symbolic modeling (Bandura, 2001). Through the observation of other persons' behaviors in the media (e.g., on television or in films), normative information can spread not only in the direct social networks and physically close environments but also more easily through larger and broader networks and reach a great number of people simultaneously. In this regard, Bandura (2001) acknowledges that symbolic models perceived in mass media can have direct effects on observers as well as indirect effects, for example, when a person learns about a behavior from other persons in their social environments who had been exposed to the models. Thus, "within these different patterns of social influence, the media can serve as originating, as well as reinforcing, influences" (Bandura, 2001, p. 286). The theoretical framework of social learning has been applied to a wide range of media effects, including intended (e.g., educational entertainment or media campaigns) as well as unintended influences, for example, concerning the exposure to violence, sexual content, or risky health behaviors on recipients' engagement in the respective behavior (see, Pajares et al., 2009, for an overview).

In addition to the social cognitive theory, a long history of media research building on the cultivation hypothesis (Gerbner & Gross, 1976) suggests that media exposure can shape recipients' world views and perceptions of reality. According to Gerbner's conception of cultivation, it is proposed that media users' beliefs and conceptions of social reality can be shaped by the frequent and repeated exposure to the dominant images in mainstream media. In their studies on the mean world syndrome, Gerbner and colleagues have, for example, shown that heavy television viewers overestimated the rates of crimes and violence in the real world (e.g., Gerbner & Gross, 1976; Gerbner, Gross, Jackson-Beeck, Jeffries-Fox, & Signorielli, 1978; Gerbner, Gross, Signorielli, Morgan, & Jackson-Beeck, 1979). Overall, the cultivation hypothesis has been confirmed by many studies, which showed that heavy exposure to television contributed to viewers' beliefs about the world – although the effects were typically small (Shanahan & Morgan, 1999). Cultivation research has, originally,

focused on the impact of frequent exposure to *general television viewing*, as cultivation scholars argue that television, as a mainstream medium, exposes viewers to homogeneous content and the same dominant images over and over again (Shanahan & Morgan, 1999). Thus, a difference between cultivation and social modeling effects in media environments is that the former addresses global media influences while the latter focusses on the effects of specific media displays. Over the course of the years, the cultivation assumptions have, however, also been applied to more specific media content and genre-specific media exposure, for example, to the consumption of TV news (C. Lee & Niederdeppe, 2011), fictional narratives (Appel, 2008), or science shows (Retzbach, Retzbach, Maier, Otto, & Rahnke, 2013).

With regard to the influence of specific media exposure on normative perceptions, research on media violence has, for example, shown that the influence of exposure to aggressive content in television and video games on aggressive behavior can be explained by perceived descriptive and injunctive peer norms (Fikkers, Piotrowski, Lugtig, & Valkenburg, 2016). Moreover, Yanovitzky and Stryker (2001) have examined news reports about adolescent binge drinking and found a significant relation between the media coverage and perceived drinking norms (i.e., perceived social acceptability).

Concerning the relative strength of the impact of media exposure, some scholars suggest that media influences are even more powerful than the influence of peers, proposing that the media functions like a “super-peer” (Strasburger, 2005; Strasburger, Jordan, & Donnerstein, 2012). Stemming from research on media effects on adolescents, the super-peer theory posits that the media have a substantive impact on teenagers in making them feel pressured into doing what is presented as normative (Strasburger, 2005; Strasburger et al., 2012). Empirical research building on the super-peer theory argues, for example, that teenagers could derive sexual permission from the media, interpreting media messages as supportive of having sex in adolescence (Brown, Halpern, & L’Engle, 2005). Moreover, survey results have shown that adolescents’ normative perceptions of the approval and prevalence of alcohol and tobacco consumption relates significantly to their interpretations of alcohol and tobacco-related media displays (e.g., how similar teens perceive themselves to be to people displayed in the ads for alcohol and tobacco; Elmore, Scull, & Kupersmidt, 2017).

Cognition processes can facilitate the influence of media exposure on normative perceptions. Since individuals underlie attribution errors, an only incidentally observed behavior can, for example, be attributed as typical for the peer group, especially when

information about peers is incomplete (Perkins, 2014) or when the behavior, which is incorrectly perceived as typical, is easily remembered and more apparent (e.g., through frequent exposure in the media) than the behavior that is actually more common (Berkowitz, 2005). Likewise, Briley, Shrum, and Wyer (2013) argue that in addition to the frequency of exposure, the perceived novelty, distinctiveness, or unexpectedness of a portrayed event in the media can bias how individuals estimate the event's prevalence. According to exemplification theory (Zillmann, 2002), individuals' judgements of how frequently certain events occur in the real world can be shaped by the exposure to media exemplars, that is, single case illustrations of an event or action representing a certain category (e.g., a person who immigrated represents the category of immigrants). Building on the availability and representation heuristic, exemplification theory suggests that individuals build their judgments of event prevalence on illustrative exemplars (Zillmann, 2002). Originally developed and tested for journalistic news reports, empirical research has shown that exemplars, owing to their vivid nature, are better remembered than statistical base-rate information and have stronger and persisting effects (see Brosius & Bathelt, 1994; Zillmann, 2002). These effects were typically examined directly or several days after a one-time exposure to exemplars in a media outlet (i.e., news items were processed at one time point, e.g., in a laboratory session during the experiment). With regard to the influence of repeated exposure to exemplars in media displays over time, it could be that the accumulated effects have even more severe consequences for individuals' belief systems, as suggested by cultivation theory (Gerbner, 1998). Studies building on exemplification theory revealed that illustrative examples of single case information outperformed base-rate information and even had a prolonged influence on perceptions of event prevalence (Zillmann, 2002). These effects, however, seem to rely on the vividness of the exemplars (e.g., Brosius & Bathelt, 1994) and their level of similarity (e.g., Andsager, Bemker, Choi, & Torwel, 2006).

In addition to direct influences of media exposure on receivers' normative perceptions, the third-person effect and research on the presumed influence model suggest that normative beliefs can be affected indirectly (e.g., Gunther, Bolt, Borzekowski, Liebhart, & Dillard, 2006; Wang & Jiang, 2017). According to the third-person effect, individuals believe that others are more influenced by the media, for example, by advertisements. This perception could simultaneously affect receivers' perceived peer norms. For example, an individual who believes that his/her peers are persuaded by a pro-smoking cigarette advertisement has higher perceived descriptive norms of smoking in his/her peer group (Gunther et al., 2006). The

impact of behavioral displays in media content on individuals' perceptions of the prevalence of the respective behavior in the peer group is, however, dependent on the extent to which a person believes that his or her peers are exposed to similar media content and affected in their behaviors. In this regard, Bicchieri (2017) argues that: "One of the reasons the media can be so influential in initiating or changing behavior is precisely the viewer or reader's awareness that many others in her reference network receive the same message" (p. 20).

In sum, two key mechanisms by which media exposure might influence individuals' offline behaviors can be distinguished: one proposing a direct effect by means of social modeling and the impact on behavioral adoption through observational learning, the other proposing an indirect effect by influencing normative perceptions and beliefs. In addition, normative perceptions can likewise be affected directly through observations of exemplars, or indirectly through the mechanism of presumed influence (Gunther & Storey, 2003). While exemplification theory suggests that exposure to exemplary displays of an event or behavior influences individuals' perceptions of its prevalence in reality, the influence of presumed influence model posits that media exposure has an indirect influence on individuals based on their perceptions of how much the content affect other viewers. Thus, the first mechanism proposes that exposure to specific media content is assumed to be reflective of the reality, while the second mechanism suggests that media exposure is assumed to affect the perception of reality (Wang & Jiang, 2017). These mechanisms can also apply to the context of SNS and will be revisited in the context of Chapter 5.2 when the empirical findings regarding the effects of SNS posts on normative perceptions and behavioral outcomes are presented.

Media outlets can, however, also be used strategically to influence norm perceptions by providing explicit information on normative behavior. The following section describes this approach and gives an overview of empirical findings on the effects of explicit normative messages on normative perceptions and behaviors.

4.4 Explicit Information About Social Norms

Another way that individuals can learn about social norms and derive their perceptions is through overview information about what is typical or approved in a reference network, for example, through results of public opinion polls or releases of group statistics (Tankard & Paluck, 2016). This explicit way of providing individuals with information about social norms is, for example, used in social norms marketing campaigns and persuasive appeals, which

intentionally communicate social norms to correct misperceptions and change relevant social or societal behavior.

4.4.1 The Social Norms Approach: Strategies to Correct Misperceptions

The social norms approach originates from the health context and provides norm-based strategies for the promotion of desirable behavior and prevention of undesirable behavior. It goes back to research by Perkins and Berkowitz (1986) about college students' alcohol consumption, which showed that students consistently overestimate the drinking behaviors and attitudes of their peers and that this overestimation was predictive of their own drinking behavior. The rationale of the social norms approach is based on the argument that behavior is essentially influenced by misperceptions of social norms and that a correction of these misperceptions can be an effective means to change behavior (Berkowitz, 2005). In this respect, the social norms approach has developed as an alternative to traditional health promotion campaigns that have built on fear appeals (McAlaney, Bewick, & Hughes, 2011). Instead of highlighting negative consequences of an undesirable behavior (e.g., smoking kills) or positive consequences of desirable behavior (e.g., an apple a day keeps the doctor away), the social norms approach uses the mechanisms of normative influence as a strategy to promote desirable or prevent undesirable behaviors, by informing individuals about what other people do (McAlaney, Bewick, & Bauerle, 2010). It attempts to change behavior indirectly via correcting social norm perceptions, which differs from attempts that directly address attitudes or behavior. The approach aims to correct misperceptions of social norms, not to change norms about undesirable behavior (Berkowitz, 2005).

Many studies – especially from the context of risky health behaviors – have shown that individuals in fact often misperceive the social norms in their reference groups (see for an overview Borsari & Carey, 2003; Perkins, 2014). The misperception of a social norm is characterized by the divergence between the actual norm (i.e., how prevalent and approved a behavior is) and the subjective representation of the norm in the perception of an individual group member. The actual norm can be over- or underestimated. Typically, misperceptions are larger for more distal reference groups (e.g., typical students) than for closer groups (i.e., those that are closer to the individual, such as same-sex or same-race students, see Larimer et al., 2011). According to Perkins (2014), the misperception of norms can be mutually reinforced by cognition processes, communication processes, and on a sociocultural level by

the media (for more information about potential sources and processes of norm perceptions, see Chapter 4.1–4.3). Building on the social norms theory, it is argued that these (mis-)perceived norms – rather than the actual norms – affect how individuals behave (Berkowitz, 2005). Thus, approaches to correct misperceptions are especially relevant for contexts where the prevalence of an unhealthy or risky behavior is overestimated or the prevalence of a desirable or protective behavior is underestimated.

Research approaches typically involve some form of norm-based intervention to inform target groups about the actual prevailing norms and to dissolve misperceptions. These intervention strategies can take the form of social norms marketing, personalized normative feedback, or focus group discussions (Miller & Prentice, 2016). Live interventions in the form of focus group discussions are rather rare as they are time- and cost-intensive and need trained facilitators for the implementation (Miller & Prentice, 2016). More common are social norms marketing campaigns and intervention approaches building on personalized-norm feedback. Social norm interventions that use global social marketing campaigns typically use printed materials such as posters, leaflets, flyers, or other mass media channels, for example, television or web services, to promote accurate norms about the target behavior (McAlaney et al., 2011). Many of these marketing campaigns have been conducted in the field of substance use, especially in the context of alcohol consumption among college student populations in the United States, and most have addressed descriptive norms (McAlaney et al., 2011). A typical message from this context is: “Most (73%) students at [college name] have no more than four alcoholic drinks on a night out” (see McAlaney et al., 2011, p. 83). Personalized normative feedback approaches differ from the rather impersonalized, global marketing campaigns by explicitly identifying the difference between an individual’s perception of a norm and the actual norm, and making this information available to the individual (McAlaney et al., 2010). An example for a personalized feedback message could read as follows:

“You said you drink an average of 10 drinks per week and that you think the typical University of X student drinks about 15 drinks per week. Based on a recent survey of 2,500 UX students, the actual average number of drinks per week for UX students is 4.6 drinks.” (Neighbors et al., 2011, p. 652).

Large media campaigns on college students’ drinking norms have been run at different universities in different US states as well as in some cases outside the United States (for an

overview see McAlaney et al., 2011). The general effectiveness of social norms interventions for alcohol use in college and university student samples was, however, questioned as the effect sizes found were rather low (Foxcroft, Moreira, Almeida Santimano, & Smith, 2015). While global marketing campaigns might have a wide reach, personalized normative feedback approaches are probably more promising in correcting misperceived drinking norms because they allow for more direct targeting of persons at risk and make discrepancies between misperceptions and actual norms more salient (Lewis & Neighbors, 2006). For light or non-drinking students, however, Neighbors et al. (2011) found, based on a 9-month longitudinal study with an experimental design, that social marketing campaigns are more effective than personalized norm messages in reducing drinking rates and drinking norm perceptions, especially for students who highly identified with the typical student.

In general, it seems important for the effectiveness of such an approach that the promoted norm message is believable (Park, Smith, Klein, & Martell, 2011) and linked to a relevant reference group (Berkowitz, 2005; Lewis & Neighbors, 2006). Otherwise, norms that are directly perceived from the reference network (e.g., through communication and observations) seem to be more influential than norms promoted by external sources (Polonec, Major, & Atwood, 2006). More recently, social norms research is expanding to other fields (other behavioral domains) and other target groups, and some studies have also incorporated injunctive norms (McAlaney et al., 2011).

4.4.2 Persuasive Effects of Normative Messages

Building on the pervasive influence of social norms on behavioral outcomes shown in past research, scholars started – also in other fields apart from the college student drinking context – to investigate the impact of normative messages to promote behavior. Different from approaches that target recipients' attitudes, these social norm marketing approaches aim to change relevant (pro-)social or societal behavior by making social norms their primary tool for obtaining these aims.

Several studies have addressed sustainable or pro-environmental behavior. In this context the effects of normative messages and prompts have, for example, been studied for hotel towel reuse (Bohner & Schlüter, 2014; Goldstein et al., 2008), plastic bag use in supermarkets (De Groot, Abrahamse, & Jones, 2013), purchasing of eco-friendly products (Demarque, Charalambides, Hilton, & Waroquier, 2015), energy conservation (Bergquist & Nilsson, 2016), grasscycling and composting (K. White & Simpson, 2013), and national park

preservation (Cialdini et al., 2006). Moreover, normative cues have been integrated in signs in washrooms to promote hand washing (Lapinski, Maloney, Braz, & Shulman, 2013) as well as in eating contexts such as food courts (Mollen, Rimal, Ruiters, & Kok, 2013) to promote healthy food choices. Some of these studies manipulated descriptive normative messages (Bohner & Schlüter, 2014; Demarque et al., 2015; Goldstein et al., 2008; Lapinski et al., 2013), others tested injunctive normative message cues (Bergquist & Nilsson, 2016), injunctive and personal norm messages (De Groot et al., 2013), or injunctive and descriptive norm messages (Cialdini et al., 2006; Mollen et al., 2013; K. White & Simpson, 2013). For example, Goldstein et al. (2008) showed that hotel signs that incorporated descriptive normative information in their appeals to reuse towels (such as that the majority of other hotel guests have reused their towels) increased the towel reuse rate compared with the standard appeal for environmental protection. This result could, however, not be replicated by a German study (Bohner & Schlüter, 2014), which showed that a standard appeal to reuse towels to help protect the environment was at least as effective as a descriptive norm information about a high towel-reuse rate in the hotel. Applying the approach to ecological online-shopping behavior, Demarque et al. (2015) showed that the presentation of an explicit descriptive normative information text, such as, “For your information, 9% of previous participants purchased one ecological product,” increased participants’ ecologically friendly shopping expenses compared with a no-norm information control group (Demarque et al., 2015, p. 169). Moreover, also injunctive norm messages can be influential, for example, for the reduction of using plastic bags in the supermarket by a sign saying: “Shoppers in this store believe that re-using shopping bags is a useful way to help the environment. Please continue to re-use your bags” (De Groot et al., 2013, p. 1835).

With regard to energy conservation, several studies have successfully implemented personalized feedback approaches in the form of social comparison information about energy conservation in the neighborhood (Harries, Rettie, Studley, Burchell, & Chambers, 2013; Nolan et al., 2008; Schultz, Estrada, Schmitt, Sokoloski, & Silva-Send, 2015; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). It was, however, shown that the descriptive normative message about how much energy is consumed by the average neighbor has the potential to backfire (Schultz et al., 2007). A descriptive norms anchor can reduce behavior for some people who are above the average; however, it could increase behavior for those who lie under the average. Thus, a more effective approach is to provide additional injunctive norm cues, indicating which direction (i.e., above or below the mean) of the behavior is socially approved (Schultz et al., 2007). In the experiment by Schultz and colleagues, this was

established by a simple smiley cue, expressing a happy face for energy consumption below the average and a sad face for consumption above the average.

In this regard, Cialdini (2003) suggests that for behavior that is quite prevalent but not desirable (e.g., littering) it is a better strategy to emphasize the injunctive norm instead of highlighting the prevalence, which would increase salience of the undesirable descriptive norm and lead to more undesired behavior. On the contrary, for desirable behaviors, such as prosocial or pro-environmental behaviors, highlighting that many people follow the norm (descriptive) can be similarly effective than focusing on the injunctive norm toward the desired outcome. At best, “communicators align descriptive and injunctive normative messages to work in tandem rather than in competition with one another” (Cialdini, 2003, p. 108). This was, for example, suggested for the use of norm messages in public service announcements (PSA) about pro-environmental behavior (Bator & Cialdini, 2000). In addition, Cialdini et al. (2006) showed that negative formulations of normative messages are more effective than positively worded normative messages in increasing conformity. The authors argued that negatively formulated norms increase their salience, which can explain why these norm messages had stronger effects on behavioral outcomes.

In sum, the previous sections have shown that perceptions about social norms can be correct or incorrect and can be acquired or updated through the communication with group members, social observations of others, media exposure, or explicit normative messages. The present dissertation is concerned with the role of social networking sites (SNS) in the formation of normative perception and the conveyance of normative information. Therefore, in the following chapter, the medium of social networking sites is introduced and examined with regard to its potential of serving as a source for the perception and influence of social norms.

5 SNS as a Venue for Social Norm Perceptions and Normative Influence

5.1 Social Media and Social Networking Sites

When in the early 2000s more and more Internet users started to actively co-create content on the web, supported by the advancement of new technologies that facilitate the

production, publishing, and sharing of content, the era of Web 2.0 was proclaimed (Cormode & Krishnamurthy, 2008) and SNS arose. Within this formation of a highly participatory culture on the Internet, social networking sites and other web-based applications, such as blogs, wikis, and content-sharing communities, evolved, which were summarized under the umbrella term “social media” (Kaplan & Haenlein, 2010). In an accessible definition, offered by Carr and Hayes (2015), social media have been conceptualized as “Internet-based channels that allow users to opportunistically interact and selectively self-present, either in real-time or asynchronously, with both broad and narrow audiences who derive value from user-generated content and the perception of interaction with others” (p. 50).

SNS are a specific category of social media. They have been described as “particularly vibrant (... and) well-suited for the kinds of interpersonal exchanges that serve to maintain and strengthen social bonds” (Ellison & Vitak, 2015, p. 207) and are characterized by three key features: users have their personal profiles on the platforms, can set up lists of social contacts to define their networks, and access the streams of content generated by a user’s network (see Ellison & Vitak, 2015). Since the early beginnings of SNS (for an overview, see boyd & Ellison, 2007), these platforms have developed into extremely interactive environments. They offer not only unique opportunities for self-presentation (e.g., via the personal profile), management, and visualization of a user’s social networks as well as communication and social interaction with friends, family, acquaintances, or individuals with similar interests (Ellison, Steinfield, & Lampe, 2007), but also numerous means to create, share, tag, and comment on various forms of content (e.g., status updates, pictures, videos, news articles). Thus, a contemporary definition of SNS by Ellison and boyd (2013) emphasizes this participatory nature by characterizing them as:

Networked communication platform(s) in which participants 1) have uniquely identifiable profiles that consist of user-supplied content, content provided by other users, and/or system-level data; 2) can publicly articulate connections that can be viewed and traversed by others; and 3) can consume, produce, and/or interact with streams of user-generated content provided by their connections on the site. (p. 158)

These attributes, specifically the fact that SNS allow users to interact with relevant reference groups and provide opportunities to observe their social contacts’ broadcasted content, make these platforms potentially fertile vehicles for the acquisition, perception, communication, and influence of social norms. The characteristics and different patterns of use are specified in more detail in Chapter 5.1.2. In addition, SNS are highly popular and

prevalently used (see Chapter 5.1.1), which emphasizes the relevance of studying the mechanisms of norm perceptions and normative influence in this realm.

5.1.1 Popularity and Prevalence of SNS

Social networking sites are very popular all over the world: According to a global survey by the Pew Research Center including 40 national samples of advanced, emerging, as well as developing economies (Poushter & Stewart, 2016), 76% of adult Internet users across the globe (based on the median) currently use social networking services, such as Facebook and Twitter. Across demographic groups, young adults (aged 18–29) are the heaviest users of SNS and many even use multiple services as revealed in a current social media report by the Pew Research Center (Greenwood, Perrin, & Duggan, 2016): 88% of the 18- to 29-year-old American Internet users (79% across age groups) report using Facebook, 59% (32%) use Instagram, 36% (24%) use Twitter, 34% (29%) use LinkedIn, and 36% (31%) use Pinterest. Although newer social networking platforms, such as Instagram and Snapchat, have become increasingly popular, especially among young adults (e.g., Alhabash & Ma, 2017; Knight-McCord et al., 2016), Facebook is still the most dominant platform. In all, 76% of Facebook users report visiting the platform on a daily basis, 55% even several times per day (Greenwood et al., 2016). Founded in 2004 as a university network for Harvard students, Facebook has grown an enormous user base, comprising 2.01 billion monthly active users worldwide as of June 2017 according to the company's website (Facebook, 2017a). Next to the web search engine Google and the video-sharing platform YouTube, Facebook is the most popular website worldwide based on the number of page views and visitors per day (Alexa, 2017). For these reasons and because on Facebook – other than, for example, on Twitter – users are connected via reciprocal relations with their social contact, the platform Facebook was chosen as an exemplarily SNS, based on which the empirical studies of the present dissertation were designed.

5.1.2 Characteristics and Usage Patterns of SNS

There are several reasons why SNS are popular and heavily used. In fact, users see different merits in these sites and have different ways of using them (see, e.g., Frison & Eggermont, 2016b). Regarding the merits, studies have found that the usage of SNS is linked to a variety of motivations, including interpersonal communication, self-expression, entertainment (e.g., Hunt, Atkin, & Krishnan, 2012), and gratifications, such as passing time

and gaining social knowledge about the peer network (e.g., Quan-Haase & Young, 2010). See also Alhabash and Ma (2017) for a comparison of usage motivations across Facebook, Twitter, Instagram, and Snapchat. With regard to Facebook, two primary needs that drive the usage of the platform are the need to belong and the need for self-presentation (Nadkarni & Hofmann, 2012). The need to belong describes the fundamental drive of humans to build and maintain relationships with others (Baumeister & Leary, 1995). In this regard, SNS can be beneficial, as they are a fertile tool for building, preserving, and maintaining relationships with friends, family members, and relevant social contacts (Ellison et al., 2007). In fact, Ellison, Vitak, Gray, and Lampe (2014) have shown that users can grow social resources and increase their social capital by engaging in different forms of relationship maintenance behaviors on SNS (e.g., responding to other users' questions).

An important characteristic of SNS like Facebook in this respect is that they are predominantly used to connect with contacts from real-life contexts rather than to meet new people online (Ellison et al., 2007; Ellison, Steinfield, & Lampe, 2011). These contacts stem from diverse social categories, including acquaintances and activity connections (e.g., classmates, teammates) as well as close and maintained connections, such as good friends or old friends from school (Manago, Taylor, & Greenfield, 2012). Thus, there is a certain overlap between users' relevant peers from their offline reference networks and their contacts on SNS (see also Subrahmanyam, Reich, Waechter, & Espinoza, 2008), meaning that SNS offer a virtual space for meeting and interacting with social reference groups.

This environment can function as a virtual stage and offers a perfect realm for selective self-presentation (Walther, 2007). By creating public or semi-public personalized profiles, posting pictures and personal information, or marking certain content visible for other users (e.g., interests, band pages), users can present a certain part of their identity, typically in a way that shows themselves at their best (known as impression management; see Krämer & Winter, 2008; Leary & Kowalski, 1990). In fact, research has shown that others' status updates on Facebook are generally perceived as positive (Barash, Ducheneaut, Isaacs, & Bellotti, 2010), which could be indicative of a positivity bias (i.e., that users would predominately post about positive thoughts and contents on SNS Reinecke & Trepte, 2014). A reason for this might not only be related to users' aims of generating a positive self-presentation, but also because positive expressions on SNS are considered more appropriate than negative statements (Waterloo, Baumgartner, Peter, & Valkenburg, 2018).

Related to the different motivations for using SNS, different forms of usage have been characterized: Frison and Eggermont (2015, 2016a, 2016b), for example, distinguish between

active private (e.g., sending private messages), *active public* (e.g., posting to the timeline), and *passive* use of Facebook (e.g., monitoring content of other users). Based on a longitudinal analysis of adolescents' Facebook usage, the authors showed that active public use can, for example, be predicted by the motive of sharing information, while relationship maintenance motivation predicted active private as well as passive use (Frison & Eggermont, 2016b). Similar distinctions between active and passive forms of usage have already been proposed by Burk and Kraut (2014). They contrasted two forms of active use, directed one-to-one communication (i.e., interpersonal communication, which can be composed of text messages as well as one-click interactions, such as likes) and broadcasting (i.e., communication addressed to a larger audience), with passive consumption of SNS content. Others have used slightly different classifications (e.g., active social, active non-social, and passive; see Gerson, Plagnol, & Corr, 2017); however, the distinction between active use, in terms of contributing content, and passive use, in terms of consuming content, seems to be consistent (see also Wenninger et al., 2016).

This combination of different forms of active and passive participation on SNS, the private and public or targeted and broadcasted communication processes, as well as the potential to consume, share, or comment on diverse types of content (e.g., news articles, video clips) highlight the intermixture of interpersonal and mass communication on these platforms (O'Sullivan & Carr, 2018; Walther, Carr, et al., 2010). Users can simultaneously communicate through dyadic interpersonal messages and they can broadcast messages to larger public or semipublic audiences. Receivers can passively consume these messages or they can actively react, likewise, in an interpersonal way or by means of a mass message (Carr & Hayes, 2015). This convergence of interpersonal and mass media channels has been termed "masspersonal communication" (O'Sullivan & Carr, 2018), which has changed the ways in which individuals receive and process information since users can be exposed to content from multiple sources, including interpersonal contacts, peers, and institutions, simultaneously (Walther, Carr, et al., 2010).

A differentiated view on SNS usage patterns is important because they can be related to quite different purposes and consequences (Gerson et al., 2017). An overview of potential antecedents and outcomes of information contribution and consumption on SNS can be found in a literature analysis by Wenninger et al. (2016). What their review shows is that, among the 126 identified articles published between 2008 and 2014, research on consumption behavior is highly underrepresented and mainly concerned with social comparisons, monitoring, and browsing of other members' SNS profiles. The findings are, however, limited by the selection

of the journals, the authors' inclusion and exclusion criteria, and the fact that the results reflect the state of research as of 2014. Nevertheless, it emphasizes a lack of research on passive SNS use and its influences, which underlines the relevance of the research perused in the present dissertation.

Since the present dissertation is concerned with potential consequences of exposure to other users' broadcasted information on SNS (i.e., status updates addressed to connected others in the network), specifically regarding the influences on social norm perceptions and offline behavioral outcomes, the following chapter provides an overview of the empirical findings of prior related research.

5.2 Research on Social Influence and Social Norms in Social Media

Extensive research in the field of social media has provided evidence for social influence in online environments. The mechanisms and areas studied vary as widely as in offline social influence research. Focusing on the perspective of the influence target, scholars have investigated the effects of other users' online posts, comments, ratings, or other types of user reactions and user-generated content on a variety of cognitive, affective, and behavioral outcomes for receivers. The different forms of user contributions to participatory online environments have been classified by Walther and Jang (2012) as proprietor content (e.g., a news article, status update, online video), user-generated content (e.g., a comment or review, typically as a reaction to a proprietor content), and aggregated user representations, which can be deliberate (e.g., Facebook likes, user ratings) as well as incidental (e.g., system-generated cues such as the number of views of an online video).

In the following sections, key findings regarding the effects that these user contributions can have on individual receivers are presented. Some of the effects highlight the persuasive influence of user-generated content and user representations, in terms of providing evaluative information that might affect attitudes and opinions; other effects build on the presentation of information about what other users have done (i.e., behavioral displays). The theoretical mechanisms underlying the effects found in prior research (e.g., informational social influence, normative influence, modeling) are, however, not always discriminable. Moreover, previous work on the effects of user-generated online information on normative perceptions is presented. In this regard, the potential of the different forms of user representations (e.g., numeric cues, online comments, behavioral displays on SNS) is

described and discussed. In the final section, studies on the specific effects of behavioral displays on SNS on receivers' offline behaviors and normative perception are presented.

5.2.1 Effects of Online Comments and User Representations

Many studies have examined the effects of the evaluative nature of user-generated posts (e.g., valence, stance of comments) on users' attitudes, opinions, and perceptions of the object of evaluation (e.g., the proprietor content): For example, Walther, DeAndrea, Kim, and Anthony (2010) showed that user comments that were favorable or unfavorable toward an anti-marihuana online video clip affected readers' evaluation of the proprietor content (i.e., the video) in the direction of the comments. Similar effects were found for anti-smoking videos (Shi, Messaris, & Cappella, 2014) as well as for videos about water conservation (Walther, Neubaum, Rösner, Winter, & Krämer, 2018). In addition, Walther, DeAndrea et al. (2010) found that the valence of the user comments also affected readers' risk perceptions toward drug use when readers highly identified with the commenters.

Moreover, a wealth of studies have investigated the persuasive influence of user reactions such as comments and ratings in the context of online news consumption (A. A. Anderson, Brossard, Scheufele, Xenos, & Ladwig, 2014; E.-J. Lee & Jang, 2010; Winter, Brückner, & Krämer, 2015; Winter, Krämer, & Liang, 2017) and in the domain of e-commerce (Flanagin, Metzger, Pure, & Markov, 2011; Hong & Park, 2012; S. J. Kim, Maslowska, & Malthouse, 2018; Kuan, Zhong, & Chau, 2014; Zhang, Lee, & Zhao, 2010). These have, for example, shown that individuals use other users' online information (e.g., ratings, reviews) to gauge the credibility of web content (Metzger, Flanagin, & Medders, 2010) as well as to form attitudes toward news topics (e.g., Winter et al., 2017) or products (e.g., Hong & Park, 2012).

In addition, user comments and aggregated user information can also have an influence on behavioral outcomes. For example, by manipulating comment valence as well as the volume of numeric user reactions (number of likes and shares) posted on an online call for vigilantism, Neubaum, Rösner, Ganster, Hambach, and Krämer (2018) found that participants' online support of the call for vigilantism was increased by the presentation of supportive comments and a high number of likes. Moreover, for users who highly identified with the commenters, supporting user comments led to more positive attitudes toward the call and greater intentions to support it offline. In this study, the supporting user comments displayed other persons' stance toward the call (positive evaluation) but also their behavior or

behavioral intention to support it. Thus, they have provided a behavioral information about what other people have done (i.e., supporting the search), which could be a potential explanation for the effects. While several studies have focused on the effects of evaluative, user-generated information, in terms of comments or ratings that display other users' *opinions or evaluations* of an issue or object (e.g., toward a news item or product, see examples above), this study highlights another line of research that investigates the effects of user-generated information that displays other users' *behavior* on the behavioral reactions of receivers.

The Influence of Friends

With the development of Web 2.0, the sources of online social influence have extended to include not only anonymous strangers – who were the main interaction partners in computer-mediate communication (CMC) in the early days of the Internet – but also friends, family, and other social contacts known from real life. Thus, the amount as well as the diversity of social influence encounters has been extended (Y. J. Kim & Hollingshead, 2015). In this regard, several studies have investigated the impact of *friends* as a source of information or model for behavior in the online context and examined the role of tie strength in online social influence processes (e.g., Aral & Walker, 2014). On the basis of large field experiments on Facebook, Bakshy, Eckles, Yan, and Rosenn (2012) found that users were more likely to click and like an advertisement when they observed that other friends had done so before. Even a minimal social cue such as the display of one friend's name increased the like and click rate compared with when the general number of others who liked the advertisement was presented. Furthermore, the effect increased with tie strength, which was measured by the frequency of communication between two persons on Facebook. Moreover, Egebark and Ekström (2011) found that more Facebook users clicked *Like* on a status update when it was previously liked by a friend. The effect was not found when the post was liked by an unknown peer; only when three *Likes* of unknown others were presented did liking increase. In addition to these findings, Bond et al. (2012) showed that Facebook friends' displays of behavior can even influence observers' behaviors in the offline world. They conducted a large field experiment on Facebook and exposed users to a persuasive appeal for voting, either without social cues or with information about their friends who had indicated their voting behavior online. The authors found that the display of friends' behavior led more users to indicate their own voting behavior online (by clicking on an "I voted button"), to look for information about the vote, and to actually go to the polls (Bond et al., 2012). Moreover, the authors showed that indirect effects (i.e., spreading of the behavior from person to person)

were largely driven by close friends (measured by the amount of interaction between a pair of users on Facebook), concluding that “ordinary Facebook friends may affect online expressive behaviour, but they do not seem to affect private or real-world political behaviours. In contrast, close friends seem to have influenced all three” (Bond et al., 2012, p. 296).

It should be noted that all of the above described effects occurred in the absence of direct pressure, which can be another mean to influence user reaction, for example, by tagging friends in status updates to remind them of voting (Haenschen, 2016), or by sending them personalized direct invitation messages to adopt an app (Aral & Walker, 2011) or join a Facebook group (K. H. Kwon, Stefanone, & Barnett, 2014). A potential explanation for the influence of other users’ online reactions and behavioral displays on receivers’ online and offline behaviors could be that the respective behavior was modeled by others and perceived as normative.

5.2.2 Perceptions of Social Norms and Social Modeling Online

Several studies have shown that individuals’ *online behaviors* can be influenced by what other users have done. For example, Rösner and Krämer (2016) as well as Zimmerman and Ybarra (2016) found that individuals used more aggressive words in their own comments when they were exposed to other aggressive comments on an online blog. In an experiment by Hsueh, Yogeewaran, and Malinen (2015), participants used more prejudiced sentiments in their comments on an article when other prior comments included prejudiced expressions than when antiprejudicial comments were presented. Furthermore, Sukumaran, Vezich, McHugh, and Nass (2011) found that users who were exposed to highly thoughtful comments on a simulated news website (i.e., longer and high-quality arguments), compared with participants who saw low-thoughtful comments (i.e., shorter and poor arguments), wrote longer comments themselves, used more time for writing, and expressed more relevant ideas. In addition, the authors showed that participants wrote more thoughtful comments when the website indicated thoughtful behavior through its design and cues in the environment (e.g., serious appearance of the website, reminder to comment constructively, comment preview function). Building on social norms research and literature on priming effects, the authors argue that their findings demonstrate that other users’ online behavior as well as elements in the design of an online environment could provide normative cues (in this case that thoughtful commenting is the norm) and activate a situational norm (Sukumaran et al., 2011). Likewise, the findings of Rösner and Krämer (2016) as well as of Zimmerman and Ybarra (2016) indicate that other

users' aggressive comments could convey and activate a situational norm of aggressiveness, while the prejudiced online comments presented in the experiment by Hsueh et al. (2015) seem to have expressed a prejudiced social norm. In fact, the authors found that the comments also affected readers' explicit and implicit attitudes toward the prejudiced out-group, which means that impact of the normative information may have exceeded the direct situational context of the online commenting space (Hsueh et al., 2015).

Numeric Cues and User Comments as Normative Information?

Concerning the perception of normative information online, it has been argued that social media metrics that express message virality, such as numbers of likes, shares, views, or comments, are indicative of social norms (Alhabash, Baek, Cunningham, & Hagerstrom, 2015; Alhabash, McAlister, Quilliam, Richards, & Lou, 2015; Lee-Won, Abo, Na, & White, 2016). There is, however, no systematic analysis about the different meanings and perceptions of the diverse social metrics. Alhabash, McAlister et al. (2015) and Alhabash, Baek, et al. (2015) propose that numeric virality cues of a social media message could be perceived as indicators of popularity *and* approval of a behavior that is expressed in the message. Thus, they do not distinguish between descriptive and injunctive normative information that might be derived from these cues. Stavrositu and Kim (2014) argue that the number of shares and comments presented with a news story reflect an injunctive norm cue, as it would indicate widespread endorsement of the story (p. 62). Neither Alhabash and colleagues nor Stavrositu and Kim (2014), however, measured normative perceptions to test their argument empirically.

Empirical evidence for the influence of virality metrics on injunctive normative perceptions was provided by Lee-Won et al. (2016), who experimentally showed that the number of shares presented with a social media appeal to register for bone marrow donation affected the perception of injunctive norms toward the message's topic (i.e., to join the bone marrow registry). For the context of online videos, the number of views displayed with a video, has been equated with a descriptive norm cue, and it was experimentally shown that a higher number leads to the belief that the issue presented in the video (climate change) is more relevant to other people (Spartz, Su, Griffin, Brossard, & Dunwoody, 2017).

User comments might be more decisive in displaying approval or disapproval toward an issue as well as in providing exemplified evidence for the behavioral conduct than aggregated, numerical user representations (e.g., Winter et al., 2015). For the context of online news perceptions, scholars have argued on the basis of exemplification theory that "readers' postings provide more vivid but less precise accounts of public reactions to the news

content, whereas the aggregate approval ratings offer a pallid, yet more valid, summary of the distribution of public opinion” (E.-J. Lee & Jang, 2010, p. 827). Thus, they might function as exemplars, that is, single case illustrations of an event, opinion, or behavior (see Chapter 4.3) that could affect the perception of opinion climates (e.g., Peter, Rossmann, & Keyling, 2014; Schulz & Roessler, 2012).

In fact, research has shown that user comments can shape the perception of opinion climates, while the influence of aggregated user information is less certain (e.g., E.-J. Lee & Jang, 2010; Neubaum & Krämer, 2017). For example, Neubaum and Krämer (2017) conducted an experiment for the context of online news on Facebook and found that other users’ comments on a Facebook post, but not the number of likes, had a significant effect on receivers’ perceptions of opinion climates. The influence was, however, only found for more distal groups such as the national population and the Facebook community, but not for closer groups such as the personal reference group (Neubaum & Krämer, 2017). Moreover, Zerback and Fawzi (2017) found that online comments were more likely to influence individuals’ perceptions about the public opinion in the population of national Internet users rather than for the national population in general. In their experiment, they exposed participants to an online video clip about immigrant deportation and either a high or low number of user comments that supported, opposed, or expressed mixed opinions toward the topic. Their findings show that participants can be influenced in their perceptions of public opinions especially when they are exposed to a larger number of exemplar comments that uniformly argue in the same direction (Zerback & Fawzi, 2017).

With regard to the perceptions of social norms, empirical research concerning the influence of online comments and the question of whether they can be a means for users to draw inferences about descriptive or injunctive social norms is scarce (see Liu, Shi, & Hornik, 2017). However, two recent experimental studies provide initial insights from the context of e-cigarette use: In one study, J. E. Chung (2017) exposed participants to a news article about e-cigarettes and varied the valence of comments to either express a positive or negative attitude toward vaping. Their results showed that readers of supporting comments had higher descriptive and injunctive normative perceptions (measured as important others’ own performance and approval of the behavior) than readers of comments expressing an anti-vaping stance, although the effect was only significant on a 10% level of significance. For individuals who highly identified with the commenters, the effect was more pronounced (J. E. Chung, 2017). In another study, Liu et al. (2017) experimentally investigated the influence of implicit normative information in online comment board discussions by systematically

manipulating the number of comments with behavioral references. The participants in the study read a news article on e-cigarettes and were exposed to a high or low number of user comments, of which either a high number signaled e-cigarette use or non-use by the posters. The experiment revealed that exposure to a greater dose of behavioral references to e-cigarette non-use expressed by online commenters, led to a lower descriptive norm perception regarding e-cigarette use (measured across different reference groups) compared with the control condition (no comments). Exposure to behavioral references of e-cigarette use, however, did not lead to a higher perception of the descriptive norm (Liu et al., 2017). Therefore, these research findings provide support for the assumption that individuals might draw on other online users' imprints to derive information about the distributions of opinions and behaviors of others. However, as shown by Neubaum and Krämer (2017), it is unlikely that user comments of anonymous strangers affect perceptions about closer reference groups. This is also in line with the findings of J. E. Chung (2017), who showed that the perceptions of behavioral prevalence and approval among important others are largely driven by the social identification with commenters.

Thus, online comments of unknown others posted on an online news article might be a source for the perception of norms and opinion climates for more distal and superordinate groups such as the general public or the population of Internet or Facebook users. On SNS, however, users are highly interconnected with their friends and peers from their offline social networks; thus, status updates and posts that display the attitudes and behaviors of relevant others from a user's personal contacts might be a more eligible source of normative perceptions.

Behavioral Displays on SNS

Building on the social norms literature and based on the argument that SNS provide highly condensed and always available access to peer models for behavioral conduct, research has also started to investigate the relations between exposure to social media content displaying friends' behavior and receivers' actual *offline behaviors* against the background of normative considerations and social learning mechanisms. This research has mainly been conducted for health-related topics and for adolescent or young adult samples.

Several studies have investigated the connection between exposure to information about risky behavior displayed on SNS and receivers' risky offline behavior from users' subjective perspective using survey designs: For example, Branley and Covey (2017) investigated the relationship between exposure to social media content that portrays a risky

behavior in a positive way and recipients' frequency of engaging in the respective behavior for nine different types of behaviors (e.g., excessive drinking, drug use, violence etc.). The cross-sectional data of young adults (aged 18–25) revealed a positive association for six risky behaviors, including alcohol and drug use, disordered eating, risky pranks, self-harm, and violence, controlling for risk propensity, perceived number of peers who have conducted the behavior, and demographics. The association between online exposure and offline behavior for disordered eating, however, was only significant for females. For bullying behavior, unprotected sex, and sex with strangers, no significant relation with exposure to displays of the respective behavior in social media was found. An important aspect to acknowledge is that participants were asked about their general exposure to risky behavioral displays in social media, including various platforms, services, and forms of content not limited to SNS posts of their peers.

For the specific context of SNS, Stoddard, Bauermeister, Gordon-Messer, Johns, and Zimmerman (2012) found a positive association between perceived alcohol content prevalence in SNS profiles (posted by the oneself or by friends) and offline drinking behavior based on cross-sectional data from young adult Internet users. The survey also measured perceived social norms of posting alcohol and drug content online, which was, however, not a significant predictor of alcohol use in the regression model. In this study, perceived prevalence of alcohol displays was assessed for the specific context of SNS; however, the measure combined both one's own posting behavior and exposure to others' SNS displays. In addition, Pegg, O'Donnell, Lala, and Barber (2018) showed that, for adolescents, the association between exposure to alcohol content on SNS and offline drinking behavior is contingent on a high social identification with the online social network, especially for individuals with a lower intensity of using SNS. While these studies indicate that SNS could be a venue for users to receive information about socially approved and supported behaviors, the data do not allow for causal conclusions about the relationship between online exposure to behavioral displays and offline behavior owing to the cross-sectional nature. Moreover, these approaches do not explain how peer displays of behavior or displays that signal encouragement and approval of a behavior are perceived and processed by individuals. One key question that is pursued in the present dissertation is whether they can influence the perception of social norms in users' reference groups.

In this regard, a longitudinal study with high school students has shown that the perceived number of partying or drinking pictures posted by close friends led to a significant

increase in adolescents' smoking and drinking behaviors, while their general use of Facebook was not predictive of the behaviors (Huang et al., 2014). One argument brought forth by researchers is that exposures to friends' posts about risky behaviors, such as getting drunk, can cultivate undesirable norms in the reference network and impact such risky behaviors (Huang et al., 2014). In this study, however, normative perceptions of friends' drinking behaviors were not measured.

Other scholars have started to investigate the perception of social norms based on the content received from friends and peers on the platform. For example, Rui and Stefanone (2017) investigated how online exposure to alcohol content on SNS related to perceptions of drinking norms in a sample of college students. Using a two-wave study, the authors found that exposure to alcohol-related content in posts, pictures, videos, and instant messages received by friends on SNS was positively associated with perceived injunctive norms, but not with perceived descriptive drinking norms. Perceptions of descriptive norms were instead significantly related to the frequency of attending offline drinking events.

In addition, initial studies investigated the explanatory role of normative perceptions in the relation between exposure to peer behavioral displays on SNS and offline behavior. In this regard, Geusens and Beullens (2016) showed by means of a cross-sectional survey among adolescents, that perceived drinking norms of friends (measured as perceived approval) as well as attitudes toward excessive alcohol consumption significantly mediated the relation between exposure to alcohol-related content on SNS and alcohol abuse. Further support for a mediation effect of perceived descriptive drinking norms on the relation between alcohol content exposure on SNS and drinking behavior has been provided by Brunelle and Hopley (2017). On the basis of a student sample and a cross-sectional study design, the authors found that students who were more frequently exposed to alcohol-related content via their friends on SNS had higher perceptions of how much and how frequently the typical student drinks alcohol. These perceptions, in turn, were positively associated with higher levels of alcohol consumption (Brunelle & Hopley, 2017).

Moreover, Beullens and Vandebosch (2016) examined both perceived descriptive and injunctive drinking norms of friends as explanatory mechanisms for the influence of exposure to alcohol content on SNS on drinking intentions. They conducted a cross-sectional study for a sample of adolescents and found that more frequent exposure to status updates and pictures on Facebook was associated with higher perceived descriptive and injunctive norm regarding alcohol use. Both mediated the relation between alcohol exposure and alcohol usage intentions. In addition, two studies examined the relations between exposure to alcohol-

related content on SNS, normative perceptions, and behavioral outcomes based on longitudinal data. Boyle, LaBrie, Froidevaux, and Witkovic (2016) found a strong effect of students' exposure to their peers' textual and visual alcohol-related content on Facebook, Instagram, and Snapchat on their drinking behavior 6 months later (especially for male students). Moreover, they showed that this effect can be explained by perceived descriptive drinking norms (measured as the perceived drinking quantity of a typical same-sex first-semester student) – albeit only for the subsample of male participants. In another longitudinal study with middle school students as participants, Nesi, Rothenberg, Hussong, and Jackson (2017) showed that exposure to alcohol-related pictures or status updates posted by friends on SNS measured at T1 increased the perceived approval of drinking among friends (injunctive drinking norm) 1 year later. Moreover, perceived injunctive drinking norms mediated the influence of alcohol-related content exposure on drinking intentions (Nesi et al., 2017). Since all of these studies build on survey designs and subjective measures, they grant only limited control over potential confounding variables as well as over the content that participants take into account when making their assessments. Moreover, the operationalization of the measure for frequency of exposure to some behavioral content in prior studies does typically not differentiate between different types of content, for example, content relating to descriptive norm information and content related to injunctive norm information.

Experimental approaches on the effects of behavioral displays in SNS on normative perceptions and behavioral outcomes are rare. However, initial findings provide support for the explanatory value of descriptive norms in the context of SNS: By varying the content in fictitious unisex Facebook profiles to either provide descriptive norm cues about drinking behavior or not (by including alcohol references in form of pictures and comments of ostensible friends of the profile owner with references to past or future drinking events and different types of alcoholic drinks), Fournier, Hall, Ricke, and Storey (2013) found that student participants who were exposed to profiles with alcohol displays reported higher perceived descriptive norms of drinking frequency. However, no differences were found for drinking intentions. A similar experiment with adolescents who were exposed to a number of manipulated SNS profiles of older peers, which either displayed alcohol-related content in most of them or not, found significant effects of the alcohol exposure condition on willingness to drink, alcohol prototypes, attitudes, vulnerability, and perceived descriptive drinking norms (Litt & Stock, 2011). Moreover, the authors showed that prototypes, attitudes, and perceived descriptive norms mediated the effect of alcohol exposure on willingness to drink (Litt & Stock, 2011).

5.2.3 Summary and Shortcomings of Prior Work

In sum, the review of prior research on social influence mechanisms and the perception and influence of social norm displays in social media environments shows that for the specific context of SNS, the influences of behavioral displays are not well understood. Many studies have focused on the effects of user ratings and online comments on receivers' evaluations of objects or topics, for example in the fields of e-commerce and online news. These have shown that individuals often take the representations of other persons' thoughts and opinions into account when they encounter information in social media. With regard to normative effects on users' behaviors, previous research has shown that users adapt their own online behaviors, such as their style of commenting, to the behaviors of other users (e.g., Rösner & Krämer, 2016; Zimmerman & Ybarra, 2016). This line of research suggests that behavioral modeling by other users in a social media environment could serve to derive information about a normative behavior. The studies have, however, not measured normative perceptions; moreover, they have investigated users' direct behavioral reactions in the respective online environment. Thus, it remains open whether individuals had derived general perceptions about how normative the behavior was and whether they would also have shown the behavior in another environment.

In this regard, prior empirical work from the field of substance use and risky health behavior was presented, which has demonstrated that the exposure to online representations of other persons' behaviors can also be associated with receivers' own engagement in the respective behavior in the offline world (e.g., Branley & Covey, 2017). The causality of the connection between the exposure to behavioral displays online and performance of the behavior offline, however, needs to be investigated by controlled experimental research. In addition, some studies explored normative perceptions as a potential mediator of the relation between exposure to SNS content about alcohol and offline drinking intentions (e.g., Beullens & Vandebosch, 2016; Nesi et al., 2017). In this regard, prior work has left open under which circumstances individuals derive normative perceptions and are influenced by SNS posts. Only two studies have investigated the effects of alcohol displays on receivers' norm perceptions and offline drinking intentions experimentally. These experiments, however, merely tested whether exposure to manipulated alcohol displays demonstrating drinking prevalence can affect norm perceptions and behaviors, leaving open the question concerning the specific circumstances under which these influences occur. For example, a systematic differentiation between descriptive and injunctive normative cues in SNS environments has not been covered by prior research.

Moreover, the aspect of the source of the normative information displayed has largely been neglected by prior work. Most studies have asked for the perception of behavioral displays in the posts of an individual's friends on SNS, others asked for the perception of the posts of peers. The source might, however, be a relevant social cue for the perception of reference group norms and the adoption of normative behavior. Especially close friends seem to be influential (Bond et al., 2012). Moreover, prior studies have used inconsistent measures of norm perceptions, for example, some measured norms of close friends (e.g., Nesi et al., 2017), others measured student norms (Brunelle & Hopley, 2017). Thus, more research is needed that examines for whom, in terms of for which group normative perceptions are derived based on the exposure to behavioral displays on SNS.

Finally, prior work on the perception of social norms and normative influence on SNS is limited by the fact that most research stems from the alcohol context, which should be extended to other areas of behavior to receive insights on the generalizability of the results.

The present dissertation aims to address these limitations in the empirical approach of studying social norm perceptions and normative influence in the realm of SNS. In the following chapter, a synopsis of the theoretical background and the research objectives will be presented, followed by an overview of the empirical approach.

6 Synopsis of the Theoretical Background and Research Objectives

In order to understand normative perception and influence processes as well as potential consequences of behavioral displays on SNS for the individual user from a psychological perspective, the first part of the literature review started with a conceptualization of social norms (Chapter 1) and presented classic theoretical approaches to the study of social norms (Chapter 2). In this regard, social norms were conceptualized as shared and negotiated rules for social behavior in a group (Cialdini & Trost, 1998), which can be descriptive or injunctive in nature: While descriptive norms provide information about what other people typically do, injunctive norms refer to what other people approve of (Cialdini et al., 1990). Although they are certainly interrelated and not easily unraveled, neither theoretically nor empirically (Cialdini & Goldstein, 2004), research has shown that both can account for significant independent effects in a variety of behaviors (see research on the extended TRA, Chapter 3.1, as well as research on the TNSB, Chapter 3.2.1, and the focus theory of normative conduct, Chapter 3.2.2). In addition, mechanisms and moderators of the

relation between norms and behaviors have been presented (Chapter 3.2), with a specific emphasis on the nature of the reference group and the impact of norm salience. The reference group is important because social norms, irrespective of their descriptive or injunctive nature, always pertain to a specific “group of people,” among which a collective understanding about typical and favored behaviors exists (A. Chung & Rimal, 2016). Thus, social norms might have different effects on individuals depending on the individual’s relation to the specified or perceived reference group (Neighbors et al., 2007). Moreover, contrary to overt social pressure, the influence of social norms is often implicit. When an individual comes to a perception of a social norm, it is possible that he or she has no explicit intention to conform, but follows unconsciously nonconscious (Nolan et al., 2008). The salience of a norm, that is, whether it is accessible to the individual, can, however, be a crucial factor for norm influence (Cialdini et al., 1990).

From the perspective of the individual, the *perceived* norm rather than its actual representation in the society is vital for the impact of a social norm (Berkowitz, 2005). Therefore, different ways in which social norms may be perceived have been characterized (Chapter 4): Most generally, social norms are negotiated and learned through communication and social interaction in the respective reference network (Rimal & Lapinski, 2015). Some norms may be transmitted through direct communication, others may be observed or inferred from the behaviors of others (Cialdini & Trost, 1998). In addition, normative perceptions can be affected by receiving information about the group from other sources in physical as well as in symbolic media environments (Mead et al., 2014; Tankard & Paluck, 2016). In this regard, research from the social norms approach has shown that media messages can be used to provide explicit information about social norms to correct misperceptions and increase normative behavior. However, social norm perceptions might also be influenced more implicitly through exposure to media models, exemplars, or by the assumed influence on others.

Based on the review of classic theories and research on social norms, the previous chapter (Chapter 5) introduced SNS as a realm for social norm perceptions and normative influence. As outlined in this chapter, SNS are increasingly popular and disclosure of personal information about oneself, one’s opinions, or behaviors via public or semipublic posts on these platforms is typical and a popular feature to fulfil the need for self-presentation (Nadkarni & Hofmann, 2012). Since SNS connect users to their friends and peers from their offline lives and offer the opportunity to consume the information provided by their connections (Ellison & boyd, 2013), users can encounter their friends’ and peers’ disclosures

about their behavioral conduct (i.e., behavioral displays). These behavioral displays are typically presented in a stream of information featuring the aggregated posts produced by a user's network of contacts and can provide exemplary evidence for the occurrence of certain behaviors in his or her relevant reference group.

Building on the social norms literature and based on the argument that SNS provide constant access to peer models for behavioral conduct, displays of peers' and friends' behaviors in these online realms seem to be a natural and common source of information that could shape users' perceptions about what is normative in their reference networks. From a theoretical perspective of the social cognitive theory (Bandura, 1986), these mediated representations of other persons' actions could be a source for individuals to learn and adopt (normative) behaviors. Moreover, the exposure to behavioral models in displays on SNS could serve as a cue to focus receivers on a social norm and, in line with the assumptions of the focus theory of normative conduct (Cialdini et al., 1990), lead to the uptake of normative behavior. Thus, the primary aim of the present dissertation is to investigate whether exposure to behavioral displays in posts on SNS can be an implicit way of receiving information about social norms that may shape a user's normative beliefs and behaviors. In this regard, behavioral displays in broadcasted communication on SNS are examined as the primary object of study against the background of social norms theories and social influence research.

The following schematic model illustrates the key processes derived from the presented literature (see Figure 1).

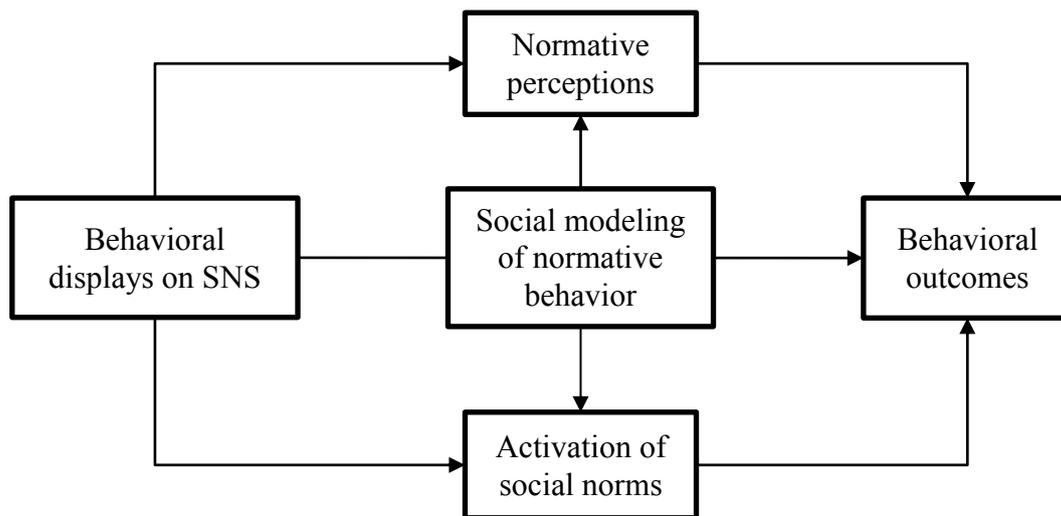


Figure 1. Schematic model of mechanisms of social norm perceptions and normative influence on SNS.

Research Questions and Empirical Approach

Building on the theoretical background, the primary open question identified in the present work is whether behavioral displays on SNS can provide information about social norms and shape a user's normative beliefs and behaviors. In order to address this question, a mixed-methods approach was used to investigate normative influence and the formation of normative perceptions in the realm of SNS from different perspectives and with different emphases. Overall, three empirical studies were conducted, which focus on the estimation of normative perceptions and influence on SNS from the users' perspective (Study 1), on the influences of different normative cues in SNS posts (Study 2), and on the influence of repeated exposure to SNS posts over time (Study 3).

First, the literature review shows that more research is needed on the questions of which social influence effects SNS users anticipate from exposure to SNS posts and which inferences they can draw about their friends based on behavioral displays on SNS. To fill this gap, in a first study, general aspects of social influence in the context of Facebook use were explored by means of qualitative interviews. Specifically, the study examines the potential of SNS to serve as a source of social norm information and to investigate mechanisms and facilitators of social influence on Facebook through exposure to the content posted by users' networks of peers.

In addition, two experimental studies are presented that investigate effects of other persons' behavioral portrayals on SNS in a more systematic way for the context of prosocial

behavior. The topic of prosocial behavior was chosen to investigate normative mechanisms on SNS for more desirable outcomes than what has been focused on in the current research on risk behaviors. This is an important extension of the research field because it aims to provide a counterbalance to the studies on the risks of SNS use by emphasizing the chances and simultaneously testing whether the theoretical mechanism of social modeling and normative perceptions are more generalizable to other content on SNS. Since millions of SNS users could be subjected to this kind of influence, studying normative effects in social networking realms is not only theoretically relevant but can provide meaningful insights and implications for society at large.

Prior research from the field of psychology has shown that social norms and peer influence are key mechanisms for the prediction of a variety of prosocial activities, such as donating (e.g., Nook, Ong, Morelli, Mitchell, & Zaki, 2016), volunteering (e.g., Choukas-Bradley, Giletta, Cohen, & Prinstein, 2015; Francis, 2011), or acting in ecofriendly ways (e.g., Bergquist & Nilsson, 2016; Goldstein et al., 2008). For example, scholars have found that participation in prosocial activities, such as engagement in a project that supports disadvantaged children, is significantly related to the perception of involvement in prosocial activities among friends, reference groups, and important referents inside and outside the family (Johnson & Neale, 1970). On SNS, users can easily share their thoughts of (dis-)approval about these issues online or post about their own engagement in their selective self-presentations. Moreover, research on prosocial behavior has shown that social influence and the impact of social norms exceed mere imitation of behaviors and can cross behavioral boundaries, which means that observing other people engaging in one type of prosocial behavior can influence other types of prosocial behavior as individuals might adopt the “deeper goals and motives of those around them” (Nook et al., 2016, p. 1045). Since the influence of social models also operates via mediated interactions and observations (Bandura, 2001), this mechanism could apply in the context of social networking streams, where a user’s network members typically do not uniformly model one type of behavior, but are encouraged to communicate about anything that is on their minds. If then some posts include references to different forms of prosocial behavior, this might activate the general concept and motivate users to more prosociality. Whether these theoretical assumptions withstand an empirical test is an open question and will be addressed in the second and third study of the present dissertation. Moreover, the investigation of social modeling effects and normative influence mechanisms on prosocial behavior in the context of SNS enhances the prior research on

normative mechanisms in this realm, which has almost exclusively addressed health-related topics.

Therefore, two experiments were conducted: a laboratory experiment focusing on short-term effects of normative information in SNS posts (Study 2) and a 6-week online experiment investigating the influence of repeated exposure to prosocial posts over time (Study 3). Study 2, specifically, aims to disentangle the influences of descriptive and injunctive normative information in SNS posts and to examine the role of the source of the posts. It is guided by the following global research questions:

- *Do references in others' SNS posts that focus on engagement or approval of prosocial activities influence receivers' prosocial behavioral intentions?*
- *Does it make a difference whether the posts stem from a user's personal contacts?*
- *Can social observations of others' good deeds increase perceptions about one's own abilities to do good?*
- *Do SNS posts with prosocial references make prosocial norms more accessible and affect the perceptions of prosocial norms for different reference groups?*

While Study 2 focuses on potential outcomes of a one-time exposure to prosocial SNS posts, Study 3 aims to investigate the impact of SNS posts on normative perceptions and behavioral outcomes in a more naturalistic – albeit still experimentally controlled – way by considering the factor of time. It is driven by the assumption that frequent exposure to prosocial references on SNS over time might be necessary to alter the general perception of prosocial social norms. The following global research questions guided Study 3:

- *Does repeated exposure to prosocial behavioral displays in SNS posts affect subjective perceptions about social norms regarding prosocial behavior?*
- *Do the effects differ for different rates of exposure?*
- *Is the current or planned engagement in prosocial activities as well as the perceived ability to act prosocially affected by the exposure rate?*

In all studies, Facebook is consistently used as an example SNS. Thus, for example, the creation of the stimulus material is based on Facebook. Each study will be presented in detail in the following chapters.

III. Empirical Approach

7 Study 1: Exploratory Investigation of Social Networking Sites as a Venue for Social Norm Perceptions and Normative Influence

7.1 Objective und Research Questions

A primary purpose of the first study of the present dissertation was to gain first-hand insights on Facebook users' handling of the platform and their usage experiences – especially with regard to their passive use and their perceptions and interpretations of the content provided by their peers. Therefore, an exploratory approach in the form of qualitative interviews was chosen as a starting point of the empirical approach to investigate the potential of SNS to convey social influence and information about social norms from a user perspective.

As summarized in Chapter 5.1, SNS, such as Facebook, are virtual environments, in which social information about friends and peers are easily accessible. Since individual user profiles on SNS have faded into the background as the sharing of media content became more prominent (Ellison & boyd, 2013), most information on Facebook is – in its current state – presented to users in the form of a stream, called the News Feed. By browsing this stream of information, including the publicly or semi-publicly broadcasted posts of friends (Ellison & boyd, 2013), Facebook might provide new and additional means by which users can receive information about behaviors and attitudes of relevant reference groups.

Against this background, it seemed relevant to first explore how users deal with the variety of contents that they are exposed to on the platform, to identify which pieces of information matter to them, attract their attention, and which characteristics are relevant for their selection of information. This can help to gain a better understanding of which information is salient to users on Facebook. Thus, of particular interest for the present research is the question, which aspects are relevant for participants' information selection on Facebook.

RQ1: Which aspects are relevant for participants to perceive and select information on Facebook?

In addition, it appears worthwhile to explore the composition of users' network contacts in more depth as this work has a primary interest in studying mechanisms of social norm perceptions and normative influence in the realm of SNS. Social norms always pertain to a certain group, for which the norm is commonly understood as a rule for behavioral conduct (Cialdini & Trost, 1998). Thus, knowing the reference group is important to determine the group members influence on a person. An examination of the connections subsumed under the umbrella term of Facebook friends might give some insights on the characterization of reference groups represented by Facebook contacts. Therefore, the following research question is formulated:

RQ2: With whom are Facebook users connected via the platform?

Building on the literature review on social norm perceptions (see Chapter 4), it has been argued that individuals can learn about how prevalent and approved certain behaviors are in their reference groups (i.e., descriptive and injunctive norms) from their direct interactions with other members, for example, through communication and interaction (e.g., Rimal & Lapinski, 2015) as well as from exposure to normative information in media environments (e.g., Mead et al., 2014) or explicit normative messages and overview information (e.g., Tankard & Paluck, 2016). In this regard, the research on the persuasive effects of social norms messages has shown that explicit normative cues, such as numerical information or textual descriptions of what the majority has done or approves of, can be an effective means to influence behavior (e.g., De Groot et al., 2013; Demarque et al., 2015). The present dissertation, however, investigates whether normative perceptions can be derived from more implicit cues, such as other users' behavioral displays in their SNS communication.

With regard to normative perceptions in the context of social media, first research suggests that SNS – since they allow for peer observation and communication – could be a fertile ground for the spreading, development, and cultivation of social norms (e.g., Huang et al., 2014; Nesi et al., 2017). Studies on risky drinking behavior have shown that exposure to alcohol content shared by friends on SNS and perceptions of friends' injunctive and descriptive drinking norms were positively related (Beullens & Vandebosch, 2016; see also Geusens & Beullens, 2016, for relations to subjective norms; and Nesi et al., 2017, for injunctive norms). As there is rarely any experimental research on the perception of social norms in the realm of SNS (cf., Fournier et al., 2013; Litt & Stock, 2011), more research is

needed to determine the direction well as potential facilitators and boundaries of the relation between normative perceptions and exposure to normative information on SNS. In this regard, a qualitative approach can provide relevant insights on how users react toward behavioral displays on SNS and which potential normative information they draw about the prevalence (i.e., descriptive norm) or approval (i.e., injunctive norm) of certain behaviors in their reference groups. Thus, the present study explores whether participants draw inferences about the behaviors and attitudes of their friends based on Facebook posts.

RQ3: Which inferences do users draw about their friends based on Facebook posts?

The review of the research on social influence processes in the realm of social media settings (see Chapter 5.2) has shown that a number of studies have investigated the effects of evaluative user comments and user representations on viewers perceptions of the object of evaluation (e.g., Neubaum et al., 2018; Walther, DeAndrea, et al., 2010). Moreover, a line of research has shown that individuals' online behaviors (e.g., clicking, liking, or commenting) can be affected by the behaviors of other online users (e.g., Bakshy et al., 2012; Rösner & Krämer, 2016). Prior work on the influence of behavioral displays on SNS stems predominantly from the health domain and provides first evidence on the existence of a positive relation between frequent exposure to displays of risky health behaviors on SNS and risky health behavior in the offline world (e.g., Branley & Covey, 2017). From a theoretical perspective, this influence could be explained by the mechanism of social modeling (Bandura, 1986), in that peers' behavioral displays provide an occasion for observational learning. In addition, social information about peers' behavior can activate a social norm (as suggested by the focus theory of normative conduct, Cialdini et al., 1990) or affect normative perceptions (as proposed by the social norms approach, Berkowitz, 2005), which in turn could influence the behavior.

Thus, an exploratory approach to the potential social influence effects of passive SNS use seems to be a fruitful starting point to understand how users experience behavioral displays on SNS and what kind of effects they have experienced or could imagine. In this regard, a great advantage of qualitative interviews is that they not only provide insights on how individuals evaluate certain aspects but also how they come up with their evaluations. In this way, also potential underlying processes and facilitators of the anticipated influences can be explored.

First, potential effects of exposure to other users' Facebook posts are investigated, to gain insights on which potential influences are accessible to users. In addition, the presumed influence hypothesis suggests that it is important to explore how users evaluate the potential of Facebook posts to influence other users, because research has shown that perceptions about others' susceptibility to influence can indirectly influence a user's own behavior by altering his or her normative perceptions (Gunther et al., 2006).

RQ4a: Which social influence effects do users anticipate from Facebook posts for themselves?

RQ4b: Which social influence effects do users anticipate from Facebook posts for other users?

Building on the premise that the exposure to behavioral displays in SNS posts can influence receivers own engagement in the respective behavior, an open question is whether there are certain factors that could increase or decrease the influence of a Facebook post. Hence, the present study aims to explore Facebook users' perspective on how posts on SNS can be influential. Thus, a final research question is concerned with the potential facilitators of (anticipated) social influence in SNS realms.

RQ5: Which factors facilitate the anticipated social influence effects from Facebook posts from users' perspective?

7.2 Method

A qualitative approach that comprises semi-structured interviews was pursued to investigate the research questions. During the interviews, participants were exposed to exemplary Facebook posts and asked to verbalize their thoughts. The study was approved by the local ethic committee.

7.2.1 Sample

Twelve Facebook users (18-23 years-old, 50% female) took part in the study. They were undergraduate students (75% freshmen) recruited from a study program in media science at a large German university. A precondition for taking part in the interview study

was that participants were required to have a Facebook account and to use the platform on a regular basis. On the basis of a short survey (completed at the beginning of the interviews), it was ascertained that all participants frequently use Facebook: Seven participants visit Facebook several times per day, three on a daily basis, and two several times per week ($M = 7.42$, $SD = 0.79$; measured on a scale from 0 = *never* to 8 = *several times per day*). The average time per day spend on Facebook ranged from 8 to 120 min ($M = 46.04$, $SD = 34.44$). Moreover, participants had on average $M = 311.83$ ($SD = 151.29$) friends. Concerning specific uses of Facebook features, participants seldom post status updates ($M = 2.25$, $SD = 1.42$), upload pictures ($M = 2.58$, $SD = 1.17$) or videos ($M = 1.25$, $SD = 1.22$), change their profile pictures ($M = 2.08$, $SD = 0.90$), or post their location ($M = 1.92$, $SD = 1.44$); their average use of the private message function was once a week ($M = 5.08$, $SD = 1.24$). The items were rated on a 9-point scale (0 = *never*, 1 = *once a year or less*, 2 = *several times a year*, 3 = *once a month*, 4 = *several times a month*, 5 = *once a week*, 6 = *several times a week*, 7 = *daily*, 8 = *several times a day*).

7.2.2 Procedure

Participants were invited to the laboratory and introduced to the study procedure. They were informed that the researcher was interested in receiving an impression of their actual Facebook usage and would ask questions about the topics communicated on Facebook, the functions that are used, how different posts are perceived, with whom they communicate and what potential effects Facebook posts might have. Moreover, they were told that they would be exposed to several examples of Facebook posts during the interview.

Participants were encouraged to speak openly and to tell as much as they liked as there were no right or wrong answers to the questions. Before the interviews started, they were asked to sign a declaration of consent and to fill out a short questionnaire on their demographics and Facebook use frequencies. Each participant signed the consent form and gave his or her written permission to audio-record the interview.

The interviews were conducted based on an interview protocol (see the next section for details), which started with several general questions regarding participants' usage patterns of Facebook, followed by questions on their perception and attention processes regarding the content on the platform and the composition of their Facebook contacts. The second part of the interview focused on the effects of passive Facebook use, in terms of exposure to specific content, and explored the potential of Facebook to constitute a venue for

social norm perceptions and social influence. Specifically, it was aimed to explore which conclusions users draw about their friends' behaviors, attitudes, and expectations based on Facebook posts and in what ways these posts might (potentially) influence their own behaviors and intentions. To address these aims, different techniques were used, which included open-ended scenario questions, a discussion based on exemplary Facebook posts, experience questions as well as questions about first- and third-person perceptions regarding the influence of status updates. The questions increased over the course of the interview in their level of explicitness and directness.

The semi-structured approach, however, allowed for deviations in the order and wording of the questions in the interview protocol. To warrant a smooth conversation and to avoid redundancies, questions were asked based on participants' answers. Moreover, participants' answers were taken up again to convey appreciation and to lead over to the next question. Additionally, spontaneous questions were asked in order to explore interesting aspects in more depth. Therefore, the interviews differ in the number, order, and phrasing of questions asked.

To control for interviewer effects, all interviews were conducted by the same interviewer. Moreover, the interviewer conducted two test interviews in preparation for the study to acquire assurance in handling the interview protocol and the reactions of the interviewees. The interviews were conducted between October 20 and November 3, 2014 and lasted between 50 and 80 min. Participants received course credits for their participation and were fully debriefed.

7.2.3 Interview Protocol and Material

The first part of the protocol addressed questions about participants' general Facebook usage (their reasons for using the platform, their most frequent activities on the platform and their specific uses of different features, such as status updates, groups, private messages, likes, and comments). Moreover, participants were asked in greater detail about their passive use of Facebook, specifically, they described what kind of content they perceive in their News Feeds while browsing Facebook, what their friends on Facebook post about, which content catch their attention or is looked at more closely and why. These questions served as a warm up for participants and offered first indications about the content that is salient to users. In addition, the composition of participants' friends on Facebook was discussed. In this regard, they were asked with whom they are friends with on Facebook, whether they could categorize the

people based on different groups they belong to, and whether they perceive similarities, differences, or potential problems regarding their posting behaviors on the platform. Moreover, a short creativity technique was used to grasp participants' view of Facebook. The first part of the interview provided the researcher with first valuable insights on the social networking site Facebook as an object of study and was used to answer RQ1 and RQ2.

The second part of the interview aimed to investigate potential social influence effects of Facebook posts from users' perspective in more depth. Participants were asked about indicators on Facebook which help them to identify how typical a behavior is and to think about a situation in which they have felt motivated or urged to do something after they had seen a status update on Facebook. This question was used to code for initial examples of (anticipated) behavioral influences of Facebook posts (RQ4a).

In a next step of the interview, participants were shown some visual stimuli of exemplary status updates about alcohol and drinking behavior, which served as a basis for exploring potential inferences users make about their friends based on Facebook posts (RQ3) as well as potential social influence effects in more depth (RQ4a). Three status updates were created as stimulus material with a graphic editing software and presented to participants one by one on a tablet device. In the first one, drinking behavior is described in retrospective and framed positively. The second example shows a pre-party occasion and comprises a less positive and less socially approved framing of drinking behavior. The third example focusses on the behavior of not-drinking at a party, which is described in retrospective and framed positively (see Figure 2). The topic of alcohol consumption was chosen because it is the primary example studied in the current literature on normative effects on SNS (e.g., Beullens & Vandebosch, 2016; Geusens & Beullens, 2016; Nesi et al., 2017; Rui & Stefanone, 2017) and the present qualitative approach provides a valuable extension to previous quantitative studies by analyzing the specific aspects that are relevant for alcohol displays on Facebook to have an impact on viewers' normative perceptions and behaviors from SNS users' point of view. Thus, the analysis for RQ3 and (part of the analysis) for RQ4a focus on the specific context of alcohol displays. For each post, participants were asked to describe what is communicated in the post and the comments and to verbalize their thoughts. Then, the interviewer asked several questions about their perceptions of the authors (What does it say about the attitudes and behaviors of the persons? Whose attitude/behavior is shown here? How representative is this?), about the effect the post has on their own behavior, and what their reaction would be, if it was posted by a close friend. In addition, interviewees were asked two scenario questions with regard to each post: "Please imagine that you just saw this

post in your News Feed and are going to catch up with friends in the evening to go out drinking. How does this post affect your behavior in the evening? How does this post affect your behavior, if you are going out with the friend who had posted it or the persons who commented on it?”

Translation of the stimuli:

Upper left (1): Post: Hangover Woohoo, I've been drinking too much for suuhuure :-); Slogan: Who looks like shit on Monday had an awesome weekend...; 1st comment: hahaha, yes me too :-) what an awesome party!! I would go back there straightway, if I only knew where we were :-) 2nd comment: We were in a land of rum and vodka :-); 3rd comment: Oh yes, I remember! There was a lot :-); 4th comment: It was mega awesome. The headache was absolutely worth it :-)

Upper right (2): Post: The Tequila crew takes to the road again :-) Cheers!; 1st comment: Ugh Tequila – disgusting; 2nd comment: Two already? Aren't you just three people?; 3rd comment: It's really adding by subtracting; 4th comment: Keep Toni away from the alcohol, otherwise this is heading for a disaster again..

Below (3): Post: Didn't touch a drop of alcohol yesterday and had the best evening of the year! Awesome party!; 1st comment: Very good, I will try that soon, too; 2nd comment: Most of the time, I don't really drink either or just one beer or so and I have made the best experiences with that. I like keeping track of things :-); 3rd comment: Yes, I can only agree with that; 4th comment: well, maybe I should try it sometime..

Figure 2. Stimulus material used in Study 1.

After the three example posts had been discussed, the final part of the interview protocol directly asked for participants' assessment of the influence Facebook content generally has on their own as well as other users' attitudes and behaviors and who they think is particularly susceptible to the influence. The question was formulated in a first- and a third-person manner to examine and compare potential influences on the self (RQ4a) as well as on others (RQ4b). Moreover, participants were asked by what means Facebook posts can be influential (e.g., with regard to the number of likes, comments, or the source of the post) to explore potential facilitators and boundaries (RQ5).

In addition to the alcohol example, the interviews addressed a second scenario concerned with the perception of Facebook posts on sociopolitical topics. Participants were asked to imagine the following scenario and to describe their thoughts: "Please imagine that you scroll through your Facebook News Feed and see that many of your friends have posted something on current sociopolitical topics." Moreover, they answered several follow-up questions (e.g., what they would think about the people who post this, which conclusions they can draw by such posts about the political interest and behavior of persons and how representative this is, which effects these posts have on their own behavior, and how they feel about their own engagement with political issues/news). This scenario was, however, not considered in the following analyses, because it did not create a substantial added value for the exploration of the research questions.

7.2.4 Preparation and Analysis of Qualitative Data

Transcription

The audio data was transcribed based on the instructions for easy transcription, which emphasizes on the content and does not include translations of non- or para-verbal aspects (Dresing & Pehl, 2010, 2013). The data was coded verbatim, pauses were coded with (.), (..), or (...) depending on the duration, and exceptional accentuations were coded in capital letters (e.g., "REALLY good").

Units of Analysis and Coding Frame

The data transcripts were content analyzed with the software MAXQDA in a data-driven approach (Schreier, 2012). A coding frame was developed, partly deductively based on the research questions and interview sections and partly inductively based on the material. Overall eight main dimensions were defined, which each comprise several subcategories.

Some subcategories were further subdivided. Thus, the developed coding scheme includes more than two hierarchical levels. The main dimensions are shown in Table 1.

The subcategories and their subdivisions are presented with the respective analyses. By reading line through line of the transcripts, passages that matched a category were assigned. There was no rule regarding the length of a passage; this could be a single word, a sentence or multiple sentences. Initially, all relevant passages were coded, even if an argument was already mentioned elsewhere in the interview. Thus, it is possible that one code was applied multiple times per transcript. For the presentation of the results, multiple references of one interviewee were counted only once, in order to provide information about how many of the participants had mentioned an aspect. For the research questions RQ3 and RQ4 also the overall number of mentions is presented because participants were exposed to multiple examples of Facebook posts and, thus, the number of mentions could provide insights on how relevant an aspect is across different examples.

The coding scheme was discussed with a second researcher who additionally coded two complete interview transcripts to validate the applicability of the codes. The assignment of the codes was discussed, the code descriptions were refined, and misunderstandings were resolved before the interrater agreement was calculated. According to Landis and Koch (1977), the interrater agreement was substantial to almost perfect for the documents (Cohen's $\kappa = 0.77$ and $\kappa = 0.85$).

Table 1

Overview of the main dimensions

Dimension	Related RQ
Aspects relevant for the selection of contents on Facebook	RQ1
Facebook friends	RQ2
Inferences about friends (based on alcohol displays)	RQ3
(Anticipated) effects from Facebook posts on the self (based on alcohol displays)	RQ4a
Examples of (anticipated) influences from Facebook posts on the self	RQ4a
Examples of (anticipated) influences from Facebook posts on others	RQ4b
Characteristics of susceptible persons	RQ4b
Facilitators of (anticipated) social influence effects on Facebook	RQ5

7.3 Results

Perception and Selection of Content on Facebook

In line with how Facebook presents its idea of the News Feed (Facebook, 2017b), participants described to see a variety of content in this information stream, including posts of their friends as well as third party content, either liked by their friends or by themselves. In order to get an understanding of what content participants particularly look at on the platform, in terms of what attracts their attention and is selected for further examination, the aspects that are relevant for participants' perception and selection of information on Facebook were explored (RQ1). Participants' answers were clustered into the following five subcategories: *source*, *topic*, *visual content*, *text formulations*, and *user reactions*.

Several interviewees ($n = 9$) described that the *source* of an information is an important factor relevant for the selection of content. One participant, for example, stated:

“In most cases I look at who has posted it. And if it is someone I am not really interested in, with whom one is only still friends with because one thinks that it might not be well received when I cut the acquaintance [with the person], I simply stop reading the stuff.” (female, 18)

Another person explained why particularly posts from closer connections are relevant: „Well, for some of my friends I know that when they post something – also because they do not post so frequently – that it is something good. Also, because I know them and I know that I have the same humor or the same opinions or whatever...” (male, 19)

In addition to the source of a post, several participants mentioned that they select posts based on the *topic*, that is, they particularly look at posts that are interesting for them with regard to their content. This code was further subdivided: Three persons stated that they are mainly interested in the *personal posts* of their friends.

“Personal stuff interests me more than anything that comes from second or third parties.” (female, 18)

Three persons also mentioned that especially *advertisements or duplicated content* from pages (e.g., when a picture or video is shared multiple times) would be less interesting

and would often be skipped while reading through the News Feed. Two persons described that they mainly look at *content from pages* (e.g., news articles) rather than at personal status updates.

In addition, seven participants mentioned that *visual content* most likely catch their attention when scrolling through the News Feed and two persons described that content with an interesting *formulation* is selected more readily. Moreover, three persons described that *user reactions*, such as likes or comments, would increase the likelihood of examining a post in more depth; one person, however, stated that *user reactions* would not affect this decision.

Categorization of Facebook Friends

When participants described who their Facebook friends are and how they know these people (RQ2), the following *social contexts* were identified: friends from *school* ($n = 12$), from *university* ($n = 9$), from *clubs or leisure time activities* ($n = 8$), *childhood friends* ($n = 5$), *met somewhere* ($n = 5$), *come to know by friends* ($n = 5$), *family* ($n = 5$), *from abroad* ($n = 3$), and *work* ($n = 1$).

Moreover, participants' characterizations of their Facebook friends were further classified according to their described tie strength. *Strong tie* and *weak tie* relations were distinguished. Nine participants described strong tie relations. This subcode was applied when participants, for example, mentioned "true friends" (female, 18), "friends with whom I am really friends with in real life" (female, 19) or "my close friends with whom I'm really in touch everyday" (female, 18). Moreover, all interviewees mentioned weak ties among their Facebook contacts, which are described as people with whom one has less contact or does not know very well. Many participants specifically referred to old friends from their primary or secondary school when describing weak contacts. For example: "People I have been in school with, who have moved somewhere else now, and who I also haven't seen for a long time now" (male, 19) or "...there are groups of people, which I only have on Facebook because I had something in common with them in the past, but I have no relation to them anymore today" (male, 21). As a reason for why these people are kept in the Facebook list, one participant explains: "One is a little bit curious what has happened in their lives in the past years" (female, 18).

Inferences about Friends Based on Facebook Posts

In order to answer the question of which inferences users draw about their friends based on Facebook posts (RQ3), participants' reactions toward the alcohol displays were

coded with regard to the following subcategories: perceptions about friends' *drinking behaviors*, *drinking attitudes*, and *drinking expectations*. Table 2 shows an overview of the codes and numbers of mentions.

Table 2

Codes for participants' inferences about their friends based on alcohol displays

Dimension	Subcategory	# of interviewees
Inferences about friends (based on alcohol displays)	Drinking behaviors	6 (8 mentions)
	Drinking attitudes	4 (7 mentions)
	Drinking expectations	3 (3 mentions)

Note. Since participants saw several stimuli of alcohol displays and sometimes mentioned an aspect repeatedly, the overall number of mentions is shown in parentheses.

When participants were confronted with the exemplary alcohol displays and asked to imagine they were posted by friends, several participants described estimations about their friends' *drinking behaviors*.

“When they would post so much about it [drinking] and I go out with them for a drink, I would already know where I get myself into. I would then assume that they will not only drink a Coke today...” (female, 19, general comment)

Moreover, four persons referred to perceptions of *drinking attitudes* and described that the posts would provide information about what their friends think about drinking:

“Well, I can learn from the Facebook post that all my good friends do not like that [tequila].” (male, 21, referring to the second post)

“I can adapt myself to it. I already know, well, for them it looks so-and-so, they have this opinion about it.” (female, 19, general comment)

In addition, three persons described that they would gain a perception about their friends' *drinking expectations* based on the posts. The perceived expectations depend on the behavior displayed (either heavy drinking or sobriety):

“I would then probably think that she would expect that there will be a lot of drinking, because that is what she understands as a good weekend, and that she would be disappointed when one does not drink so much.” (female, 18, referring to the first post)

“The expectation would probably be that one does not drink or that one drinks only a little, which could conceivably be realized sometime.” (male, 19, referring to the third post)

(Anticipated) Social influence Effects of Facebook Posts

To answer RQ4a, which asks for potential social influence effects of Facebook posts, participants’ statements about potential influences of the alcohol displays were categorized. The following three subcategories were built: anticipated effects on *own drinking behavior*, anticipated effects on *communication behavior*, and *cognitive reactions*. These were further subdivided (see Table 3 for an overview).

Table 3

Subcodes for the (anticipated) effects of Facebook posts based on alcohol displays

Subcategory	Sub-subcategory	# of interviewees
Drinking behavior	Behavioral adaptation (private acceptance)	3 (6 mentions)
	Behavioral adaptation (public compliance)	4 (7 mentions)
	Subconscious influence / reflection	4 (6 mentions)
	No influence	10 (45 mentions)
Communication behavior	Offline communication	6 (11 mentions)
	Reactions on post (online)	5 (8 mentions)
Cognitive reactions	Negative cognitions/social comparisons	5 (6 mentions)
	Positive cognitions/feelings	2 (2 mentions)

Note. Since participants saw several stimuli of alcohol displays and sometimes mentioned an aspect repeatedly, the overall number of mentions is shown in parentheses.

With regard to the anticipated influences on their own drinking behaviors, participants most frequently stated that the exposure to the alcohol display would have *no influence* on their own behavior. Some participants described that they could imagine an indirect or *subconscious influence* of the alcohol display on their own drinking behavior, both, for drinking more as well as for drinking less (depending on the displayed behavior).

“Maybe I would think about drinking less that evening than I would have done anyway. Well, I don’t know whether it would have a direct influence, but maybe I would have it in the back of my head.” (female, 18, referring to the third post)

Furthermore, several persons described an anticipated *public compliance* reaction, in terms of a superficial behavioral adaptation when others are present, but not a private change of attitudes or behaviors.

“When I know through Facebook that the people are totally against alcohol, I would not perform the super-drunk and would not always drink in front of them. I would probably reduce it [drinking], but I would not completely align myself with them.”
(male, 21, general comment)

On the other hand, some persons described an anticipated change in their drinking behaviors in reaction to the Facebook post (either drinking more or less), which was coded *private acceptance* when participants described an anticipated behavioral adaptation without any limitations, such as the presence of the friends who had posted about alcohol:

“Well, it could be that I perhaps adopt the behavior (.) and drink less that evening.”
(male, 19, referring to third post)

“Maybe that one drinks a bit more. Well, not much more, but that when you think, well, not so much, that you then think, well okay, a bit more maybe.” (female, 18, referring to the first post)

In addition to the potential influences on their drinking behavior, several participants mentioned that they might talk to the friend about the content of the post when they see him or her the next time (*offline communication*). Moreover, two persons expressed an intention to *react upon a post*, for example, by liking it. Three persons stated that they would not like or comment on the posts online.

With regard to the *cognitive reactions* toward the alcohol displays, two persons described *positive cognitions/feelings*, in terms of perceptions of support or self-justification for their own behavior. Moreover, five persons described *negative cognitions/social comparisons*, in terms of negative comparisons or thoughts about the self. For example, that they would feel bad, if they had not been invited to the drinking occasion, or if they, compared to what is displayed in the post, had a less exciting weekend.

“Well, if I had done nothing the whole weekend, I could imagine that I would think: ‘I should also have done something’...” (female, 18)

To summarize, participants over all estimate the influence of alcohol displays on their own drinking behavior relatively small. Most frequently they mentioned no anticipated

effects. However, several persons could imagine a subconscious influence or a public compliance reaction (adoption of behavior in front of others, but not in private) and some persons even described a change in behavior independent of the presence of others (private acceptance). In addition, the findings show that the alcohol displays could elicit positive as well as negative cognitions and serve as subject of conversation.

Examples for (Anticipated) Influences of Facebook Posts on Self and Others

In addition to their estimations of social influence effects based on the exemplary alcohol displays, several participants described examples for potential or experienced influences of Facebook posts when they were asked about the general potential of content on Facebook to influence attitudes or behavior. In order to further explore potential effects of Facebook posts (RQ4a) and to investigate RQ4b, which asks for the (anticipated) influences of Facebook post on other users, it was differentiated whether participants referred to a potential first or third-person effect (see Table 4 for an overview of the (anticipated) effects on self and others).

Table 4

Subcodes for the examples of (anticipated) influences of Facebook posts on self and others

Subcategory	Description /Examples	# of interviewees: effects on self	# of interviewees: effects on others
Inspire / motivate behavior	(Potential) influences of Facebook posts mentioned include tips and inspiration for activities or products as well as motivation for different forms of behavior, such as learning, eating, or helping	6 (7 mentions)	6 (7 mentions)
Negative feelings	Feelings of envy or loneliness	1 (1 mention)	3 (3 mentions)
No influence	No anticipated influences on attitudes or behaviors	4 (4 mentions)	1 (1 mention)

Among the various examples for the potential of Facebook posts to *inspire or motivate behavior*, several persons mentioned that they could receive tips and inspirations for products or activities:

“I notice it especially with regard to clothes. When I see something that I like and that perhaps several others have, I have a look, ‘Oh where do they got this?’ There, I notice for myself that I am easily being swayed.” (female, 19, effect on self)

“...There was someone who had posted about muffins and then I set off and said: ‘Okay, now you go bake muffins, too.’” (male, 23, effect on self)

Others mentioned that Facebook posts could motivate learning, food habits, or prosocial behavior:

“...when everyone posts something like ‘Today, I have already learned for six hours’, that one thinks: ‘Well, okay, I should do this, too.’” (female, 18, effect on self)

“...for example, a friend of mine is vegan and she permanently posts something like: ‘Eating a vegan diet is so great’. And I believe that because of that, many others have a look at it.” (female, 19, effect on others)

“...I think we once had a teacher at school who suffered from leukemia and then we had a time, when many people posted something about it and that one should get tested to determine the type. Many people from our school went there.” (female, 18, effect on others)

In addition to potential behavioral effects, some persons mentioned that Facebook posts could elicit *negative feelings* such as envy or loneliness.

“What I know from friends, when many people post pictures with their boyfriends or girlfriends, that (.) one feels particularly lonely.” (female, 18, effect on others)

These examples illustrate the potential range of social influence effects of Facebook posts. Moreover, the statements show with regard to RQ4b that participants attribute similar (potential) influences of the exposure to content on Facebook to themselves as well as to other persons – albeit more negative effects were attributed to others. With regard to the general potential of Facebook posts to influence attitudes or behaviors, however, substantial differences between the estimations of first and third-person effects are noticeable. Four persons stated that they would imagine *no influence* of Facebook posts on their attitudes or behaviors and one person also expressed this stand for other persons he knows. Moreover, when participants, after the exposure to the exemplary alcohol posts, were directly asked

about the potential of Facebook posts to influence other persons, many participants ($n = 10$) expressed that they could imagine an influence of alcohol displays on Facebook on other persons. Only two persons expressed that they would not expect an influence on others.

The Influence on Other (Susceptible) Persons

Participants were, furthermore, asked *who* they would think is most susceptible to the influence of Facebook posts. In this regard, participants named several person characteristics, which they perceive relevant for the influence of Facebook posts on other persons' attitudes or behaviors. The following seven subcategories were built: *personal opinion* ($n = 6$), *frequency and intensity of Facebook usage* ($n = 3$), *belongingness need* ($n = 4$), *young* ($n = 4$), *unsure* ($n = 3$), *naïve* ($n = 2$), and *male* ($n = 1$).

Most frequently, participants consider the strength of the *personal opinion* relevant for the influence of Facebook posts on reader's opinions and behavior.

“The personal opinion always plays a role. I think that when someone posts a large amount of alcohol, a picture of it, and one says that, well, like I said, I have the opinion that one does not need to drink in order to have a great evening, then I would not suddenly start to drink a lot because of that [the alcohol post]” (female, 19)

Some persons mentioned the *frequency and intensity of Facebook usage* as a potential factor that influences the effect of a Facebook post on a person's attitude or behavior.

“...When people post a lot on Facebook, have a close bonding to it, and check daily, every 10 minutes what is there on Facebook, I think, these people would more likely be swayed, because they really associate with it [Facebook]” (female, 19)

Moreover, several persons described that individuals with a high *belongingness need* would be specifically susceptible to the influence of Facebook posts.

“People who want to prove themselves or who badly want to belong to something. I think they would be easier swayed than those who already have a strong circle of friends and know that they are accepted the way they are.” (female, 18)

In addition, several persons mentioned that they would rather suspect *younger* persons to be influenced by Facebook posts as well as persons who are rather *unsure* and unconfident. Moreover, two persons characterized the persons susceptible to the influence of Facebook posts as *naïve* and one person anticipated boys (*male*) to be more susceptible than girls.

Facilitators of (Anticipated) Social Influences Effects of Facebook Posts

RQ5 asked for the facilitators of the influence of Facebook posts. Several aspects, such as the source of a post as well as the meaning of user comments and likes were discussed. Participants' statements were coded into the following five subcategories: *exposure rate*, *source*, *likes*, *comments*, and *other message characteristics*.

Throughout the interviews, seven participants referred to the *exposure rate* when they described potential factors that would impact the influence of Facebook posts on receivers' attitudes or behaviors. Some participants described that exposure to posts of multiple persons would be more influential than exposure to only one single post. Moreover, some persons explained that the continuity of exposure to Facebook posts would increase the influence of the displayed message.

“Well, I believe that it has to happen constantly and frequently. In a way that these posts not only predominate [the platform] for a month, but that every time one opens it, one sees a post about it...” (male, 21)

However, one person also describes that at a certain point, a too high number of posts about a topic would lead to reactance and a feeling of annoyance.

Regarding the *source* of the posts, participants' statements were further subdivided: Five participants mentioned *close friends* as influential and four persons described that posts of *popular persons* could have an influence on receivers' attitudes or behaviors.

“I would say it [the impact of a post] depends on who posts it, for example, when it is [posted by] a role model or a person they like or think is extremely cool, then yes [the post could be influential]” (male, 19)

Three persons ascribed *less importance* to the source of a post. One person, for example, explained that other factors, such as likes or comments, would be more important and a better indicator of a post's resonance.

Concerning the user reactions, six persons described the number of *likes* as an important factor that could increase the influence of a post. Four persons, however, explained that the number of likes would not be a meaningful indicator for them.

“For me, for example, four posts from different people with relatively few likes and comments would be more influential than one post with 20 likes and many comments; (...) because I think that many people only like posts, because they are friends with them [the authors of the posts].” (male, 19)

Five persons stated that the number and valence of *user comments* on a Facebook post could affect the impact of a main post. For example, negative comments could devalue the message of a post, while positive comments could foster it. One person, however, also describes that comments would be less meaningful, for example, for product decisions, when it is known that people have divided opinions about the brand.

In addition, three persons referred to *other message characteristics*, such as the formulation of a post or pictures on Facebook, and described these as influential for the motivation of behaviors.

7.4 Discussion

The present study aimed to provide first insights on normative influence processes in the realm of SNS and on the potential of SNS to function as a venue for the formation of normative perceptions. To explore the possibilities of social influence on the SNS Facebook and the feasibility to derive information about normative behavior, twelve young adult Facebook users were interrogated by means of semi-structured qualitative interviews. This approach appeared to be a fruitful starting point for the empirical investigation of the present dissertation, because it provides the opportunity to obtain SNS users' perspectives and their estimations of the potential influence mechanisms on the platform. In the following sections, the key findings are summarized and discussed along the order of the research questions.

The first research question asked for the aspects that are relevant for the perception and selection of content on Facebook. This question was explored to get an idea of the variety

of information users are exposed to on the platform and to understand which information is salient to users and why. Since salient information in media environments might cause misperceptions of the frequency of behaviors or events and could lead to the over- or underestimations of social norms (Perkins, 2014), examining the aspects relevant for users' selection of content can help to identify message characteristics that might facilitate the (mis-)perception of social norms based on exposure to SNS. In this regard, the interviews revealed that individuals pay particular attention to content from relevant sources, such as a person's close connections, and personal status updates posted by friends. Moreover, content with pictures or videos is frequently selected. Thus, status updates with visual elements that are posted by a person's friends on the platform could be a fertile way for spreading information about normative behavior on SNS, since these posts seem to be most salient and most likely selected for further examination by users. That especially pictures of peers' behavior can be a relevant way of conveying normative information has also been suggested by Stoddard et al. (2012) for the context of alcohol drinking behavior. The authors, however, explain this assumption with the mechanisms of social observation and social modeling (Bandura, 1986), not based on the argument that visual representations of friends' behaviors could be a salient cue for normative conduct. These mechanisms are, however, not mutually exclusive as the observation of social models could be used as a mechanism to increase the salience of a normative behavior (see experiments by Cialdini et al., 1990). An open question for future research on social modeling effects in the realm of SNS is whether the social observation of behavior from text-based displays of other persons' behavior (e.g., in status updates of friends) can have a similar influence as the observation of behavioral models based on visual displays.

With regard to the second research question, asking for the different categories of friends on Facebook, the interviewees described different types of social contacts, which were classified by social contexts (e.g., school, university). The different types of friends mentioned are basically in line with typologies suggested by prior research (e.g., Manago et al., 2012) and emphasize that individuals are connected to strong as well as weak ties on SNS (see also Ellison et al., 2014; Krämer, Rösner, Eimler, Winter, & Neubaum, 2014). In line with prior literature on social ties in SNS (De Meo, Ferrara, Fiumara, & Provetti, 2014), the interviews showed that weak tie relationships are more frequent on Facebook and more salient to users. Although many of a user's social contacts on Facebook are weak ties, the social contexts from which interviewees stated to know their Facebook friends suggest that most of the persons they are friends with on Facebook can be considered as peers, because many were

characterized as childhood friends or friends from primary or secondary school. Thus, Facebook friends are – to a large extent – composed of friends and peers from a person’s offline social contexts and, hence, include mainly contacts of a relevant social reference group.

In order to explore the potential inferences users make about their friends based on Facebook posts (RQ3) and the potential social influence effects they anticipate (RQ4a), participants reactions toward exemplary alcohol displays were examined. The findings concerning RQ3 suggest that the interviewees most frequently drew inferences about their friends’ drinking behaviors based on the exemplary displays; only some interviewees referred to their friends’ drinking attitudes and perceived expectations. All of the statements concerning the perception of friends’ behaviors referred to the perception of heavy drinking; not drinking alcohol – although displayed in one post – seem to have been less salient. Moreover, the examples revealed that participants drew inferences about pro- as well as contra-drinking attitudes and expectations based on how drinking behavior was framed in the Facebook posts. It is important to note that participants were not directly asked about potential inferences they would draw about their friends. Thus, it seems that these perceptions have been triggered by the alcohol displays in a rather unprompted manner. In sum, these findings show that exposure to status updates of friends who post about their drinking behaviors can elicit thoughts about the friends’ engagement in the behavior, their attitudes about it as well as potential expectations they might have on others. The perception of what other people typically do has been linked to the definition of descriptive norms and the perception of what others approve of is linked to the definition of injunctive norms (Cialdini et al., 1990). Moreover, perceived expectations of important others have been characterized as subjective social norms (Fishbein & Ajzen, 1975). Although the interviewees described similar perceptions, their statements referred to the perception of the concrete persons displayed as authors of the exemplary shown status updates and comments. Thus, an important question, which will be addressed in more depth in the following study of the present dissertation (Study 2, see Chapter 8), is whether individuals generalize these perceptions that are derived based on a few exemplary Facebook posts to their reference groups (e.g., friends and acquaintances, important persons). Moreover, future studies need to ascertain whether also other types of behavior displayed on SNS can elicit perceptions about friends’ performance of the respective behavior, their approval, or potential expectations. This research demand will be addressed in the following two experiments by investigating the effects of exposure to SNS posts with displays of prosocial behavior on receivers’ prosocial norm perceptions.

With regard to the potential social influence effects of Facebook posts (RQ4a), the results show that the interviewees gauged the effects of alcohol displays on their own behaviors to be rather small. Almost all participants stated that they would not experience any direct influence on their real-world drinking behaviors when they reflected upon their potential reactions toward the alcohol displays. However, it is noteworthy that several persons could imagine a subconscious influence of Facebook exposure and some even anticipated that they would adopt the displayed behavior (either publicly or privately). Based on the focus theory of normative conduct and the norm salience mechanism (Cialdini et al., 1990), it was explored whether behavioral displays might serve as cues for social behavior that could trigger a behavioral reaction. In this regard, a potential barrier of the normative influence of Facebook posts on offline behavioral reactions becomes apparent: Based on the scenario question, some participants mentioned that they would probably already have forgotten about the post when they were out in the evening with friends, where a potential offline behavioral reaction could occur. According to Cialdini et al. (1990), especially cues that focus individuals on descriptive norms seem to have an impact on behaviors only immediately in the same situation. Another way by which Facebook posts could be influential is based on the argument that exposure to behavioral displays might lead to a chronic accessibility of the norm, which, despite any situational cues, can influence behaviors (Rhodes et al., 2014).

In line with the third-person effect (Davison, 1983), the estimated influence of the alcohol displays on other persons' behaviors was substantially greater (RQ4b). According to Gunther et al. (2006), this indicates the potential for an indirect effect of the behavioral displays on receivers through the presumed influence on others: If participants have the impression that other peers who view the posts can be influenced in their behaviors, this could increase their own perceptions of how frequently the behavior occurs as well as how much it is approved by their peers. A limitation of the present study is, however, that it is unclear whether participants would expect that their own friends and contacts on Facebook would be susceptible to this influence. The interview questions only asked for general "others". The literature on the third-person effect has shown that the effect gets smaller, the closer the "others" are (Cohen, Mutz, Price, & Gunther, 1988). Thus, it is possible that Facebook users do not attribute strong social influence effects of Facebook posts to their friends and peers on Facebook, which would, in turn, mean that direct as well as indirect effects are uncertain. These findings might, however, be specific to the effects of alcohol displays. The exploration of more general examples of (potential) social influence effects on Facebook show that many

participants had already experienced (or could imagine) a situation in which they had been (would be) motivated or inspired to do something after they had seen a post on Facebook.

With regard to the persons who are perceived susceptible to the influence of Facebook posts, participants expressed particular concern for younger persons, which is in line with prior research findings on SNS users' risk perceptions of alcohol displays (Moreno, Briner, Williams, Walker, & Christakis, 2009). Moreover, individuals without a strong personal opinion toward an issue or behavior as well as individuals with a high need to belong, a low self-confidence or a high identification with the Facebook community are perceived to be more readily swayed by Facebook posts. Thus, the results of the present study provide a more systematic examination of potential person characteristics relevant for social influence effects of Facebook posts.

In addition, the exploration of potential facilitators of the effects (RQ5) revealed several important insights: A key factor determining social influence effects on Facebook from users' perspective is the exposure rate, in terms of the number of posts presented by different persons over a longer period. In line with the research on the accessibility of social norms (e.g., Rhodes et al., 2014) and the discussion of the results on users' estimations of social influence effects, the frequency of exposure to displays of a certain behavior might make the respective behavior more accessible and, thus, more influential. According to Zillmann (1999), "*chronic accessibility* (...) is defined as enduring accessibility that results from the potentially nonrecent frequent and consistent activation of particular constructs" (p. 71). That this could be a potential mechanism was mentioned by several interviewees who described that Facebook posts would be most influential when they were witnessed constantly and frequently. Prior research has already shown that (self-reported) exposure to alcohol displays on SNS over time is predictive of drinking behavior (Huang et al., 2014). However, survey designs rely on participants' self-assessment of the exposure frequency, which can easily be biased. Using an experimental research design, the amount of exposure to behavioral displays could be systematically manipulated to examine the impact of repeated exposure over time. This is tested in the third study of the present dissertation (see Chapter 9).

In addition, the findings show that the source of a Facebook post can be an important factor determining its influence on receivers' attitudes and behaviors. Especially posts of close social contacts as well as those of popular persons seem to be important. That individuals, particularly children, are highly susceptible to the influence of close friends as well as high-status peers is in line with prior literature (K. Kwon & Lease, 2014). In comparison with the findings presented on the selection process on Facebook, the results

suggest that the source of a post is a relevant cue that not only increases viewers' attention to the post and the intention to select it for further examination, but also the likelihood of affecting the observer's behavioral reactions. The specific influence of the source of behavioral displays on SNS is investigated in more depth in the second study (see Chapter 8).

Limitations and Outlook

The method of qualitative interviews has advantages as well as limitations (see e.g., Edwards & Holland, 2013). A great advantage of the qualitative approach is that it allows for the exploration of meanings and different facets of a phenomenon. In this regard, constructions of meaning and the contexts of a meaning can be understood. However, a major limitation of the interview method is that it can only capture effects that users are aware of. In sum, the findings of the present study are limited by the fact that they represent the users' subjective perspective. Thus, the described effects are those that users attribute to Facebook but not necessarily effects that can actually be observed. Moreover, the research findings are limited to the sample of students. Other demographic groups might differ in their use of Facebook and in the anticipated social influence effects. Although young adults are a primary user group of SNS (Greenwood et al., 2016) and previous studies on social norm effects on SNS were often conducted with student samples (e.g., Fournier et al., 2013; Rui & Stefanone, 2017; Stoddard et al., 2012), the dimensions identified within this qualitative study should be reviewed for younger as well as older age groups. In addition, the results draw in large parts on the exemplary shown status updates of alcohol displays. Whether individual anticipate similar effects for their own as well as for others' behavior and draw similar types of inferences (e.g., about the behavioral prevalence and approval of the behavior by their friends) when they are exposed to other types of behavioral displays on SNS remains open.

Conclusion

This qualitative study meant to provide a preliminary view on the perception and selection processes on SNS as well as on potential social influence effects of behavioral displays. The findings offer a first impression of the potential of SNS to convey normative information and normative influence and highlight that many persons have already experienced or observed diverse influences of exposure to Facebook content. In line with the third-person effect (Davison, 1983), anticipated effects of Facebook post on other persons' attitudes and behaviors were estimated larger than the effects on the self. Moreover, it was shown that a variety of factors, such as the number of posts or the source of a post, could be

relevant determinants for the influence of behavioral displays on receivers' attitudes and behaviors. Against the background of the global research question of the present dissertation, this study gives rise to a more systematic investigation of the influences of behavioral displays on SNS on normative perceptions and offline behaviors under consideration of the potential facilitators identified. For that purpose, two primary factors will be explored in more depth in the following experiments: Study 2 focusses on the impact of the source of the status updates. Since several persons mentioned that, for example, the content from friends would be more likely read and might influence their attitudes and behaviors, it seems to be fruitful to compare the influence of friends' posts to the influence that posts of more distal peers have. In addition, several persons mentioned that content shared on SNS could have a substantial influence on users, particularly when it is received constantly and frequently. Hence, Study 3 examines the influence of different rates of exposure to behavioral displays over time.

8 Study 2: The Influence of Descriptive and Injunctive Normative Information in Social Media Posts on Behavioral Outcomes in Interaction with Source Effects

8.1 Objective, Research Questions, and Hypotheses

The second study aims to test the potential of SNS to convey normative cues and to influence users' offline behavioral intentions in a more systematic way for the context of prosocial behavior. Specifically, the influence of descriptive and injunctive normative cues about prosocial behavior in other users' status updates (in terms of behavioral descriptions about their own engagement or focus on their approval of prosocial activities) in interaction with the source of the posts (friends or unknown others) on receivers' prosocial behavioral outcomes and normative perceptions is investigated in a controlled laboratory experiment.

Research has shown that social norms are a relevant factor for volunteering (Francis, 2011) and donation behavior (Nook et al., 2016), but little is known about how cues about prosocial norms in posts on SNS are perceived and how they might influence behavioral outcomes. In addition, since there is a general lack of research on normative mechanisms in social media environments – especially for areas beyond the health domain – this work contributes to the literature that investigates whether the principles of normative influence and social modeling hold in the context of SNS.

Initial research on risky health behaviors has started to investigate the relations between exposure to SNS content displaying other users' behaviors and receivers' actual offline behaviors against the background of normative considerations and social learning mechanisms. Building on the social norms literature and based on the argument that SNS provide highly condensed and constant access to peer models for behavioral conduct, this research has shown that frequent exposure to references of peers' risky health behaviors, such as posts about their alcohol use, is positively related to SNS users' own engagement in the respective behaviors (Huang et al., 2014; Stoddard et al., 2012). The argument brought forth by the researchers is that other network members' displays of alcohol content could be an indicator for a descriptive drinking norm, which might cultivate in a reference network and impact risky behaviors (e.g., Huang et al., 2014). Since prior studies in this area mainly build on cross-sectional self-report designs, they are limited by the fact that scholars have no control over what content participants saw and remembered, nor whether their self-assessment was biased by the direct request to think about or explicitly look for the content that was

posted. In the few experimental studies, which have investigated the influence of alcohol displays on SNS on drinking intentions so far (Fournier et al., 2013; Litt & Stock, 2011), participants were exposed to fictitious SNS profiles with or without alcohol references (e.g., in the form of pictures and comments referring to past or future drinking events) as a manipulation of descriptive drinking norms. Overcoming the aforementioned limitations, these experiments provide a starting point for a more systematic investigation of the influence of normative cues in these environments. Initial findings from these studies are, however, inconclusive as one study found a significant impact of the manipulation on participants' willingness to drink (Litt & Stock, 2011), but another did not (Fournier et al., 2013). Moreover, both focused exclusively on manipulating descriptive norms, not considering that some forms of alcohol references on SNS (e.g., comments that reflect approval or praise of the behavior) might convey injunctive norms and have different effects on viewers' behavioral intentions than posts that merely refer to the fact that someone has been engaged in the behavior.

From experimental research on the effects of explicit normative information, for example used in persuasive appeals to promote behavior, it is known that information about what is typical or normal (i.e., descriptive norms) and information about what is socially approved (i.e., injunctive norms) can lead to different behavioral reactions (e.g., Schultz et al., 2007). Descriptive and injunctive social norms have been introduced by Cialdini and colleagues (1990) as two distinct norm dimensions that can have independent and divergent effects on behavior. Thus, the present study incorporates both types of norms and compares the effects of status updates that provide cues which focus readers on descriptive norms and those that focus readers on injunctive norms.

Since prior work on the effects of normative messages has typically used explicit information about prevailing norms in terms of overview information about what is typical or approved in a reference network (see Chapter 4.4), a further open question pursued in the present research is whether rather implicit cues about descriptive and injunctive norms provided through SNS users' broadcasted content – instead of explicit information about the actual distributions of behavioral approval or prevalence in a reference group – influence viewers' behavioral outcomes. In this regard, previous experimental research in social media settings has shown that numerical information, such as the number of likes, shares, or comments presented with some proprietor content can be a more implicit way of providing normative information (e.g., Lee-Won et al., 2016). However, scholars disagree about the connotation of these cues, that is, whether they are more reflective of descriptive or injunctive

normative information (see Chapter 5.2.2). Status updates might provide less ambiguous cues: Readers could learn about the behaviors or attitudes of a peer through her/his written description and draw inferences about the opinions and behaviors in the peer group, when the person is perceived as exemplarily for the group (Kashima et al., 2013). No research so far has, however, empirically tested whether SNS posts that focus on others' engagement in a behavior (i.e., descriptive norm cues) or approval of the behavior (i.e., injunctive norm cues) affect users' behavioral outcomes regarding the behavior.

In sum, prior work in this area provides first indications that the passive use of SNS (i.e., browsing through content of others) can contribute to affect offline behavior when the behavior in question is highly represented in the SNS content. There is, however, a lack of experimental research regarding the differentiation between descriptive and injunctive norm cues in this realm. Moreover, most of the studies in this field have focused on negative effects of normative information in SNS, e.g., regarding risky health behaviors. Thus, research is needed that investigates potential normative mechanisms for more desirable outcomes, such as forms of prosocial behavior. This study attempts to bridge that gap by investigating the impact of exposure to prosocial descriptive and injunctive normative cues in the streams of other SNS users' broadcasted content on viewers' volunteering and donating intentions, as two primary forms of prosocial behavior.

Building on the principles of social modeling (Bandura, 1986) and the norm focus theory (Cialdini et al., 1990), it is assumed that exposure to SNS posts in a News Feed section that focus users on prosocial norms by including descriptions of other persons' prosocial conduct (descriptive norm) or references to others' approval of prosocial behavior (injunctive norm) increases recipients' prosocial intentions compared to when no references to prosocial norms are included. Thus, for the present study, the following hypothesis is formulated:

H1: Exposure to status updates with normative cues about prosocial behavior leads to higher intentions to engage in a) volunteering and b) donations than exposure to status updates without prosocial normative cues.

Since prior studies in the SNS context have mainly focused on descriptive norms, research lacks analyses of similarities and differences between the effects of descriptive and injunctive norm cues in this realm. With regard to the question which type of normative cue is more effective in SNS posts, it is asked:

RQ1: Do status updates with a focus on injunctive or descriptive norm cues about prosocial behavior lead to higher volunteering and higher donation intentions?

Building on social cognitive theory and mechanisms of vicarious learning, exposure to behavioral displays of peers in social media might not only increase users' behavioral intentions, but could also influence their self-efficacy perceptions. Self-efficacy, like the concept of perceived behavioral control, describes an individual's belief in his or her capabilities to accomplish a behavior (Bandura, 1977). Some scholars have distinguished self-efficacy and perceived behavioral control, arguing that the former describes internal aspects, while the latter reflects external factors related to the ability of performing a behavior (e.g., Conner & Armitage, 1998). In contrast, Fishbein and Ajzen (2010) argue that perceived behavioral control and self-efficacy refer to the same underlying theoretical construct, "namely, to perceived ability to perform a given behavior or to carry out a certain course of action" (p. 166) and that both are linked to aspects of capacity as well as autonomy.

One way in which individuals gain perceptions about their own abilities regarding a behavior is through vicarious experiences, that is, by learning about other people performing the action (Bandura, 1977). Observing similar others accomplishing a behavior might evoke or foster beliefs in own abilities and can be a source of motivation. Moreover, when individuals perceive what other people do, they can learn (through observation) about potential barriers and the necessary abilities and resources that are necessary for the action, thereby deriving a more accurate perception of their own ability to perform the behavior (Fishbein & Ajzen, 2010). In addition, a person's self-efficacy perception can increase through interaction with other persons when they feel reinvigorated and motivated by their persuasive appeals and words of encouragement (Bandura, 1977).

In the context of SNS, social interaction, observations, and comparisons with similar others are easy and prevalent (e.g., Haferkamp & Krämer, 2011). Moreover, research on topic-specific online SNS use (e.g., for smoking cessation) has shown that participation in these virtual communities as well as perceptions of similarity with other members, social identity, social capital, and perceived social support of other users, are linked to greater self-efficacy perceptions (Phua, 2013). Since engagement in volunteering, which is characterized by the devotion of time and energy to the benefit of other people in a planned, long-term activity that typically takes place in an organizational context (Penner, 2002), can involve challenging actions, observing others performing volunteering activities or perceiving encouragement from others is likely to have a positive effect on the observer's perceived

ability to engage in volunteering. Thus, with regard to the present study, it is assumed that references to prosocial behavior in the status updates of friends or peers can have a positive influence on receivers' perceptions of their abilities to engage in volunteering activities because they provide an opportunity for vicariously experiencing volunteering behavior and receiving encouragement. Moreover, it seems likely that especially status updates which focus readers on other persons' prosocial conduct (descriptive norm cue) increase the perceived ability to volunteer because other than posts that focus on the approval of prosocial behavior (injunctive norm cue) they highlight other persons' mastery of the behavior. Thus, the following hypotheses are formulated:

H2a: Exposure to status updates with normative cues about prosocial behavior leads to a higher perceived ability to engage in volunteering than exposure to status updates without prosocial normative cues.

H2b: Descriptive normative cues about prosocial behavior in the status updates lead to a higher perceived ability to engage in volunteering than injunctive normative cues.

A consistent line of research has shown that social norms yield different effects on individuals depending on the individual's relation to the specified or perceived reference group (e.g., Neighbors et al., 2007). Research investigating the persuasive impact of normative messages has, for example, shown that for the context of pro-environmental behaviors social norms of more geographically proximate reference groups (e.g., people in the same neighborhood) have a stronger impact on individuals' conformity than people from more distant contexts (e.g., Loock et al., 2012). Research from the health domain has more strongly focused on reference group norms with varying level of (social) similarity and closeness (Miller & Prentice, 2016) and studies on risky drinking behaviors found that norms of friends were more predictive than norms of other students (Cho, 2006; LaBrie et al., 2010). Moreover, Neighbors et al. (2008) found that injunctive norms of closer reference groups, such as friends and parents, were positively associated with alcohol drinking, while the relation between injunctive norms of more distal reference groups (e.g., students) and alcohol consumption was even negative. Similar results were found for gambling behavior (Neighbors et al., 2007).

For the context of SNS, where users can encounter content from friends as well as from unknown others, e.g., people with similar interests or friends of friends, messages including reactions of friends, such as likes (e.g., Phua & Ahn, 2016) or indications of

participation in an event or campaign (e.g., voting, Bond et al., 2012), revealed significant effects on users' online as well as offline behaviors. In addition, the context of SNS requires users to dispense their attention, because they are exposed to a variety of information and can – due to limited cognitive capacities – only receive and process a selected portion of the information. Thus, if some information is marked as stemming from a friend, individuals might pay more attention and attribute greater importance to the content. For the present study, the following assumption is derived:

H3: When the source of the status updates are friends, the influence of exposure to normative cues about prosocial behavior on the intentions to engage in a) volunteering and b) donations is stronger than when the source of the status updates are unknown students.

From the social identity perspective, the mechanisms by which social norms shape behavior can be understood as an internal process. Instead of expecting individuals to comply with social norms imposed by external others, it is argued that social norms of behavior-relevant reference groups influence individuals because they are internalized by the mechanism of self-categorization (Reynolds et al., 2015). Building on the social identity and social categorization framework, reference groups can be a powerful source of influence for behavior, however, only for individuals who perceive themselves as group members, feel that they belong to the group, and share a social identity with the other group members – in brief, who strongly identify with that group (Terry & Hogg, 1996). Empirical evidence has shown that identification with a reference group indeed moderates the influence of group norms on behavior, for example, with regard to alcohol consumption (Neighbors et al., 2010; Reed et al., 2007), or in the contexts of exercising and sun protection (Terry & Hogg, 1996). For the context of the present study, the following hypothesis is proposed:

H4: Greater identification with the respective reference group (friends or students) leads to stronger effects of the normative cues in status updates on a) volunteering intentions and b) donation intentions.

In addition, to test the influence of normative cues in status updates of different reference group sources on behavioral outcomes, a question worthwhile to ask is whether these cues activate prosocial norms of different reference groups varying in their level of proximity (e.g., important others or people in the same society), and affect how viewers

estimate the prevalence and approval of volunteering in different groups. Prior research on the effects of alcohol references on SNS has shown that exposure to behavioral displays affects the perception of friends' descriptive and injunctive drinking norms (Beullens & Vandebosch, 2016). However, since SNS users are connected to a broad variety of different contacts, most broadly defined as "friends", exposure to normative cues in SNS posts might affect normative perceptions for the group of friends and acquaintances, norms of more proximate groups like important others, or norms of more distal groups, such as students or people in the same society. Thus, the following research question is formulated:

RQ2: Do normative cues in status updates about prosocial behavior affect the perception of prosocial norms of different reference groups?

Alternatively, or in addition, status updates with references to other users' engagement in or approval of prosocial behavior may trigger already existing perceptions of prosocial norms and make them more accessible. Thus, it is asked:

RQ3: Do normative cues in status updates about prosocial behavior affect the accessibility of prosocial norms of different reference groups?

Since prior work has revealed that perceptions of descriptive norms (Boyle et al., 2016; Brunelle & Hopley, 2017), injunctive norms (Geusens & Beullens, 2016), or both (Beullens & Vandebosch, 2016) mediate the relation between exposure to alcohol-related content on SNS and offline drinking behavior, a relevant question is whether the effect of the prosocial normative cues in status updates on volunteering intentions can be explained by any of the reference groups normative perceptions regarding volunteering behavior (for friends and acquaintances, important others, students, and people in Germany).

RQ4: Is the influence of normative cues in status updates on volunteering intentions mediated through the perception of social norms regarding volunteering?

Figure 3 shows the research model of the present study.

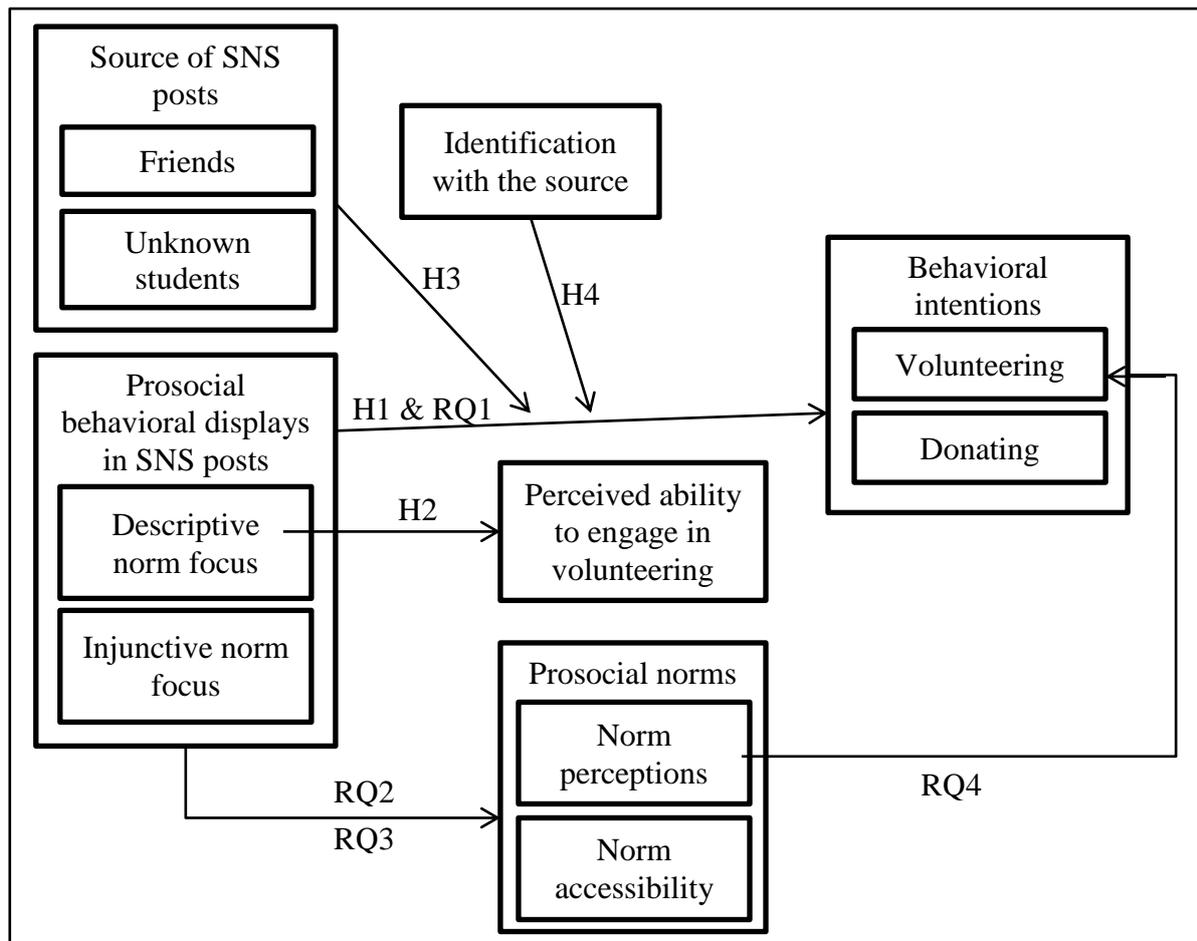


Figure 3. Research model of Study 2.

8.2 Method

A laboratory experiment was conducted with a 3 (norm focus: injunctive vs. descriptive vs. control) x 2 (source: friends vs. unknown students) between-subjects design to test the hypotheses and explore the research questions.

Participants were exposed to a mock-up Facebook News Feed with several status updates. These were experimentally manipulated with regard to the messages' normative focus and with regard to their source. Participants were either exposed to status updates with descriptive or injunctive norm cues regarding prosocial behavior, or no prosocial norm cues (control group). The manipulation of the source was accomplished by the following procedure: Participants in the friends condition were told that the researcher was interested in how they perceive their friends' status updates and that for this purpose, a program running in the background would load several posts of their Facebook friends from the last couple of

months from their News Feed to the questionnaire. Participants in the students condition were informed that the posts had been collected for this study from other unknown students.

8.2.1 Sample

In all, 153 participants completed the experiment. Eleven participants in the friends condition were excluded from the analyses because they did not believe the manipulation of the source ($n = 8$), had less than ten Facebook friends ($n = 2$), or mainly friends who post in another language than the language used in the stimulus material ($n = 1$). In addition, nine participants were excluded because they failed the manipulation check regarding the normative content presented in the status updates (they did not remember seeing any reference to prosocial behavior). Thus, the final sample included 133 participants (91 female, 42 male), who were almost equally distributed to the conditions (friends injunctive = 23, friends descriptive = 19, friends control = 24, students injunctive = 20, students descriptive = 23, students control = 24). Their age ranged from 17 to 30 ($M = 20.33$, $SD = 2.15$). Almost all participants were students ($n = 129$) and received course credits for their participation. The remaining four participants were employed, self-employed, in training, and a college student. Participants average Facebook usage intensity (based on Ellison, et al., 2007, measured on a 7-point scale; Cronbach's $\alpha = .81$) was $M = 3.66$ ($SD = 1.14$) and their average daily usage ranged from 1 to 300 min ($M = 49.77$, $SD = 42.84$). Moreover, the average number of Facebook friends was $M = 374.66$ ($SD = 198.12$; $min = 31$, $max = 1010$).

8.2.2 Procedure

Facebook users were invited as participants to take part in an experiment about the perception and evaluation of Facebook status updates and informed that the study comprises a questionnaire and requires them to log into their Facebook accounts. To keep conditions equal, each participant was instructed to log into his/her Facebook account at the beginning of the study after formal consent was obtained. However, only participants in the friends condition were told that they will be exposed to content derived from their actual network of friends during the study. Every precaution was taken to make this as authentic as possible, for example, by simulating the loading procedure. However, no real status updates were extracted. The posts presented as stimulus material were shown with pixelated names and profile pictures and participants were told that due to Facebook's data protection policies the researcher was only able to present them the posts without personal data. Prior to the exposure

to the experimentally manipulated News Feed excerpts, participants filled out a questionnaire about their general Facebook use. Afterwards, participants completed a thought listing task (which was used to filter out persons expressing disbelief about the source manipulation) and gave a short evaluation of the status updates. Then, the accessibility of prosocial norms and their normative perceptions were measured, followed by their volunteering and donation intentions, perceived ability to engage in volunteering, and identification with the authors of the posts. The survey also contained questions on behavioral intentions for more specific areas of volunteering (e.g., sports, health, youth work/education, and politics), which are, however, not further specified as the analyses presented below are based on the general measure. In addition, some questions about participants' attitudes and personal involvement regarding volunteering as well as their liking of and interest in charitable Facebook pages and their attitude toward posting behavior on Facebook were asked; these are not part of the following analyses either, and therefore not presented in more detail.

In the end, participants completed the manipulation check questions and provided information about their demographics and their willingness to fill out a short follow-up survey. Finally, participants were thanked for their participation, fully debriefed, and handed out course credits. An automated e-mail (and one reminder e-mail three days later), including the link to the follow-up questionnaire, was sent six weeks after their appointment in the laboratory to the participants who provided their e-mail address. This survey assessed participants' self-reported volunteering behavior and donations in the past six weeks as well as their perceived norms and perceptions of status updates on Facebook regarding prosocial behavior. The study procedure was approved by the local ethics committee.

8.2.3 Stimulus Material and Pretest

Three different versions of a Facebook News Feed graphic were created as stimulus material. Each version included ten status updates, presented in the typical Facebook layout. The versions for the injunctive and descriptive norm focus conditions comprised five status updates with either injunctive or descriptive prosocial cues, respectively. These were represented among five status updates without references to prosocial behavior, which served as filler in order to keep the News Feed realistic. In the control condition, ten *neutral* status updates, i.e., without any references to prosocial behavior, were presented. All author information (name and profile picture) was pixelated.

In total, eight status updates with injunctive cues regarding prosocial behavior (i.e., focus on others' approval), eight with descriptive cues regarding prosocial behavior (i.e., focus on others behavior), and twelve typical status updates without any reference to prosocial behavior were created, which were subject to a pretest. The types of prosocial behavior described in the former status updates ranged from voluntary work with children or senior citizens, to food sharing and blood donation. They were matched for the two norm conditions: For example, in a descriptive norm post, a person describes that she/he has done a voluntary social year in a children's health center, while in an injunctive norm post, the person values other persons' commitment to volunteer in this area (for an example, see Figure 4). The neutral status updates represented exemplary posts, e.g., about vacation or food, without any references to prosocial activities.

Thirty-three additional participants were recruited for the pretest and rated each status update (presented in a random order) on whether it referenced to prosocial behavior that is performed or approved of (1 = *not at all* to 7 = *completely*). Based on the results, ten matching status updates about prosocial behavior (five with descriptive norm cue: $M = 5.82$, $SD = 1.07$, five with injunctive norm cue: $M = 6.10$, $SD = 1.04$) with the highest mean values on this item were chosen for the experimental conditions, and the ten neutral status updates with the lowest mean values were selected for the control condition ($M = 1.15$, $SD = 0.56$). Moreover, pretest participants rated each post on how much it focused them on the fact that a) others approve of volunteer engagement, b) others engage in volunteering, and c) volunteer engagement is expected of them (1 = *not at all* to 7 = *completely*). Additionally, it was asked how interesting the status update was (1 = *uninteresting* to 7 = *interesting*).

To check whether the selected status updates with descriptive and those with injunctive norm cues evoked the respective norm focus, two-way repeated measures analyses of variance were conducted, which revealed that the perception that others approve of volunteering (injunctive focus) was significantly higher for the injunctive than for the descriptive status updates, $F(1,32) = 24.54$, $p < .001$, $\eta_p^2 = .43$. Moreover, participants indicated higher perceptions of normative expectations (perception that volunteer engagement is expected of them) for the injunctive status updates, $F(1,32) = 51.88$, $p < .001$, $\eta_p^2 = .62$. The perception that others engage in volunteering (descriptive focus) was not significantly different, $F(1,32) = 2.37$, $p = .133$, $\eta_p^2 = .07$. Although the injunctive norm messages had higher mean values for the perception of the injunctive norm focus (i.e., that others approve of volunteering) than for the descriptive norm focus (i.e., that others engage in volunteering), the results show that the injunctive messages seem to have conveyed some descriptive

information in addition to their injunctive information. It appears to be difficult to create high ecologically valid SNS posts as stimuli, which provide implicit information about injunctive norms without simultaneously alluding to descriptive norms. The differences regarding the perceived injunctive norm focus, however, show the direction as desired by the manipulation. Thus, for the interpretation of the following analyses, it should be kept in mind that results might be better understood as effects of mere descriptive normative information compared to cues focusing on injunctive norms that additionally provide information about descriptive norms.



Figure 4. Example posts with a focus on descriptive (left) and injunctive (right) norms.

8.2.4 Measures

Prosocial Behavior Intentions

Volunteering intentions. The intention to engage in volunteering was measured by two items among some filler items on other behaviors (drinking alcohol, using social media). Participants were asked: “In the next 6 weeks, how often do you intend to volunteer for a charitable cause?” and “In the next 6 weeks, how often do think it likely that you will volunteer for a charitable cause?” on a 6-point scale (1 = *never*, 2 = *once*, 3 = *every few weeks*, 4 = *once per week*, 5 = *several times a week*, 6 = *almost every day*), Cronbach’s $\alpha = .93$, $M = 2.42$, $SD = 1.21$.

Donation intentions. Participants were asked to indicate their intentions to donate in the next six weeks on a 7-point scale (1 = *extremely unlikely* to 7 = *extremely likely*) for “money”, “blood”, “food”, “cloths”, and “other material goods”. A mean score was calculated for the overall donation intention, Cronbach’s $\alpha = .73$, $M = 3.20$, $SD = 1.36$.

Perceived Ability to Engage in Prosocial Behavior

Based on Fishbein and Ajzen's (2010) concept of perceived behavioral control and the self-efficacy concept by Bandura (1977), three items were used to measure participants' perceived ability to engage in volunteering: "If I wanted to, it would be easy for me to engage in volunteering in the next six weeks"; "How much do you feel that engaging in volunteering in the next six weeks is under your own control?" (1 = *not at all* to 7 = *completely*), and "How easy or difficult would it be for you to engage in volunteering in the next six weeks?" (1 = *very difficult* to 7 = *very easy*; Cronbach's $\alpha = .75$, $M = 4.37$, $SD = 1.39$).

Prosocial Norms

Accessibility of prosocial norms. Similar to the procedure by Rhodes et al. (2014), injunctive norm accessibility was assessed: Participants were subsequently exposed to 20 statements, each consisting of a reference group (friends and acquaintances, students, persons important to me, and people in Germany) and a behavior (volunteering, donating money, drinking alcohol, having a Facebook account, acting for one's own interest), for example: "Students think that one ought to engage in volunteering". Participants were instructed to indicate as quickly and accurately as possible whether they agree or disagree with the statement by pressing a key labeled "yes" or "no" (coded yes = 1, no = -1). The behaviors of interest for this study are "volunteering" and "donating money", the others served as filler items. Following the advice of Rhodes and Ewoldsen (2009), the reaction time data was normalized to avoid problems with skewed distributions ($1/\text{reaction time}$) and multiplied by 1,000 to avoid rounding problems with small numbers. Thus, the new variables represent the speed of participants' responses (Rhodes & Ewoldsen, 2009). For each reference group a valenced norm accessibility was calculated for each behavior by multiplying the response speed (transformed reaction time) by the valence of the response (yes = 1, no = -1). A higher score indicates a more accessible norm in favor of the behavior. In addition, the average valence of the reactions to the behavior for the four target groups (ranging from 1 = agreement for all targets to -1 = disagreement for all targets), the average response speed across groups, and the average valenced norm accessibility¹ were calculated for each behavior.

¹ Since the average norm valence can be zero, the average valenced norm accessibility was not computed by multiplying the average response speed by the average valence, but by averaging the sum of the four valenced norm accessibility scores of the individual target groups.

Norm perceptions. Based on the findings of Park and Smith (2007) as well as Park et al. (2009), perceived descriptive and injunctive norms for volunteering among four different reference groups (my friends and acquaintances, students, persons important to me, people in Germany) were measured on a 7-point scale (1 = *do not agree at all* to 7 = *completely agree*) among several distractor items. For each group, five items assessed descriptive norms (e.g., “Most of [reference group]... ‘...engage in volunteering’; or ‘...volunteer for a charitable cause’”) and five injunctive norms (e.g., “Most of [reference group]... ‘...think that one should engage in volunteering’; or ‘...would approve of volunteering for a charitable cause’”). In total, eight scores were created, representing the perceived descriptive and perceived injunctive norms for the four different reference groups. The reliabilities for all measures were high (between Cronbach’s $\alpha = .81$ and $.89$).

Social Identification

For both reference groups used in the experimental design (“other students” and “my friends and acquaintances”), identification was measured by six items based on social identity research (e.g., Doosje, Ellemers, & Spears, 1995). All items were rated on 7-point Likert scales from 1 = *strongly disagree* to 7 = *strongly agree*. Sample items were “I find it easy to identify with other students [my friends and acquaintances]”; or “I see myself as a part of the group of students [my friends and acquaintances]”. The reliability was high for identification with students, Cronbach’s $\alpha = .91$, $M = 4.78$, $SD = 1.26$, as well as for identification with friends and acquaintances, Cronbach’s $\alpha = .94$, $M = 6.25$, $SD = 0.88$.

Manipulation Check and Thought Listing

In order to check whether the source manipulation of the presented status updates (participant’s own friends or unknown students) had worked, participants’ responses to a thought listing task (after the exposure to the stimulus material) and to an open ended question at the end of the experiment were analyzed (in the friends condition it was asked: “How did you feel about the inclusion of your Facebook content?”; in the students condition it was asked: “How did you feel about the depiction of the Facebook content?”). Participants were excluded from further analyses, when they explicitly stated that they did not believe or were not able to imagine that the status updates had been posted by their friends. Based on this criterion, eight participants in the friends condition were identified and excluded.

Moreover, three questions asked about the manipulation of the content of the status updates. First, participants indicated whether any of the presented status updates referred to

some kind of prosocial behavior (such as civil engagement, volunteering etc.) that was carried out or endorsed by the author (*yes* or *no*). Nine participants who had seen prosocial posts indicated that they had not seen any references to prosocial behavior; five control group participants indicated to have seen some. This question was used to filter out participants who had seen (either descriptive or injunctive) prosocial posts but indicated that the posts had not included any references to prosocial behavior. Thus, the nine participants in the experimental conditions were excluded from further analyses. In addition, participants indicated how many status updates mentioned a prosocial behavior that was carried out or endorsed (on a scale from 0 to 10). Based on the final sample ($N = 133$), most participants in the control condition indicated that none of the posts referred to prosocial behavior ($M = 0.13$, $SD = 0.64$); in the descriptive norm condition the mean was $M = 2.50$ ($SD = 1.47$), in the injunctive norm condition the mean was $M = 3.30$ ($SD = 1.10$).

Regarding the perceived norm focus, a final question asked whether the status updates displayed more that persons engage in prosocial behavior or that persons approve of prosocial behavior (on a 6-point semantic differential, lower values indicating perceived behavioral conduct, higher values indicating perceived approval; optional answer: *there was no prosocial behavior mentioned in the status updates*). An independent-samples t test comparing the means of the descriptive and injunctive norm cue conditions revealed a significant difference in the intended direction, $t(77.012) = 5.07$, $p < .001$, Cohen's $d = -1.10$. Participants who saw injunctive norm cues indicated that the posts rather express approval of prosocial behavior ($M = 4.74$, $SD = 1.29$), while participants who saw the descriptive norm manipulation tended to perceive the posts more demonstrative of prosocial behavioral conduct ($M = 3.10$, $SD = 1.68$).

8.3 Results

The following section presents the results of the study in the order of the hypotheses and research questions. IBM's SPSS statistics software was used to analyze the data by means of general linear models. Based on theoretical assumptions as well as empirical evidence, parametric tests like the analysis of variance (ANOVA) have been described as robust for studies with substantial sample sizes, even when they violate the assumption of normality (see Field, 2013; Norman, 2010).

For the present study, specifically, analyses of variance (ANOVAs) with planned contrasts were calculated to investigate the influence of normative cues in the status updates on prosocial behavioral intentions, the perceived ability to engage in prosocial behavior as

well as on the accessibility and perception of prosocial norms. One-tailed p -values are reported for t tests that refer to a directional hypothesis; otherwise, two-tailed p -values are reported. As an effect-size index for contrasts, r_{Contrast} was computed as suggested by Rosnow, Rosenthal, and Rubin (2000). The homogeneity of variance was checked with Levene's test and adjusted values for the assumption of unequal variances are reported when the test was significant. Moreover, two-way ANOVAs were calculated to investigate interaction effects between the content and source of the status updates on behavioral intentions. In addition, the explanatory role of identification with the source was tested by means of moderated hierarchical regression analyses.

Preliminary Analyses

A chi-square test determined that gender did not significantly differ between the conditions, $\chi^2(5, N = 133) = 2.06, p = .841$. Moreover, ANOVAs with the status updates' content and source as independent factors revealed no significant main or interaction effects of the factors on Facebook intensity and age.

Additionally, analyses were conducted for age, gender, and participants' Facebook intensity to determine whether they were significantly associated with volunteering intentions, donation intentions, and perceived ability to engage in volunteering. The t test results revealed a significant difference between female ($M = 3.42, SD = 1.28$) and male ($M = 2.72, SD = 1.40$) participants' donation intentions, $t(131) = 2.82, p = .005$, Cohen's $d = -0.53$, but no differences for the perceived ability to engage in volunteering and volunteering intentions. Moreover, correlation analyses (based on Spearman's rho) revealed a significant correlation between age and donation intentions ($r = -.194, p = .025$). Facebook intensity did not significantly correlate with volunteering or donation intentions or the perceived ability to volunteer. Due to the significant relations between participants' demographics (gender and age) and donation intentions, additional analyses were conducted for H1b, RQ1, H3b, and H4b, which controlled for age and gender. Since these additional analyses did not reveal a different pattern of results for the effects of the experimental manipulations on donation intentions, in the following, only the analyses without age and gender as control variables are reported.

Effects of Normative Cues in SNS Posts on Behavioral Outcomes

In order to test H1a, postulating an effect of the prosocial norm cues in the status updates on volunteering intentions, and to explore whether the effects differ for injunctive and

descriptive cues (RQ1), ANOVAs with planned contrast were conducted. The first contrast (comparing the two experimental conditions to the control condition) revealed that participants' volunteering intentions did not differ between the groups that saw norm cues and those who did not, $t(130) = -0.43$, $p = .335$ (one-tailed), $r_{\text{Contrast}} = -.04$. The second comparison (between the injunctive and the descriptive condition) also shows no significant difference, $t(130) = -0.23$, $p = .821$ (two-tailed), $r_{\text{Contrast}} = -.02$. A similar pattern was found for H1b, which assumes that the normative cues lead to higher donation intentions, and RQ1, which asks about differences in the effects of descriptive and injunctive cues on donation intentions: Neither the comparison between the experimental conditions and the control group was significant for donation intentions, $t(130) = 0.57$, $p = .284$ (one-tailed), $r_{\text{Contrast}} = .05$, nor the comparison between the descriptive and injunctive condition, $t(130) = -1.43$, $p = .155$ (two-tailed), $r_{\text{Contrast}} = -.12$. Thus, H1a and H1b were not supported by the data: Status updates with descriptive or injunctive norm messages about prosocial behavior did not lead to higher intentions to engage in volunteering or to donate.

With regard to H2a, which states that exposure to normative cues about prosocial behavior in status updates leads to a higher perceived ability to engage in volunteering, planned contrast analyses showed no significant difference between the experimental conditions with prosocial norm cues and the control condition, $t(130) = 1.30$, $p = .10$ (one-tailed), $r_{\text{Contrast}} = .11$. Comparing the effects of the conditions with injunctive and descriptive norm cues (2nd contrast) to investigate whether descriptive cues lead to higher perceived ability to engage in volunteering than injunctive cues as suggested in H2b, results revealed no significant difference either, $t(130) = 1.14$, $p = .13$ (one-tailed), $r_{\text{Contrast}} = .10$: Participants who saw descriptive norm cues ($M = 4.43$, $SD = 1.57$) did not significantly differ in their perceived ability to engage in volunteering from participants who saw injunctive norm cues ($M = 4.09$, $SD = 1.26$). Moreover, the experimental conditions did not differ from the control condition ($M = 4.58$, $SD = 1.33$). Thus, overall, H2a and H2b are not supported: Exposure to status updates with prosocial normative cues did not lead to stronger perceptions of the own ability to engage in volunteering compared to the control group, nor was this effect significantly stronger for descriptive than injunctive norm cues.

Interaction Effects: The Role of the Source

With regard to H3a, predicting that specifically status updates of friends with normative cues about prosocial behavior increase volunteering intentions, a two-way ANOVA

with the between-subjects factors content and source of the status updates was conducted. Results revealed a significant interaction effect, $F(5,127) = 3.52, p = .033, \eta_p^2 = .05$. Using simple effects analysis to breakdown the interaction, the effect of content was examined for posts of unknown students and for posts of friends: It appears that for the status updates of students, there was no significant effect of the content, $F(2,127) = 1.23, p = .296$, but when friends were the source, $F(2,127) = 2.41, p = .094$, the content of the status updates made a difference (albeit the significance level of the effect is only below .1). Pairwise comparisons show that the condition with injunctive norm cues was significantly different from the control condition ($p = .031$). As displayed in the interaction graph (Figure 5), volunteering intentions were higher when posts of friends included injunctive norm cues ($M = 2.80, SD = 0.97$) than when they did not include any prosocial norm cues ($M = 2.04, SD = 1.14$). The mean for the descriptive norm condition ($M = 2.34, SD = 1.41$) lies in between and does not significantly differ from either the injunctive norm or the control condition. These findings provide partial support for H3a and show with regard to RQ1 that particularity the injunctive norm cues presented in status updates of friends lead to higher volunteering intentions (however, the difference between injunctive and descriptive cues did not significantly differ).

Concerning H3b, which states that status updates of friends increase donation intentions when they include normative cues about prosocial behavior, a two-way ANOVA revealed no significant interaction of the source and content of status updates, $F(5,127) = 0.06, p = .941, \eta_p^2 < .01$. Therefore, H3b was not supported by the data.

In addition to the findings on behavioral intentions, it was tested whether the experimental manipulations had any effects on participants' self-reported actual behavior in the following six weeks: Of the $n = 126$ participants who agreed with being contacted for the follow-up survey, $n = 57$ participants filled out the second questionnaire. Loglinear analysis revealed that participation at T2 was not affected by the experimental conditions and ANOVAs showed no significant effects on volunteering behavior or donations in the six weeks following the experiment.

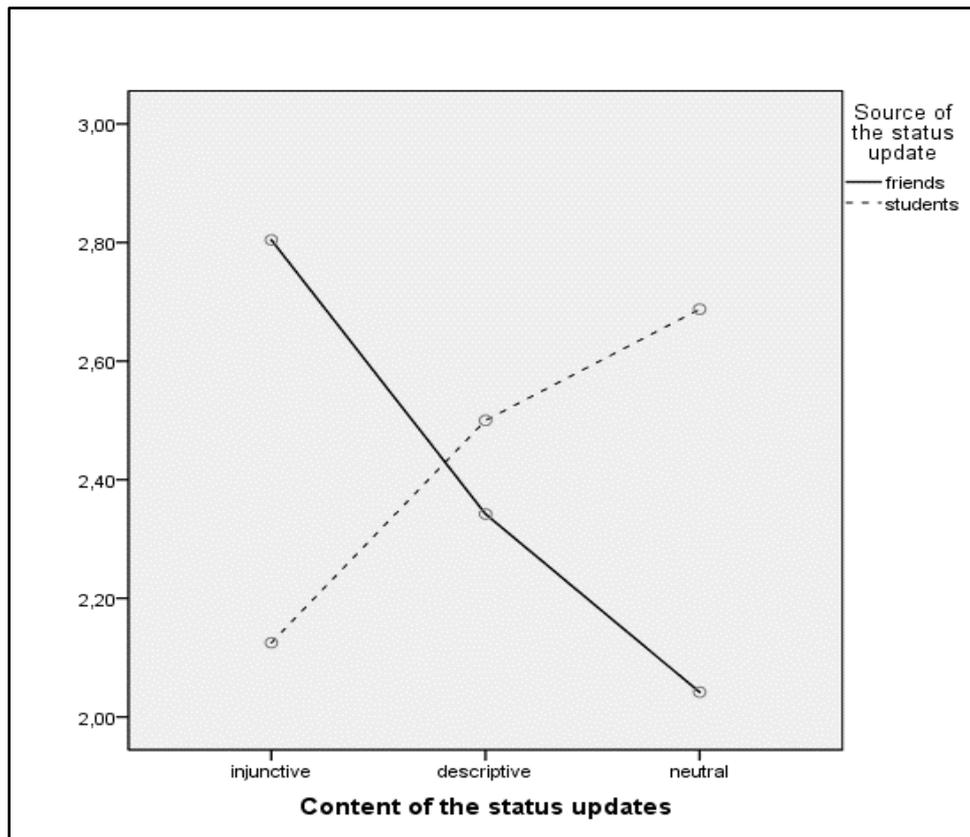


Figure 5. Interaction of status update content and source on volunteering intentions.

The Role of Identification

In order to test whether social identification with other students or one's friends, respectively, influences the effect of prosocial normative cues in status updates on volunteering intentions (H4a), two separate hierarchical regression analyses were calculated, one for the subsample that saw friends' posts and one for the subsample that saw unknown students' posts.

In the first step of each regression model, the dummy-coded condition variable of status updates content was entered: the neutral status updates condition was used as a reference category and compared to the injunctive content condition (Dummy 1) and to the descriptive content condition (Dummy 2). In the analysis of the first subsample (friends' posts), identification with friends was entered in the second step; for the second subsample (students' posts), identification with other students was used, respectively. In the third step of each analysis, the interaction terms between the respective identification variable (identification with friends or identification with other students) and each dummy variable were entered. Variables were mean-centered prior to the calculation of the interaction terms.

For participants who were exposed to status updates of friends, results revealed no influence of identification with friends on volunteer intentions and no significant interaction with either the descriptive or injunctive norm exposure.

For participants who were exposed to unknown students' status updates, results revealed a significant interaction of exposure to injunctive norm cues and identification with other students, $\beta = -.369$, $p = .009$, $R^2 = .161$, as well as of exposure to descriptive norm cues and identification with other students, $\beta = -.297$, $p = .034$, $R^2 = .161$. Simple slopes analyses showed that for individuals who strongly identified with other students, status updates without prosocial norm cues led to higher volunteering intentions than exposure to status updates with injunctive norm cues, $b = -1.30$, $SE = .47$, $t = -2.79$, $p = .007$, while there was no significant difference for people who weakly identified with other students (Figure 6). With regard to the interaction of Dummy 2 (descriptive cues vs. control) and the level of identification, the simple slopes for volunteering intentions were not significant. H4a is not supported by the data; the results of the simple slopes analyses for Dummy 1 (injunctive cues vs. control) point in a direction against the expectations.

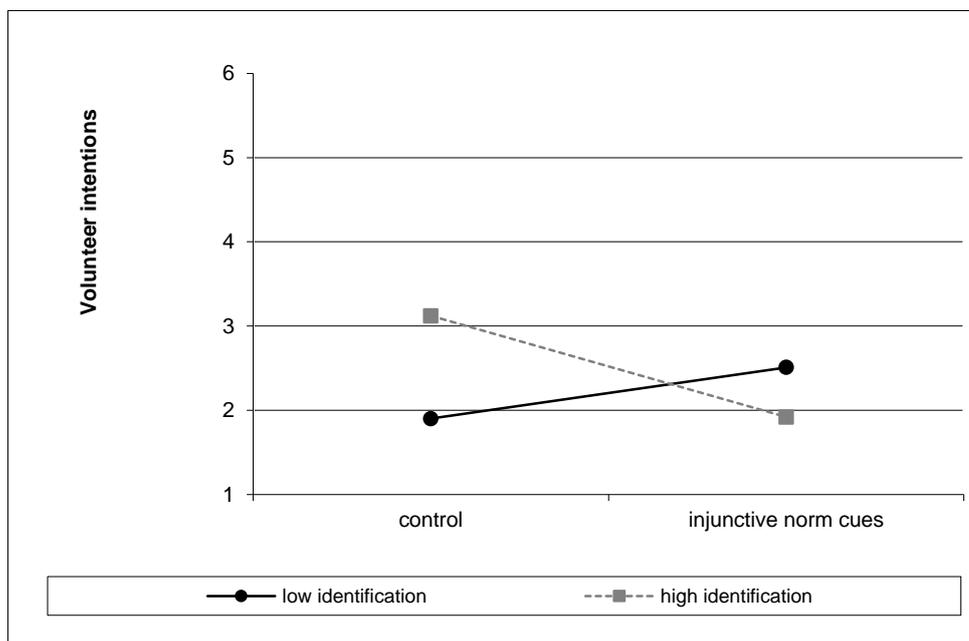


Figure 6. Simple slopes for the interaction between status updates content (injunctive norm cues vs. control) and identification with students on volunteering intentions (for the subsample that saw status updates of other students, $n = 67$).

With regard to H4b, which proposes a moderating effect of identification on donation intentions, two separate regression analyses were conducted in the same way as described above. Results show that identification with the respective reference group did not moderate the effects of descriptive or injunctive norm cues on donation intentions, neither for posts of friends, nor for posts of unknown students.

Effects on Normative Perceptions and Norm Accessibility

To investigate whether exposure to prosocial normative information in status updates influences the perceptions (RQ2) and the accessibility (RQ3) of social norms concerning prosocial behavior, planned contrast analyses were conducted to examine differences between posts with prosocial norm cues and those without (1st contrast) and to explore differences between posts with descriptive and those with injunctive norm cues (2nd contrast). In addition, two-way ANOVAs were performed to explore interaction effects of the posts' content and source on normative perceptions and the accessibility of prosocial norms.

Regarding RQ2, the analyses were conducted for the perceived descriptive and injunctive norms regarding voluntary engagement for four specific reference groups (friends and acquaintances, students, persons important to me, and people in Germany). The results revealed no significant differences between exposure to status updates with or without prosocial norm cues (1st contrast), nor between the conditions with descriptive and injunctive norm cues (2nd contrast), on normative perceptions for any of the specified groups. Moreover, two-way ANOVAs revealed no significant effects of the status updates' content in interaction with the source on the normative perceptions. Thus, the results show that displays of prosocial behavioral conduct or approval of prosocial behavior in SNS posts had no effect on prosocial normative perceptions; moreover, there were no significant interactions with the source either. Table 5 shows the descriptive values of the perceived norms.

Since the analyses revealed that the experimental manipulation of normative cues in the status updates did not affect normative perceptions, there is no potential for any indirect effects of the normative cues on volunteering intentions via perceived volunteering norms. Thus, RQ4, asking for a potential mediation effect of normative perceptions has to be negated.

With regard to the accessibility of prosocial norms (RQ3), planned contrasts were calculated for the accessibility scores (response speed multiplied with valence) of the norm regarding volunteering as well as of the norm regarding donating money for the four reference groups (friends and acquaintances, students, persons important to me, and people in Germany). Results revealed a significant difference between the groups that saw prosocial

normative cues and those who did not (1st contrast) for the accessibility of the student-norm regarding money donations, $t(112.155) = -3.48$, $p = .001$ (two-tailed), $r_{\text{Contrast}} = -.31$: The mean values show that participants in the control condition had a more accessible negative student-norm regarding donations than participants in the experimental conditions who had a less accessible but positive (pro-donation) student-norm in favor of the behavior ($M_{\text{inj}} = .04$, $SD = .33$; $M_{\text{des}} = .004$, $SD = .33$; $M_{\text{control}} = -.17$, $SD = .28$). Contrast analyses for the norm valence scores (without considering response speed), furthermore, revealed significant differences between the conditions with prosocial norm cues and the control group for the norm of donating money for the reference group of students, $t(109.444) = -3.26$, $p = .001$ (two-tailed), $r_{\text{Contrast}} = -.30$, as well as for friends and acquaintances, $t(129) = -2.12$, $p = .036$ (two-tailed), $r_{\text{Contrast}} = -.18$, and a difference for the volunteering norm for important persons, $t(71.98) = -2.46$, $p = .016$ (two-tailed), $r_{\text{Contrast}} = -.28$: Participants' perceived valence of the donation norm for students ($M_{\text{inj}} = .07$, $SD = 1.01$; $M_{\text{des}} = .02$, $SD = 1.01$; $M_{\text{control}} = -.50$, $SD = 0.88$) as well as for friends and acquaintances ($M_{\text{inj}} = .35$, $SD = 0.95$; $M_{\text{des}} = .32$, $SD = 0.96$; $M_{\text{control}} = -.04$, $SD = 1.01$) was more positive (pro-donation) in the experimental conditions than in the control condition; moreover, the positive valence for the volunteering norm (pro-volunteering) for important others was higher in the experimental conditions than in the control group ($M_{\text{inj}} = .86$, $SD = 0.52$; $M_{\text{des}} = .71$, $SD = 0.72$; $M_{\text{control}} = .42$, $SD = 0.92$). There were no differences between the conditions with descriptive and injunctive norm cues (2nd contrast). Moreover, no significant interaction effects of status updates' content and source were found for the accessibility or the valence of the norms for the four reference groups. The descriptive values of the valenced norm accessibility scores are listed in Table 6.

Table 5

Descriptive values for descriptive and injunctive norm perceptions

		Des. norm students		Des. norm friends & acquaintances		Des. norm important persons		Des. norm Germans		Inj. norm students		Inj. norm friends & acquaintances		Inj. norm important persons		Inj. norm Germans	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Injunctive	Friends	3.00	0.72	3.21	1.01	3.25	1.08	3.20	0.89	4.46	1.10	4.55	0.98	4.59	0.82	4.81	0.91
	Students	3.14	0.89	2.76	0.88	2.66	0.69	2.99	0.73	4.78	0.89	4.44	1.01	4.65	0.96	5.08	0.78
Descriptive	Friends	2.99	0.66	2.96	1.27	3.08	1.54	3.11	0.93	4.63	1.23	4.47	1.11	4.68	1.45	5.41	1.29
	Students	3.42	0.84	3.37	1.28	3.59	1.44	3.28	0.86	4.95	1.23	4.70	1.05	4.92	1.06	5.34	1.06
Neutral	Friends	3.19	0.81	2.79	1.21	2.81	1.22	3.03	0.72	4.61	1.04	4.76	1.16	4.72	1.20	4.91	1.16
	Students	3.22	1.00	3.32	1.37	3.36	1.52	3.34	1.12	4.90	1.28	4.92	1.38	5.06	1.48	5.48	0.93
Total		3.17	0.83	3.08	1.19	3.14	1.30	3.16	0.88	4.72	1.13	4.65	1.12	4.78	1.17	5.17	1.05

Table 6

Descriptive values for the valenced norm accessibility scores

		Volunteering norm: students		Volunteering norm: friends & acquaintances		Volunteering norm: important persons		Volunteering norm: Germans		Donating norm: students		Donating norm: friends & acquaintances		Donating norm: important persons		Donating norm: Germans	
		M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Injunctive	Friends	.25	.27	.24	.27	.28	.20	.22	.26	-.02	.30	.13	.26	.08	.22	.13	.26
	Students	.18	.34	.25	.30	.22	.23	.16	.35	.10	.36	.12	.32	.15	.28	.15	.29
Descriptive	Friends	.27	.30	.07	.32	.20	.22	.24	.24	.06	.37	-.05	.33	-.03	.30	.22	.22
	Students	.22	.27	.25	.29	.23	.22	.30	.14	-.04	.31	.12	.22	.15	.23	.07	.27
Neutral	Friends	.27	.29	.13	.31	.09	.29	.19	.23	-.20	.25	.01	.28	.06	.26	.09	.28
	Students	.20	.36	.17	.28	.21	.27	.21	.27	-.13	.30	.02	.33	.07	.25	.14	.26
Total		.23	.30	.19	.30	.20	.25	.22	.25	-.05	.32	.06	.29	.08	.26	.13	.27

Conducting the same analyses for the accessibility scores of the volunteering norm at the aggregated level (combined across reference groups), no significant effects of the experimental manipulations were found. For the aggregated scores of the donation norm, contrast analyses revealed a significant difference between the groups that saw prosocial norm cues and those who did not for norm valence, $t(129) = -2.68$, $p = .008$ (two-tailed), $r_{\text{Contrast}} = -.23$, as well as for the valenced norm accessibility, $t(128) = -2.21$, $p = .029$ (two-tailed), $r_{\text{Contrast}} = -.19$: Participant's norm perception was more in favor of the behavior (pro-donation norm) in the experimental conditions than in the control condition ($M_{\text{inj}} = .33$, $SD = .61$; $M_{\text{des}} = .30$, $SD = .69$; $M_{\text{control}} = .00$, $SD = .65$). Moreover, the valenced norm accessibility was higher, indicating that a pro-donation norm was more accessible when participants saw prosocial normative cues in the status updates ($M_{\text{inj}} = .10$, $SD = .19$; $M_{\text{des}} = .07$, $SD = .21$; $M_{\text{control}} = .01$, $SD = .19$). There were no differences between the descriptive cues condition and the injunctive cues condition and no interaction effects between the status updates' content and source on the norm valence or valenced accessibility.

In order to get more insights on the pattern of effects found for the reaction time task, differences between the experimental conditions were also explored for the norm accessibility scores of the three behaviors used as filler items (drinking alcohol, having a Facebook account, and acting for one's own interest).

There were no main effects of status updates content nor any interaction effects of content and source on the accessibility scores of the norm regarding Facebook use and the norm of self-interest. For the drinking norm, planned contrast analyses revealed a significant difference between the experimental conditions and the control condition for the valenced norm accessibility for the reference group of students, $t(117.92) = 2.44$, $p = .016$ (two-tailed), $r_{\text{Contrast}} = .22$, and people in Germany, $t(128) = 2.00$, $p = .048$ (two-tailed), $r_{\text{Contrast}} = .17$, as well as for the average score across groups, $t(128) = 2.50$, $p = .014$ (two-tailed), $r_{\text{Contrast}} = .22$: Participants' valenced norm accessibility was higher in the control condition than when participants saw descriptive or injunctive prosocial norm cues in the status updates, indicating a more accessible pro-drinking norm in the control group and (on the society and aggregate level) a more accessible anti-drinking norm in the experimental conditions (students: $M_{\text{inj}} = .06$, $SD = .44$; $M_{\text{des}} = .22$, $SD = .43$; $M_{\text{control}} = .31$, $SD = .34$; Germans: $M_{\text{inj}} = -.12$, $SD = .37$; $M_{\text{des}} = -.08$, $SD = .38$; $M_{\text{control}} = .03$, $SD = .35$; average across groups: $M_{\text{inj}} = -.11$, $SD = .27$; $M_{\text{des}} = -.02$, $SD = .29$; $M_{\text{control}} = .06$, $SD = .28$).

8.4 Discussion

The aim of the present study was to extend prior findings on normative influence in the realm of SNS. Specifically, a laboratory experiment with a 3x2 between-subjects design was conducted to investigate the influence of normative cues regarding prosocial behavior in status updates (injunctive vs. descriptive vs. control) in interaction with the source of the message (friends vs. unknown students) on perceivers' volunteering and donation intentions.

Building on the focus theory of normative conduct (Cialdini et al., 1990) and prior work on social norm effects in the context of SNS (e.g., Fournier et al., 2013), it was expected that exposure to status updates which make readers aware of the fact that their friends or peers are engaged in prosocial behaviors (descriptive norm focus) or approve of engaging in those behaviors (injunctive norm focus) has a positive effect on perceivers' volunteering (H1a) and donation (H1b) intentions. The results of the present study, however, show that the status updates with normative cues did not lead to greater behavioral intentions compared to a control condition; moreover, no differences between the injunctive and descriptive norm cues were found (RQ1). Potential explanations for these nonsignificant findings could be tied to theoretical as well as methodological issues: The assumptions of the focus theory propose that social norms have significant effects on human behavior when they are salient in the moment of acting and experiments conducted by Cialdini and colleagues (Cialdini et al., 1991, 1990; Kallgren et al., 2000; Reno et al., 1993) suggest that social norms can be made salient through cues in the environment, social models, or text-based cognitive priming techniques. The present study did not include a direct objective measure of volunteering or donation behavior but assessed behavioral intentions and self-report behavior after six weeks. Behavioral intentions were measured shortly after the exposure; however, it is possible that a salient norm has a different impact on behavioral intentions than on direct behavioral reactions. However, norm accessibility has been shown to predict behavioral intentions and self-report measures of behavior (Rhodes et al., 2014; Rhodes, Loiewski, Potocki, & Ralston, 2017).

Building on the premise that normative cues can also influence behavioral intentions, another potential explanation for the nonsignificant effects of the normative cues in the status updates is that participants might not have experienced a strong urge to comply with the perceived cues, since their behavior, i.e., whether or not they are planning to engage in volunteering or donating, would not be publicly announced in front of the reference group. Moreover, it could be that participants did not believe that the normative information in the posts represents the actual norm in their reference group. The status updates did not provide them with concrete statistics or numbers of people in their reference network who engage in

or approve of prosocial behavior. Instead, the exemplarily shown posts, which intended to make participants aware of the popularity or approval of donations and volunteering, might have been perceived as a non-representative sample of the actual posts in the reference network, and not reflective of their actual behaviors. Thus, it could be that the normative information was not believable and therefore not influential (Polonec et al., 2006). Another plausible reason is that the cues in the status updates have been too subtle to activate prosocial normative perceptions at all. In this regard, it is worth questioning whether the mechanism of browsing through SNS posts that display others' engagement in or approval of prosocial activities has made prosocial norms more salient to viewers.

The analyses regarding RQ3, which asks about the effects of the prosocial normative cues in the status updates on the accessibility of prosocial norms, provide only partial support for the proposed mechanism: The analyses of the norm accessibility measure revealed that participants who saw prosocial normative cues compared to those in the control group reported a more positive donation norm (pro-donation) for the reference groups of friends and acquaintances as well as for students, and a more positive volunteering norm (pro-volunteering) for important others. Moreover, their norm accessibility was higher for the norm toward donating money. This effect can mainly be accounted for by the perception of the student-norm regarding donations. Specifically, participants in the control group had a more accessible negative student-norm regarding donations (i.e., that students would NOT think that one ought to donate money to charity) than participants in the experimental conditions.

Thus, exposure to the prosocial status updates seems to have increased the perception of how much friends and acquaintances endorse charity donations and decreased the accessibility and perception of how much students do not endorse charity donations. In this regard, the prosocial status updates might have provided some counter-normative information with regard to participants' beliefs about the prevalent student-norm of monetary donations to charity that have, however, probably not been strong enough to completely override potential prior norm perceptions. A reason why only the accessibility of the student-norm was affected and not, for example, the accessibility of the norm of friends and acquaintances, could be that when normative cues about other students are received, they are more accessible to participants because the primary knowledge they have about this group is what they saw in the experimental stimuli; in contrast, participants have knowledge of their friends' real-life behaviors, and they may be cognitively reviewing the behaviors they have observed in their friend group when they are confronted with normative cues in their SNS posts.

With regard to the accessibilities for the volunteering norm, exposure to normative cues did not lead to significant increases compared to a control group. Thus, the pattern of findings regarding the effects of normative cues in SNS posts on the accessibility of prosocial norms is inconclusive and future studies should test for replications in order to gain more certainty about the mechanisms. In this regard, a limitation of the norm accessibility measure must be noted: the norm accessibility measure adopted from Rhodes et al. (2014) included only injunctive norms. Thus, it is possible that, although the injunctive norm accessibility was not increased, there was an impact on the accessibility of the descriptive norm toward volunteering, especially since prior work on social norm effects in the SNS context has shown that content on SNS profiles can be indicative of descriptive norms and influence descriptive norm perceptions (Fournier et al., 2013).

In this regard, the present study aimed to explore potential effects of descriptive *and* injunctive norm cues regarding prosocial behavior in status updates on the perceptions of injunctive and descriptive prosocial norms of different reference groups (RQ2) and whether normative perceptions can explain the relation between exposure to normative cues in SNS posts on volunteering intentions (RQ4). Results show that the perceived norms for proximal (friends and important others) as well as more distal reference groups (other students and others in the society) were not affected by exposure to the normative SNS content and, thus, ineligible for being a mediator in the aforementioned relation. Since social norms are developed and adjusted over time and not easily changed, a one-time exposure to an excerpt of a Facebook News Feed including several status updates with normative information was probably not sufficiently influential to increase normative perceptions.

With regard to H2a, which proposed that exposure to prosocial normative cues in the status updates has a positive effect on viewers' perceived ability to engage in volunteering, the results revealed no significant difference between the experimental conditions and the control group. Moreover, the findings regarding H2b, which proposed that especially descriptive norm cues in SNS posts, compared to injunctive, lead to stronger perceptions of the ability to engage in volunteering, did not support the hypothesis, although the descriptive mean values tend to show in the assumed direction. However, in comparison with the control condition, descriptive and injunctive prosocial norm cues did not lead to stronger perceptions of the own ability to engage in volunteering. Since the posts with injunctive norm cues aimed to increase awareness of how much friends and peers approve of prosocial behavior, they might have been perceived in terms of social pressure rather than in terms of encouragement. The assumption that SNS posts with descriptive prosocial cues (i.e., status updates with

behavioral displays of others' engagement in prosocial activities) lead to stronger perceptions of volunteering abilities was based on Bandura's social cognitive theory (1986). Drawing on the principle of social modeling, the aim was to test whether perceptions of skills and control over a behavior can be learned vicariously from other users' status updates. Since the data did not support this mechanism, a legitimate question to ask is whether the observation of other persons' writings about their behavior has the same quality as observing them actually performing the behavior. Moreover, in the status updates used in this study, the behaviors are not step-wise modeled but only presented as end results (e.g., "I have done X"), which might hamper vicarious learning.

The Role of the Normative Reference Group

According to the literature, apart from the believability of the norm information, another decisive factor for normative effects is the individual's relation to the normative reference group, i.e., the network of individuals who share a common understanding of the norm (Berkowitz, 2005). In this regard, H3a and H3b assumed a significant interaction between the normative content and the source of the status updates in the sense that the normative information regarding prosocial behavior leads to higher volunteering (a) and donation (b) intentions when it stems from postings of actual friends than from unknown students. The results provide partial support for H3a and reveal that the normative content in the status updates indeed had an impact on perceiver's volunteering intentions when his or her friends were declared as the source of the messages, which is in line with research that shows an increasing normative influence for more proximal reference groups (e.g., Neighbors et al., 2008). Specifically, injunctive normative information about prosocial behavior of friends had a significant effect. The effect of descriptive cues was not significant. Moreover, the pattern was only found for the behavioral intention of volunteering, not for donating (H3b). These findings raise two questions: First, why had the injunctive but not descriptive norm cues of friends a significant influence? Second, why was the effect not significant for donation intentions? Concerning the first aspect, the findings show that posts of friends that express behavioral approval seem to be more influential than descriptions of behavior. A reason for this might be that high descriptive norms regarding prosocial behavior could also be understood as "there are already enough people engaged in volunteering", while injunctive norms would admit no doubt that also additional engagement in prosocial acts is welcomed. However, the injunctive norm cues in this study did not include directed prompts, but rather highlighted that the behavior is well respected in the reference network. Thus, it is hardly

surprising that effect sizes are low, even for media effect research, for which small effect sizes are typical (Valkenburg & Peter, 2013).

Regarding the second aspect, one explanation for the finding that the prosocial norm cues in friends' posts affected volunteering but not donation intentions could be that the posts about volunteering were more believable. Another possibility is that the act of donating can be conducted unbeknown to others in private, while volunteering is typically conducted in public and therefore eventually more susceptible to normative influence (Lapinski & Rimal, 2005).

With regard to H4a and H4b, which proposed a moderating influence of identification with the normative reference group, results of the analyses for the subsample that saw friends' posts revealed no significant interaction effects between the content of the status updates and the identification with friends on volunteering or donation intentions. This nonsignificant finding could be a consequence of a ceiling effect due to a high average identification with one's friends. Thus, there was only little variance in the data to reveal potential differences. With regard to the subsample that saw posts of unknown students, a significant interaction of status updates content and identification with other students on volunteering intentions was found. The interaction pattern, however, shows that volunteering intentions were higher for participants in the control condition (i.e., exposure to neutral status updates) than for those who were exposed to prosocial norm cues, when they highly identified with other students. Thus, other than expected based on the social identity perspective (e.g., Terry & Hogg, 1996), the normative cues used here did not increase behavioral intentions as a function of identification with the respective reference group. Instead the everyday posts (e.g., about food and vacation) used as a control condition seemed to have triggered some prosocial intentions in students with a high social identity as a student.

Limitations

The study extends prior research on the influence of social norm information in the SNS context; however, it comes with some limitations, which should be considered. One limitation of this study is that the source of the status updates was only manipulated via instructions and, for the friends condition, by the procedure of ostensibly extracting content of the participant's Facebook friends. Thus, the impact of this factor is highly dependent on the users' abilities to picture the respective sources and their willingness to believe in the status updates originality. However, participants' responses to the thought listing task and the control questions were examined with the utmost care to eliminate obvious nonbelievers.

Furthermore, all participants logged into their Facebook account when the study started, which might have unintentionally increased the salience of the reference group of friends for participants in the students condition. Moreover, in exchange for high internal validity, the laboratory setting and the experimental design has reduced the external validity of the study. However, other than in cross-sectional designs, the experimental procedure allowed for causal inferences about mechanisms and can clarify whether a significant relation between exposure to SNS content and normative perceptions as well as behavior can be attributed to the influence of the exposure to the content or explained by the potential fact that people with high norms and behavioral intentions are more likely to selectively expose themselves to the respective content online.

Moreover, it should be noted that the results are limited to the population of students. This group was, however, intentionally chosen for this study in order to use “other students” as an experimental variation of the source, which might be a potentially relevant reference group for behavioral conduct. In addition, the study focused on the specific topic of prosocial behavior and specifically the behaviors of volunteering and donating. Whether the results are applicable to other types of behavior is a question for further research. Moreover, the study has used text-based variations of the descriptive and injunctive norm information in form of status updates. This could be extended in future research to visual information, such as photos or videos, or incorporation of virality measures, such as the number of likes, shares, or comments.

Conclusion

From a theoretical perspective, this work extends the research field on social norm effects in social media realms by experimentally investigating the effects of descriptive *and* injunctive normative information in SNS posts. By applying the assumptions of the focus theory of normative conduct to the context of SNS, the study provides initial insights on the potential of status updates to convey implicit normative information and to increase the accessibility of corresponding norms. However, the findings show a more complex pattern: Exposure to prosocial normative cues in SNS posts lead to a higher accessibility of the donation norm, but did, for example, not affect the accessibility of the volunteering norm. Moreover, no differences were found regarding the perceptions of descriptive and injunctive social norms of volunteering in proximate as well as more distal reference groups. Additionally, the findings highlight that especially injunctive norm cues about prosocial behavior in status updates – when they are posted by the readers’ friends – have the potential

to increase prosocial behavioral intentions. However, here, too, more research is needed, since a significant effect was found for volunteering intentions, but not for the intention to donate.

From a practical point of view, these results highlight the potential of SNS to not only spread harmful normative information – as has been shown in previous research on drinking norms – but also to yield desirable normative effects on prosocial outcomes, such as volunteering. In this regard, an effective means to promote these effects would be to motivate individuals to post about their prosocial activities on SNS, as this information, in turn, can be consumed by their friends and lead to more prosocial outcomes.

9 Study 3: A 6-Week Experiment on the Influence of Prosocial Behavioral Displays in Social Media Posts on Normative Perceptions and Prosocial Behavior

9.1 Objective, Research Questions, and Hypotheses

The third study of the present dissertation draws on the findings from the first and second study and further analyzes the effects of prosocial behavioral displays in SNS posts on normative perceptions and their impact on viewers' offline behaviors. While the second study examined the role of message characteristics, in terms of the normative focus, and the relationship to the sender in prosocial outcomes assessed in the immediate-exposure situation, the present study investigates the prolonged impact of exposure to prosocial behavioral displays as a function of the exposure rate over time.

As argued previously and explored in the first two studies, SNS offer the opportunity for users to encounter information about their peers and friends' behavioral conduct. These social behavioral cues, providing exemplary evidence for the performance of certain behaviors by relevant peers, can be characterized as an implicit way of providing normative information (Liu et al., 2017). Against the background of the pervasive use of SNS, displays of peers' behaviors in these online realms seem to be a natural and common source, based on which Internet users could gain perceptions about what is normative in their reference networks. So far, the influence of behavioral displays in SNS contexts is, however, not well understood. Most research on the effects of user-generated posts has focused on online comments on news pages, shopping platforms, or other participatory user environments and examined the influence of their evaluative nature (e.g., valence of comments) on attitudes and opinions (e.g., E.-J. Lee & Jang, 2010; Walther, DeAndrea, et al., 2010). Little research has addressed the influence of behavioral displays or normative information in social media posts on social norm perceptions and behavioral outcomes. The first steps in this direction were taken by research from the domain of substance use and risky health behavior. Here, cross-sectional (e.g., Branley & Covey, 2017) and longitudinal studies (e.g., Huang et al., 2014) have found positive associations between frequent exposure to risk displays on SNS and risky behavior. Moreover, research revealed normative perceptions as a potential explanatory mechanism of the effect (e.g., Beullens & Vandebosch, 2016; Brunelle & Hopley, 2017). Following this line of research – specifically the initial experimental work in this realm, which has successfully manipulated descriptive drinking norms in mock Facebook profiles by

displaying profile information with references to alcohol behavior (Fournier et al., 2013; Litt & Stock, 2011) – the previous studies of the present dissertation (see Chapters 7 and 8) have begun to enhance the theoretical and empirical work on implicit normative information on SNS. The second study (see Chapter 8) provided the first insights on the effects of normative cues in status updates by disentangling the mechanisms of different message characteristics (norm focus and source of the message) and their effects on normative perceptions and behavioral intentions based on a laboratory experiment. The effects are, however, limited by the short-term design of the experiment and the one-time exposure to the stimuli. The influence of normative information in SNS posts might be stronger when it is repeatedly observed over a longer period. Especially with regard to the formation of normative perceptions, more frequent exposure might be necessary. Therefore, it seems vital to study the impact of behavioral displays on SNS in a more naturalistic – but experimentally controlled – way by considering the factor of time and the amount of exposure.

Since no study so far has experimentally investigated the prolonged impact of this implicit way of receiving normative information in SNS over a longer period, the present study aims to fill this gap by experimentally manipulating the amount of exposure to behavioral displays in SNS posts over a time frame of 6 weeks. Specifically, it is analyzed, by means of a pre–post measurement, whether the experimental manipulation affects receivers' normative perceptions and behaviors in the offline world. These research aims were tested for the context of prosocial behavior, which describes all forms of actions that benefit other persons (Batson, 1998), including different acts of planned and spontaneous, serious and nonserious, as well as direct and indirect helping and supporting (Pearce & Amato, 1980).

Engagement in prosocial activities is well respected in society, and thus displays of these kinds of activities in broadcasted SNS communications are likely as they reflect a typical means for selective self-presentation and impression management (see Krämer & Winter, 2008; Walther, 2007). Although behavioral displays in the posts of a user's peers and friends do not necessarily reflect the actual occurrence of the behavior in this reference group, observing examples of prosocial conduct from the network of friends might influence users' subjective estimates of the behavior's prevalence in the reference group. These posts could be processed as exemplars, that is, single case illustrations of an event or action, which can impact individuals' judgments of the event prevalence by means of the cognitive processes of priming and the availability and representativeness heuristics (Zillmann, 1999).

With regard to the influence of repeated exposure to media stimuli over time, it could be that the accumulated effects have even more severe consequences for individuals' belief

systems, as suggested by cultivation research (Gerbner, 1998). For the inference of normative perceptions from SNS posts, a sufficient amount of exposure to the respective information seems to be necessary for any effects to occur. This issue is, for example, discussed in the context of social norms marketing campaigns as an explanation for weak effects (Berkowitz, 2005) and has been tested for media priming effects (Arendt, 2015). Although a too high concentration of media messages might lead to reactance or negative feelings toward the messages, priming research suggests that there is a threshold of exposure dose that needs to be exceeded for effects of media stimuli to reach a level of significance (Arendt, 2015; Atkin, 1995). Against this background, the present study tests the impact of different rates of exposure (low and high) to prosocial behavioral displays in SNS posts, as an implicit way of providing normative information over time, against a control condition with no exposure to prosocial displays. Building on the research on social norm perceptions, it seems plausible that repeated exposure to status updates with exemplary displays of Facebook friends' engagement in prosocial activities increases receivers' perception of the prevalence of prosocial behavior among their friends and acquaintances over time. Thus, the following hypothesis is proposed:

H1: A higher amount of exposure to prosocial behavioral displays over time leads to stronger descriptive prosocial norm perceptions.

Since prior research on (mis-)perceptions of social norms has predominantly focused on descriptive norms, the present study addresses the need for more empirical work on the effects that prevalence cues about a behavior may have on injunctive and subjective norm perceptions regarding the behavior in question. With regard to the context of the present study, it might, for example, be that repeated exposure to references of friends' prosocial activities in SNS posts also affects an individual's perceptions about how much his or her friends approve of prosocial behavior or expect him/her to engage in such activities. Thus, the following research question is investigated:

RQ1: Does a higher amount of exposure to prosocial behavioral displays over time lead to stronger injunctive and subjective prosocial norm perceptions?

In addition to their impact on subjective perceptions of the prevalence and approval of the represented behavior, the present study examines the influence of behavioral displays in

SNS on users' own offline behaviors. This association has already been found for the context of risky health behaviors (e.g., Branley & Covey, 2017). One potential mechanism could be that the exposure to behavioral displays elicits the inference of normative perceptions, which, in turn, influence the behavior. Another conceivable mechanism builds on Bandura's social cognitive theory (2001) and proposes that symbolic representations of other peoples' behavior (as displayed in SNS posts) can significantly influence users' behavioral outcomes by mechanisms of social learning. Since perceived similarity seems to be an important factor for modeling influences (Bandura, 1986) and it can be assumed that individuals share a certain number of characteristics with their friends and peers on SNS and have a relatively high level of identification – probably more so than with fictitious media characters or unknown strangers represented in media outlets – behavioral displays in SNS posts by friends from a user's network seem to be a specifically effective venue for modeling influences.

Thus, for the present research it is assumed that exposure to prosocial behavioral displays over time influences recipients' real-world engagement in prosocial behavior. Concerning the rate of exposure, a higher rate will increase the possibilities for observing and learning. This might find expression in more prosocial behavior on the part of the observer and increase her intentions for future prosocial behavior. Moreover, a direct, objective measure of prosocial behavior was employed in the present study in the form of an actual donation to a charity organization. This was assessed to examine the impact of prosocial behavioral displays on an actual behavior in a decision situation. Thus, the following hypotheses were formulated:

H2: A higher amount of exposure to prosocial behavioral displays over time leads to more prosocial behavior.

H3: A higher amount of exposure to prosocial behavioral displays over time leads to higher prosocial behavioral intentions.

H4: A higher amount of exposure to prosocial behavioral displays over time leads to higher donations.

As stated above, two mechanisms seem plausible for the effects of repeated exposure to behavioral displays in SNS posts on behavioral outcomes: On the one hand, perceived norms might serve as a mediator. That social norm perceptions can be influenced by explicit

message cues as a means to promote norm-congruent behavior has been shown by the research building on the social norms approach and the persuasive impact of normative messages (see Chapter 4.4). In addition, initial work on health-related effects of SNS use has found the first evidence on the connection between exposure to alcohol content in SNS, alcohol-related normative perceptions, and drinking behavior (e.g., Beullens & Vandebosch, 2016; Nesi et al., 2017). Thus, to examine the role of normative perceptions derived from the exposure to prosocial behavioral displays as a potential explanatory mechanism, the following research question is pursued:

RQ2: Do the perceived prosocial norms mediate the effect of the amount of exposure to prosocial behavioral displays on self-reported prosocial behavior, prosocial behavioral intentions, and actual donations?

On the other hand, and building on Bandura's social cognitive theory (1986), SNS users' displays of their prosocial activities via broadcasted communication can be characterized as a source of vicarious learning, and individuals might adopt the behaviors they observe. One relevant concept in Bandura's theory that determines whether a behavior is actually conducted is self-efficacy, which is characterized, similarly to perceived behavioral control, as an individual's perceived ability to accomplish a behavior or action (Fishbein & Ajzen, 2010). Self-efficacy perceptions can be affected vicariously by observing behavioral models succeeding in a behavioral action (Bandura, 1994) and prior research suggests that social networking sites such as Facebook can be a venue for enhancing self-efficacy perceptions (Argyris & Xu, 2016). For the present study, it is proposed that the exposure to exemplary displays of friends' prosocial actions on SNS increases receivers' perceptions of their abilities to perform prosocial activities themselves:

H5: A higher amount of exposure to prosocial behavioral displays over time leads to a higher perceived ability to engage in prosocial behavior.

Moreover, the present study explores whether users' perceived ability to conduct prosocial actions can provide an explanation for the effect of repeated exposure to SNS posts with prosocial behavioral displays on prosocial behavior:

RQ3: Does the perceived ability to engage in prosocial behavior mediate the effect of the amount of exposure to prosocial behavioral displays on self-reported prosocial behavior, prosocial behavioral intentions, and actual donations?

Figure 7 shows the research model of the present study.

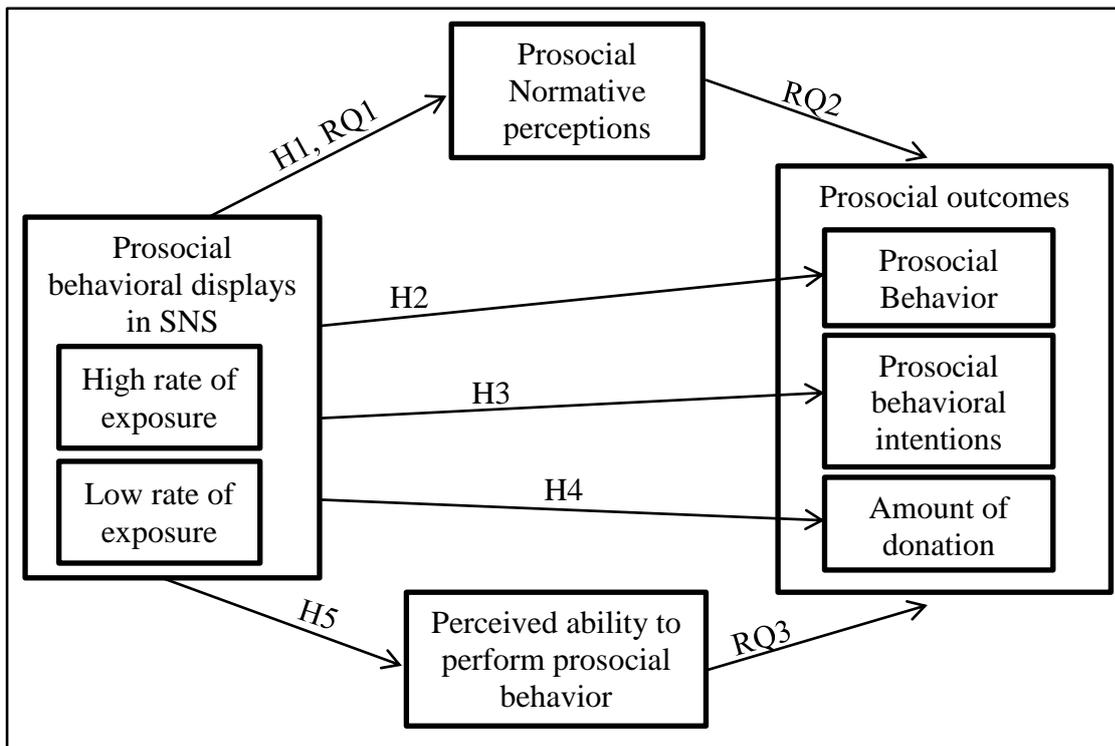


Figure 7. Study 3 research model.

9.2 Method

In order to test the hypotheses, a 6-week online experiment ($N = 134$) with a between-subjects design and a repeated measures approach was conducted. As between-subjects factor, the number of status updates with prosocial behavioral displays that participants were exposed to over the 6 weeks was manipulated: Participants in the high-exposure condition saw four and participants in the low-exposure condition saw two prosocial behavioral displays per week. In the control condition, only status updates without prosocial content were shown (including, e.g., posts about vacations, leisure time activities, or food; hereafter called *neutral status updates*).

9.2.1 Sample

In all, 142 university students were recruited as participants and started the experiment. Over the 6-week period, eight participants dropped out. Thus, the final sample includes $N = 134$ (74 females, 60 males) participants who completed the study. Participants were aged between 17 and 30 years ($M = 21.02$, $SD = 2.56$). Most of them were recruited from a Bachelor's program in media science at a large German university ($n = 114$) and received course credits for their participation. Some additional students were recruited from other programs and were offered 30 euro ($n = 20$).

All participants were Facebook users; most of them visit Facebook on a daily basis ($M = 8.27$, $SD = 0.85$; measured on a 9-point scale from 1 = *never* to 9 = *several times a day*) and spend on average $M = 36.47$ min ($SD = 31.29$) per day on Facebook ($min = 1$, $max = 180$). Their intensity of usage, based on the Facebook intensity scale (Ellison et al., 2007), was on a medium level ($M = 3.70$; $SD = 1.08$; Cronbach's $\alpha = .76$; six items measured on a 7-point scale) and on average they had $M = 338.88$ Facebook friends ($SD = 207.81$; $min = 0$, $max = 1200$; one outlier with $>5,000$ friends excluded for this analysis), of whom they considered $M = 50.53$ ($SD = 74.34$, $min = 0$, $max = 600$) as real friends. These data were collected at the beginning of the study. Participants were equally distributed across conditions: high exposure: $n = 44$ (26 female), low exposure: $n = 44$ (23 female), control: $n = 46$ (25 female).

9.2.2 Procedure

The study was conducted via an online platform (created with the software Moodle, <https://www.moodle.org>), which was used to expose participants to the status updates and to distribute the preexposure and the postexposure questionnaire. Upon registration on the platform, participants were assigned a group id (a, b, or c, reflecting the three experimental conditions) and an individual user id, which was transmitted to the surveys in order to match the data files and to facilitate repeated measures analyses. On this platform, every day (except on Sundays) one new status update was released from November 2 to December 13, 2016. That way, participants were exposed to 36 status updates in total over a 6-week period (one per weekday and one every weekend; for more details regarding the material, see below). The platform was configured in a way that, depending on the date and the participant's group id, the respective status update was made available for 24 hr (48 hr on weekends). Status updates were uploaded as image files. The following instruction was presented on the platform: "Please have a look at today's status update and fill out the linked questionnaire. Imagine that

you see this status update from one of your Facebook friends in your newsfeed.” Participants filled out a short online questionnaire for every status update, measuring their general evaluation of the post and their likelihood of liking it. Participants were sent reminder emails in the evenings. When a participant missed a status update, she/he was given the opportunity to catch up until about 2:00 p.m. the next day. When three or more status updates were missed completely, the participant was excluded from the study.

Before and after the 6-week period of exposure to the status updates, participants filled out an online questionnaire: The preexposure questionnaire (T1) was released on the platform on October 30 and it was ensured that participants filled out this questionnaire before viewing the first status update. This questionnaire first asked for participants’ demographics and their Facebook usage, followed by measures assessing their prosocial behavior, perceived prosocial norms, and prosocial attitudes². Additionally, user characteristics, such as participants’ empathy and personal prosocial norms, were measured. In order not to prime participants on the topic of prosocial behavior, several distractor items were included in the scales that addressed other types of behavior, such as media uses (e.g., watching TV, reading newspapers) or other leisure activities (e.g., going to parties, meeting friends).

The postexposure questionnaire (T2) was released on December 18, 5 days after the last status update. It assessed participants’ Facebook usage during the past 6 weeks, followed by the repeated measures for prosocial behavior, perceived prosocial norms, and prosocial attitudes (same scales as in T1). In the second part, prosocial behavioral intentions and perceived ability to engage in prosocial behavior were measured; additionally, prosocial media motivations were assessed. Furthermore, participants were given the opportunity to support an actual donation to charity by refraining from (parts of) their study compensation. At the end, they were asked to recall everything they could remember from the content of the status updates and to indicate, as a manipulation check, how many status updates per week they thought had addressed some kind of prosocial behavior (choice from 0 to 6). Then, they were debriefed about the three conditions in the experiment and asked to name the condition they believe they had been assigned to (4 / 2 / 0 prosocial status updates per week).

Finally, participants were fully debriefed and received course credits or up to 30 euro as compensation for the participation (the amount of their donation was deducted from their compensation and donated to the SOS Kinderdorf, a large German nonprofit organization

² The measure for prosocial attitudes revealed high mean values in all conditions, before as well as after the experiment. It is not part of the following analyses and therefore not further specified.

dedicated to the aid of children). The study procedure was approved by the local ethics committee.

9.2.3 Stimulus Material and Pretest

For the stimulus material, 29 fictitious status updates with prosocial behavioral displays (i.e., describing others' engagement in prosocial activities) and 41 without prosocial cues were created with a graphics program. A broad variety of prosocial behaviors were displayed, including helping and supporting other people through engagement in different kinds of voluntary activities and charitable efforts (e.g., coaching a children's sports team; offering free walking tours for senior citizens; working for the volunteer fire brigade; donating old clothes, etc.). The neutral posts displayed, for example, leisure time activities (e.g., jogging, bowling with friends, city excursions), requests for recommendations (e.g., for vacation destinations), and remarks about specific incidents or everyday situations (e.g., television program, weather, rail traffic). See Figures 8 and 9 for examples. To have a good mix of visual and textual stimuli, about half of the status updates included photos or screenshots, while the other half were mere text posts.

All status updates were subject to a pretest (within-subjects design) and rated by $N = 22$ additionally recruited Facebook users (12 female; age: $M = 26.18$, $SD = 3.45$). For each post, they were asked to indicate, whether, "This status update clearly shows that other people engage in prosocial acts" (1 = *not at all*, 7 = *completely*) and, "How likely do you think it is that a post like this is posted on Facebook?" (1 = *very unlikely*, 7 = *very likely*). Based on participants' ratings, 36 neutral status updates with the lowest mean values on the first item (perception of others' prosocial behavior), ranging from $M = 1.00$ to $M = 1.68$, were selected for the control condition. Their perceived likelihood of being posted ranged from $M = 4.77$ to 6.77. Moreover, 24 prosocial status updates with the highest means on likelihood of being posted (ranging from $M = 4.50$ to $M = 6.36$) were selected to be used in the high-exposure condition. Their means for the perception of others' prosocial behavior ranged from $M = 4.05$ to $M = 6.05$. For the low-exposure condition, 12 of the 24 prosocial status updates with medium values on this item were chosen.



Figure 8. Examples of prosocial posts.

A paired-samples t test revealed a significant difference between the neutral ($M = 1.19$, $SD = 0.23$) and prosocial status updates ($M = 5.02$, $SD = 1.14$) with regard to the perceived prosocial behavior, $t(21) = -16.35$, $p < .001$, Cohen's $d = -4.65$. Also, the perceived likelihood of being posted on Facebook was significantly different, $t(21) = 4.92$, $p < .001$, Cohen's $d = -0.77$, between the neutral ($M = 5.82$, $SD = 0.70$) and prosocial status updates ($M = 5.07$, $SD = 1.16$), which is, however, hardly surprising as the neutral status updates included typical, everyday postings. Here, it was important to make sure that none of the status updates was perceived as completely unrealistic, which was not the case since all were rated higher than 4.

The status updates were uploaded as image files on the study platform. A fixed order was defined in which the status updates were presented over the 6-week period. For 12 (or 24) days, participants in the high- (or low) exposure condition were exposed to the neutral status update that was presented to the control group on that day. For these days, neutral status updates with a medium value on likelihood of being posted were selected. Moreover, it was attempted to match the valence of the posts presented on the same days and care was taken that each condition contained the same number of status updates with ($n = 20$) and without (n

= 16) photos and that on the same day all participants saw a status either with or without a picture.

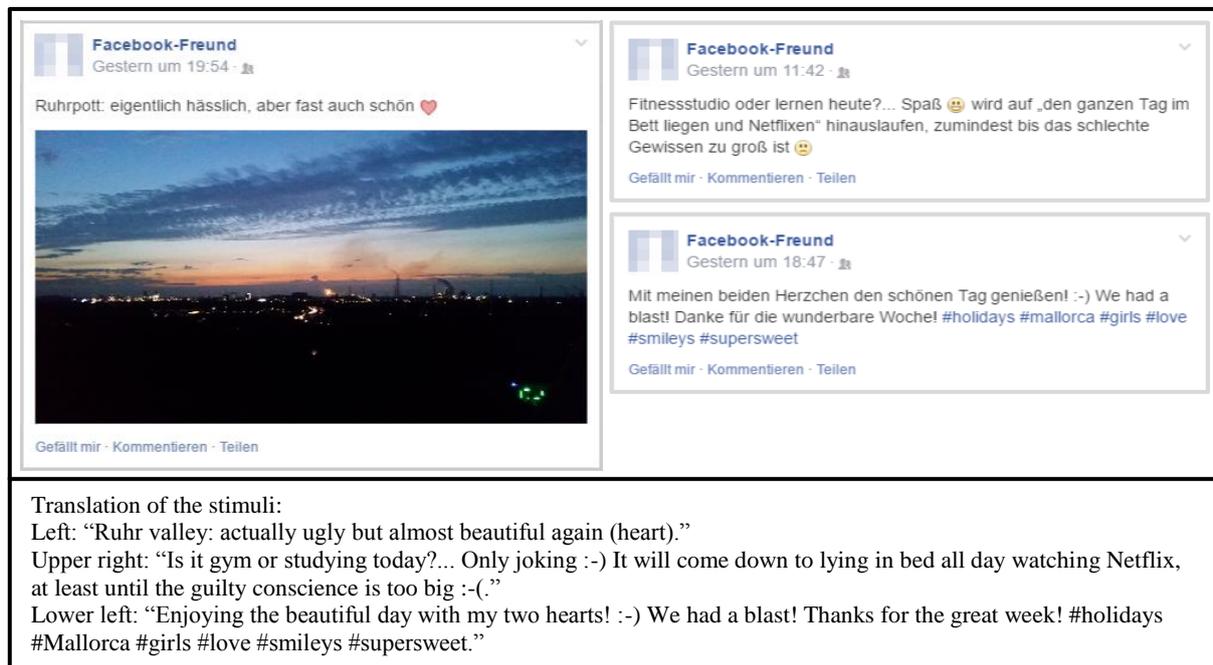


Figure 9. Examples of neutral posts.

9.2.4 Measures

Two of the key dependent variables, participants' engagement in prosocial activities and their perceived prosocial norms, were measured repeatedly in the preexposure (T1) and postexposure questionnaire (T2). Furthermore, the postexposure questionnaire assessed prosocial behavioral intentions, perceived ability to perform prosocial behaviors, and the amount donated to an actual charity appeal as an objective measure for prosocial behavior. Control variables were measured at T1. The presented stimuli were evaluated on a daily basis.

Dependent Variables

Prosocial behavior. The measure for the frequency of participants' engagement in prosocial behavior aimed to cover different forms of helping (Pearce & Amato, 1980) as well as engagement in key areas of voluntary work (Gensicke & Geiss, 2010). In all, 13 items were created that cover volunteering activities (e.g., social commitment for old, sick, or disabled people; political engagement, environmental and animal protection), donation behaviors (e.g., donating money to charity), as well as helping behaviors in everyday life (e.g., telling a stranger the way). Items were rated on a 5-point scale ("Please indicate how often you

perform the following behaviors”: 1 = *never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *very often*) among several filler items on leisure behavior, media use, or other activities (e.g., listening to music, going shopping, eating fast food etc.), which were used to distract participants from the primary aim of the measurement.

In order to reduce the number of items to factors, an exploratory factor analysis (EFA; principal axis analysis) with promax rotation was conducted on the 13 items measured at T1. An oblique rotation was chosen because, on theoretical grounds, it is likely that underlying factors are related. The number of factors to extract was determined by a parallel analysis (Horn, 1965), using an SPSS syntax command (O'Connor, 2000). This method compares eigenvalues from random data sets with a similar data structure to the empirically found eigenvalues in the data to be analyzed. A factor is retained if its eigenvalue exceeds the eigenvalue of the corresponding factor from the random data. Compared with other methods, such as Kaiser's criterion, parallel analysis seems to be the most reliable method for factor extraction (Zwick & Velicer, 1986). Thus, an initial analysis was run to determine the empirical eigenvalues for each component.

For the present study, parallel analysis suggested a two-factor solution because the empirically found eigenvalues of the first (3.52) and second (1.69) factor in the experimental data were larger than the corresponding eigenvalues found in the random data, but the third (1.11) was smaller (based on 95th percentile eigenvalues from a PCA with 1,000 random data sets: 1st = 1.69; 2nd = 1.50; 3rd = 1.37). An EFA for a fixed number of two factors (principal axis analysis with promax rotation) revealed that three of the 13 items had low main factor loadings (< .4). Since it is recommended to interpret factor loading greater than .4 (Field, 2013), items below this threshold were successively excluded and the data were re-analyzed. A final EFA for 10 remaining items (principal axis analysis, promax rotation) with a fixed number of factors set on two (again suggested by parallel analysis) revealed that six items load on the first factor, which was labeled *civic engagement* (25.67% of the total variance explained; Cronbach's $\alpha = .74$), and four load on the second factor, labeled *easy helping* (10.09% of the total variance explained; Cronbach's $\alpha = .72$; see Table 7 for factor loadings). Both factors were also reliable at T2 (*civic engagement*: Cronbach's $\alpha = .79$; *helping*: Cronbach's $\alpha = .75$).

Table 7
Rotated factor loadings of the items for prosocial behavior

Item	Factors	
	Civic engagement	Easy helping
Volunteering in a club or organization	.637	-.111
Being politically active for a party	.588	.002
Donating money to charity	.570	.075
Volunteering for elderly, ill, or disabled people	.565	.010
Actively supporting environmental or animal protection	.535	.047
Voluntarily supervising children or youth groups	.519	-.006
Letting a person in a hurry go first in a line	-.015	.651
Holding a door or the elevator open for a stranger	-.099	.650
Offering one's own seat in the bus/train to a stranger	.031	.640
Telling a stranger the way	.102	.568
% of variance	25.67	10.09
α	.74	.72

Note. Factor loadings are based on the pattern matrix. Main factor loadings are in bold.

The table shows an English translation of the items; items were originally assessed in German.

Descriptive norms. Participants were asked to estimate how often their friends and acquaintances are engaged in prosocial activities, using the same item battery that was used to measure their own prosocial behavior, only that the items were introduced with “How often do your friends and acquaintances do [behavior]?” (5-point scale: 1 = *never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *very often*). The 13 items measured at T1 were subject to an EFA (principal axis analysis) with promax rotation. The number of factors was determined by parallel analysis (see previous section), which suggested a two-factor solution. One item had a factor loading lower than .4 and was excluded. The final EFA (principal axis analysis with promax rotation and a two-factor solution) on the remaining 12 items revealed that eight items load on the first factor, *descriptive norm for civic engagement* (27.64% of variance explained; Cronbach’s $\alpha = .82$), and four load on the second factor, *descriptive norm for easy helping* (10.96% of variance explained; Cronbach’s $\alpha = .73$; see Table 8 for factor loadings). Both factors were also reliable at T2 (descriptive norm for civic engagement: Cronbach’s $\alpha = .81$; descriptive norm for easy helping: Cronbach’s $\alpha = .79$).

Table 8

Rotated factor loadings of the items for descriptive prosocial norms

Item	Factors	
	Descriptive norm for civic engagement	Descriptive norm for easy helping
<i>How often do/are your friends and acquaintances...</i>		
...volunteer for elderly, ill, or disabled people?	.699	-.038
...voluntarily supervise children or youth groups?	.690	-.113
... politically active for a party?	.611	.046
...donate clothes, food, or material goods?	.601	.010
...actively support environmental or animal protection?	.593	.019
...volunteer in a club or organization?	.587	-.032
...donate money to charity?	.549	.114
...donate blood?	.488	.049
...offer their own seat in the bus/train to a stranger?	-.049	.689
...tell a stranger the way?	.022	.674
...let a person in a hurry go first in a line?	-.056	.656
...hold a door or the elevator open for a stranger?	.126	.520
% of variance	27.64	10.96
α	.82	.73

Note. Factor loadings are based on the pattern matrix. Main factor loadings are in bold.

The table shows an English translation of the items; items were originally assessed in German.

Injunctive and subjective norms. Overall, nine items were created to assess participants' perceived injunctive norms toward prosocial behavior (three items concerning each of the following: volunteering, donating, and helping strangers in everyday life). Three items were formulated to reflect how socially accepted a behavior is among others (e.g., "Most of my friends and acquaintances approve of [behavior]"), while six items were formulated in line with Fishbein and Ajzen's (1975) definition of subjective norms, reflecting perceived social pressure (e.g., "...expect me to do [behavior]"). All items were measured on a 7-point scale (1 = *do not agree at all*, 7 = *completely agree*) among several distractor items. Since a factor analysis (principal axis analysis with promax rotation, number of factors to extract determined by parallel analysis) did not reveal meaningful factors (items seem to partially group around the topic and are partially based on their varying formulations), not even when items with low main factor loadings or high parallel loadings were successively excluded, items were combined on a theoretical basis to build two factors: one representing *injunctive prosocial norms* (three items; T1: Cronbach's $\alpha = .72$, T2: Cronbach's $\alpha = .79$), the other representing *subjective prosocial norms* (six items; T1: Cronbach's $\alpha = .80$, T2: Cronbach's $\alpha = .83$).

Prosocial behavior intentions. In addition to their current prosocial behavior, participants at T2 also indicated how often they intend to carry out prosocial activities in the following year. The same 13 behaviors (see previous section) were rated on a 5-point scale (1 = *never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *very often*). In order to reduce the number of items to factors, an EFA (principal axis analysis) with promax rotation and a fixed number of two factors (parallel analysis indicated a two-factor solution) was performed. Items with low main factor loadings (< .4) and/or high parallel loadings (> .2) were subsequently excluded. A final EFA on 11 remaining items (principal axis analysis with promax rotation and a fixed number of two factors as suggested by parallel analysis) indicated that five items load on the first factor, *easy helping intentions* (33.61% variance explained; Cronbach's $\alpha = .83$), and six items load on the second factor, *civic engagement intentions* (12.48% of variance explained; Cronbach's $\alpha = .80$; see Table 9 for factor loadings).

Table 9

Rotated factor loadings of the items for prosocial behavioral intentions

Item	Factors	
	Civic engagement intentions	Easy helping intentions
<i>In the next year, how often do you intend to...</i>		
...let a person in a hurry go first in a line?	.882	-.087
...hold a door or the elevator open for a stranger?	.747	-.058
...tell a stranger the way?	.704	.090
...offer your own seat in the bus/train to a stranger?	.643	.018
...give way to another person in traffic?	.518	.115
...volunteer in a club or organization?	-.058	.812
...voluntarily supervise children or youth groups?	-.055	.723
...be politically active for a party?	-.051	.633
...volunteer for elderly, ill, or disabled people?	.038	.627
...actively support environmental or animal protection?	.139	.471
...donate money to charity?	.198	.440
% of variance	33.61	12.48
α	.80	.83

Note. Factor loadings are based on the pattern matrix. Main factor loadings are in bold.

The table shows an English translation of the items; items were originally assessed in German.

Donations. Participants read that the researcher was collecting donations for the child aid organization SOS Kinderdorf and were asked whether they wanted to donate part of their study compensation to this good cause. Participants who were offered 30 euro for their participation named an amount between 0 and 30 that was deducted from their compensation

and added to the donation. Participants who were offered six course credits for their participation were informed that the research team will donate 1 euro to SOS Kinderdorf for every half credit they could spare. They named an amount between 0 and 6 course credits in steps of 0.5, which was subtracted from their compensation. The research team added the respective amount of money to the donation.

Perceived ability to engage in prosocial behavior. Participants rated on six items how feasible it would be for them to behave prosocially in the following year (e.g., “If I wanted to, it would be easy for me to volunteer next year”; “What do you think, how much control do you have about donating something to charity next year?”; or “If I wanted to, it would be easy for me to help strangers in everyday life next year”). Items were rated from 1 = *not at all* to 7 = *completely*. An EFA and parallel analysis were conducted on the six items, which revealed that the first two empirically found eigenvalues, but not the third ($1^{\text{st}} = 2.46$; $2^{\text{nd}} = 1.26$; $3^{\text{rd}} = 0.99$), were larger than the respective eigenvalues of the random data ($1^{\text{st}} = 1.42$; $2^{\text{nd}} = 1.23$; $3^{\text{rd}} = 1.10$), albeit the difference of the second was only marginal. Based on this, an EFA (principal axis analysis, promax rotation) with a fixed number of two factors was conducted. Since the results showed that two items, which are substantially important for the measure, had low main ($< .4$) and/or high parallel loadings ($> .2$), it was decided to extract only one factor including all six items (Cronbach’s $\alpha = .70$).

Prosocial media motivations. Prosocial motivations as a response to viewing the status updates were measured by adapting a scale from research on media entertainment (Oliver, Hartmann, & Woolley, 2012) to the social media context. Participants rated the five items: “The status updates motivated me to... ‘...be a better person,’ ‘...do good things for other people,’ ‘...seek what really matters in life,’ ‘...live my life a better way,’ ‘...adjust my life to what I really want’” (1 = *does not apply at all*, 5 = *applies completely*; Cronbach’s $\alpha = .93$).

Control Variables

Empathy. The Saarbruecken personality questionnaire (SPF, V6.1; Paulus, 2009), a German version of the Interpersonal Reactivity Index, was used to measure empathy. The scale consists of the following four subscales (four items each): perspective taking (PT), empathic concern (EC), fantasy scale (FS), and personal distress (PD). For the empathy score, only the three subscales PT, EC, and FS were summarized, as suggested by Paulus (2014).

Items were rated on a 5-point scale (1 = *never*, 2 = *seldom*, 3 = *sometimes*, 4 = *often*, 5 = *always*; Cronbach's $\alpha = .81$).

Personal norms. Six items were used to measure personal norms regarding prosocial behaviors, such as donating, volunteering, and helping in everyday situations (two items each). The item formulation was adapted from Steg and De Groot (2010). Items were measured among several distractor items on other topics on a 7-point scale (1 = *do not agree at all*, 7 = *completely agree*). An EFA (principal axis analysis) with promax rotation and a fixed number of two factors (parallel analysis indicated a two-factor solution) was conducted on the six items. The analysis showed that four items load on the first factor, *personal norm regarding civic engagement* (38.14% of variance explained; Cronbach's $\alpha = .80$), and two items load on the second factor, *personal norm regarding easy helping* (15.83% of variance explained; Cronbach's $\alpha = .72$; see Table 10 for factor loadings).

Table 10

Rotated factor loadings of the items for personal norms

Item	Factors	
	Civic engagement personal norm	Easy helping personal norm
I feel morally obliged to donate to charity.	.813	.003
I feel morally obliged to volunteer.	.729	-.084
I feel guilty when I do not volunteer in my leisure time.	.727	.017
I feel guilty when I, from what I have, donate nothing to charity.	.542	.123
I feel guilty when I am not helpful to strangers in everyday life.	-.073	.876
I feel morally obliged to help strangers in everyday life situations.	.111	.631
% of variance	38.14%	15.83%
α	.80	.72

Note. Factor loadings are based on the pattern matrix. Main factor loadings are in bold.

The table shows an English translation of the items; items were originally assessed in German.

Daily Evaluation of the Stimuli

After viewing a status update, participants filled out a short online questionnaire, which assessed their evaluation of the status update based on six items on a 7-point semantic differential scale (*negative/positive*, *uninteresting/interesting*, *not worth reading/worth reading*, *not enriching/enriching*, *not inspiring/inspiring*, and *demotivating/motivating*). In

addition, they were asked: “How likely is it that you would like this status update?” (7-point scale from $-3 = \textit{very unlikely}$ to $3 = \textit{very likely}$). For every status update, the mean evaluation was calculated based on the semantic differential and an overall evaluation score was built reflecting the average evaluation across all status updates seen during the experiment. Furthermore, additional scores were created for the high- and low-exposure group reflecting separately the overall evaluation of the prosocial or neutral status updates, respectively.

9.3 Results

The following section first presents preliminary analyses regarding the manipulation check, model assumption checks, and the relations between the behavioral outcome variables and control variables. Then, the primary results of the hypotheses testing are reported in the order of the hypotheses. Analyses were conducted with IBM’s SPSS statistics software. Specifically, repeated measures analyses of variance, including the condition as a between-subjects factor (i.e., mixed-design analyses), were conducted to investigate changes in perceived prosocial norms and prosocial behaviors from the pre- to the postexposure measurement as a function of the status updates exposure. Moreover, analyses of variance (ANOVAs) were calculated to analyze the influence of the amount of exposure to prosocial behavioral displays in status updates on future prosocial intentions, the amount of donations made in an actual charity appeal, and the perceived ability to engage in prosocial behavior. Finally, to explore the underlying mechanisms of the effects, mediation analyses were conducted using the PROCESS macro for SPSS (Hayes, 2013).

Preliminary Analyses

With regard to the manipulation check, a univariate analysis of variance revealed a significant effect of the manipulation on the perceived number of prosocial status updates per week, $F(2, 130) = 95.24, p < .001, \eta_p^2 = .594$. Participants perceived significantly more prosocial content in the high-exposure group ($M = 4.23, SD = 1.01$) than in the low-exposure group ($M = 3.32, SD = 0.93$) and in the control group ($M = 1.47, SD = 0.94$). However, the mean values indicate that the exact number of status updates with prosocial content was overestimated in the low-exposure and control condition. Concomitant with this, $n = 25$ participants from the control group thought they had been in the low- ($n = 24$) or in the high-exposure ($n = 1$) condition, and $n = 19$ persons from the low-exposure group thought they had been in the high-exposure condition. Most participants in the high-exposure condition judged

correctly (only $n = 5$ named the low-exposure condition). This overestimation bias will be taken into account when interpreting the results.

Since the F-statistics in analyses of variance are considered robust, even when they violate the assumption of normality (especially for larger sample sizes with equally large subsamples in the conditions, see Field, 2013), parametric tests were used for the present analyses. The assumption of homoscedasticity was tested based on Levene's test. For most analyses, the test was nonsignificant, showing that homogeneity of variance can be assumed (exceptions are reported with the respective analyses). In addition, preliminary analyses revealed that participants in the three study conditions, who were equally distributed with regard to gender, also did not differ in key characteristics such as age, $F(2, 131) = 0.53, p = .949, \eta p^2 = .001$, and Facebook intensity, $F(2, 131) = 0.35, p = .707, \eta p^2 = .005$, as well as in empathy, $F(2, 131) = 0.20, p = .821, \eta p^2 = .003$; Levene's test, $F(2,131) = 4.33, p = .015$, and personal prosocial norms, civic engagement: $F(2, 131) = 0.34, p = .712, \eta p^2 = .005$, easy helping: $F(2, 131) = 0.89, p = .412, \eta p^2 = .013$. With regard to participants' baseline measures of prosocial descriptive, injunctive, and subjective norms and their engagement in prosocial activities prior to the experiment (T1), ANOVAs revealed that participants also did not significantly differ in their prosocial norm perceptions – descriptive norm for civic engagement: $F(2, 131) = 0.10, p = .907, \eta p^2 = .001$, descriptive norm for easy helping: $F(2, 131) = 0.24, p = .784, \eta p^2 = .004$; injunctive prosocial norms: $F(2, 131) = 0.75, p = .475, \eta p^2 = .011$, subjective prosocial norms: $F(2, 131) = 0.05, p = .955, \eta p^2 = .001$ – and in the frequency of their engagement in prosocial activities, civic engagement: $F(2, 131) = 0.03, p = .973, \eta p^2 < .001$, easy helping: $F(2, 131) = 0.05, p = .953, \eta p^2 = .001$. Thus, the experimental randomization was successful.

Correlation analyses (based on Spearman's rho) were conducted to investigate the relations between the control variables and the key behavioral outcome variables. Results show that civic engagement behavior (at T2) is strongly correlated with personal norms for civic engagement ($r = .518, p < .001$) and weakly correlated with empathy ($r = .192, p = .026$) and personal norms for easy helping ($r = .172, p = .047$). Easy helping behavior (at T2) correlates strongly with easy helping personal norms ($r = .389, p < .001$) and weakly with empathy ($r = .182, p = .036$) and Facebook intensity ($r = .218, p = .012$). Civic engagement intentions correlate strongly with personal norms for civic engagement ($r = .582, p < .001$) and moderately with personal norms for easy helping ($r = .275, p = .001$) and empathy ($r = .238, p = .006$), while easy helping intentions correlate strongly with easy helping personal norms ($r = .404, p < .001$), moderately with civic engagement personal norms ($r = .268, p =$

.002), and weakly with empathy ($r = .174, p = .044$). No significant correlations were found for donation behavior. In addition, t -test results show that gender had a significant effect on helping intentions, $t(132) = 2.00, p < .048$, Cohen's $d = 0.35$: Female participants had higher intentions to help ($M = 3.71, SD = 0.69$) than did male participants ($M = 3.46, SD = 0.74$). In order to check whether controlling for these variables changes any of the experimental effects in the respective analyses calculated for H2 and H3, four additional analyses of covariance were conducted for the prosocial behavioral outcome variables (civic engagement at T2, easy helping at T2, civic engagement intentions, and easy helping intentions). These included the control variables that revealed a significant relation to the respective dependent variable and did not violate the assumption of homogeneity of the regression slopes. Since these analyses did not significantly alter the pattern of results, they are not reported in detail.

Changes in Prosocial Norm Perceptions and Behavior

In order to test H1, which predicts that participants' descriptive prosocial norm perceptions change over time depending on the amount of exposure to prosocial behavioral displays, two repeated measures ANOVAs were conducted: one with the repeated factor descriptive norm for civic engagement and one with the repeated factor descriptive norm for easy helping. The experimental condition was included as between-subjects factor.

Contrary to the hypothesis, results showed no significant interaction effect between the condition and the repeated measure of the descriptive norm for civic engagement, $F(2,131) = 0.12, p = .888, \eta^2_p = .002$, nor between the condition and the repeated measure of the descriptive norm for easy helping, $F(2,131) = 0.40, p = .674, \eta^2_p = .006$. There were also no main effects of condition or time on the civic engagement norm. For the descriptive norm for everyday helping, results show a significant change over time, $F(1,131) = 10.07, p = .002, \eta^2_p = .071$; however, there was no main effect of condition. Overall, the perceived descriptive norm for easy helping was higher at baseline ($M = 3.10, SD = 0.55$) than at follow-up ($M = 2.97, SD = 0.62$) across conditions. H1 is not supported by the data.

Concerning the question of changes in the injunctive and subjective prosocial norm perceptions as a function of the amount of exposure to prosocial behavioral displays in status updates (RQ1), repeated measures ANOVAs revealed no significant effects: neither for the perceived injunctive prosocial norm, $F(2,131) = 2.44, p = .091, \eta^2_p = .036$, nor for the perceived subjective prosocial norm, $F(2,131) = 1.36, p = .259, \eta^2_p = .020$; a significant interaction effect of time and condition was found.

H2, which predicts that participants differ in their prosocial behavior after 6 weeks and that the difference is dependent on the amount of exposure to prosocial behavioral displays, was evaluated in a similar way by conducting two repeated measures ANOVAs (one for civic engagement, one for easy helping). Both analyses revealed no significant interactions between time and condition, indicating that changes in civic engagement, $F(2,131) = 0.56, p = .574, \eta^2_p = .008$, as well as changes in everyday helping, $F(2,131) = 2.56, p = .081, \eta^2_p = .038$, were generally the same for participants in the high-exposure, low-exposure, and control condition. For civic engagement, there were also no significant main effects of condition or time. The analysis for easy helping revealed a significant main effect of time, but not of condition, indicating a difference between baseline and follow-up helping, $F(1,131) = 23.69, p < .001, \eta^2_p = .153$: Overall, easy helping was higher at baseline ($M = 3.32, SD = 0.65$) than at follow-up ($M = 3.12, SD = 0.67$) across conditions³. H2 is not supported by the data.

Effects on Prosocial Behavioral Intentions and Donations

Concerning H3, which predicts an effect of the amount of exposure to prosocial behavioral displays on participants' prosocial behavioral intentions, a multivariate analysis of variance (MANOVA) was conducted with the condition as an independent factor and civic engagement intentions as well as easy helping intentions as dependent variables. Box's test of the assumption of equality of covariance matrices was nonsignificant ($p = .237$), indicating that their homogeneity can be assumed. Levene's test for civic engagement intentions was significant ($F(2,131) = 4.12, p = .018$), revealing heterogeneity of variance. The analysis revealed that the amount of exposure to prosocial behavioral displays did not significantly affect the prosocial behavioral intentions, Wilks's $\lambda = 0.98, F(4,260) = 0.58, p = .678, \eta_p^2 = .009$. Thus, H3 is not supported.

In H4 it was proposed that the amount of exposure to prosocial behavioral displays influences how much participants donate to an actual charity appeal. A one-way ANOVA was conducted; for reasons of comparability, the analysis included only the participants who donated from their course credits⁴. Results revealed no significant differences between conditions, $F(2,110) = 0.38, p = .685, \eta^2_p = .007$. The descriptive values for the participants

³ Including personal norms of easy helping and Facebook intensity as covariates reduces this effect to nonsignificance, but otherwise does not significantly change the pattern of the results.

⁴ $N = 113$ cases were included in the analysis; one could not be used owing to an error in the questionnaire. Please note that one person revised his/her decision from donating nothing to donating all credits several days after the experiment. This was corrected in the data. The pattern of results does not change when excluding the case from the analysis.

who donated course credits as well as for those who donated from their monetary compensation are presented in Table 11. Overall, an amount of 140 euro (75 euro from the participants who donated 37.5 course credits in total, and 65 euro from participants with monetary compensation) was donated to charity. H4 is not supported.

Table 11

Descriptive statistics of the amount donated to charity

	Condition												
				Control			Low			High			
	<i>N</i>	<i>M</i>	<i>SD</i>	Sum	<i>M</i>	<i>SD</i>	Sum	<i>M</i>	<i>SD</i>	Sum	<i>M</i>	<i>SD</i>	Sum
Course credits	113	0.33	0.87	37.5	0.42	1.05	16.50	0.32	1.02	11.50	0.25	0.40	9.50
Money	20	3.25	6.66	65.0	5.14	11.11	36.00	2.75	2.43	22.00	1.40	2.07	7.00

Effects on the Perceived Ability to Perform Prosocial Behavior

With regard to participants' perceived ability to engage in prosocial behavior, it was expected in H5 that this variable will be influenced by the amount of exposure to prosocial behavioral displays. Supporting this assumption, a one-way ANOVA revealed a significant effect of the amount of exposure, $F(2,131) = 4.36$, $p = .015$, $\eta_p^2 = .06$. Participants in the high-exposure condition reported a higher perceived ability to perform prosocial behavior ($M = 5.28$, $SD = 0.92$) than participants in the low-exposure condition ($M = 4.94$, $SD = 1.08$) or the control condition ($M = 4.63$, $SD = 1.11$). Post hoc tests (Bonferroni corrected) show that the difference was significant between the high-exposure and the control group ($p = .011$), but not between the high- and low-exposure groups ($p = .383$) or the low-exposure and the control group ($p = .488$). H5 is partially supported by the data.

Indirect Effects of Exposure to Prosocial Displays on Behavioral Outcomes

Based on the literature, two potential explanatory mechanisms of the influence of prosocial behavioral displays in SNS environments on prosocial behavioral outcomes have been identified as worthwhile to explore: In this regard, RQ2 poses whether normative perceptions derived from the exposure to prosocial exemplars could act as a mediating pathway through which behavioral reactions are affected, and RQ3 asks whether the perceived ability to perform prosocial behavior mediates the influence. Although, as the previous analyses show, no total effect of the present study's manipulation of exposure to prosocial behavioral displays on prosocial behavioral outcomes was found, this is not a necessary requirement for the existence of indirect effects (Hayes, 2013). According to

contemporary assumptions about mediation, the test of individual causal relations between the independent variable, mediator, and dependent variable – as suggested by the popular causal steps approach by Baron and Kenny (1986) – has been regarded as outdated (Hayes, 2013). Instead, it is recommended to estimate the indirect effect ab – based on the product of the regression coefficient a , representing the relation between the independent variable and the mediator, and b , representing the relation between the mediator and the outcome controlling for the independent variable – to draw inferences about mediation (Hayes & Rockwood, 2017).

With regard to RQ2, however, the estimation of indirect effects of the experimental condition on prosocial behavioral outcomes through descriptive, injunctive, or subjective prosocial norm perceptions seems futile as previous analyses (see H1 and RQ1) did not find a significant impact of the amount of exposure to prosocial displays on the normative perceptions (i.e., a path is not different from zero). Thus, based on the present data it seems that prosocial norm perceptions are not an indirect pathway for the influence of the amount of exposure on prosocial behavioral outcomes.

For the perceived ability to perform prosocial behavior, a significant impact of the experimental condition was found (see H5), which means that an indirect effect of the amount of exposure on prosocial behavior through this mechanism is possible. In order to test this (RQ3), five mediation analyses were conducted, one for every behavioral outcome variable (civic engagement and easy helping at T2, intentions for civic engagement and easy helping, and amount of donation). The independent variable, amount of exposure, was represented by two dummy variables (D1 representing the low- and D2 the high-exposure group) and perceived ability to engage in prosocial behavior served as the mediator. All analyses are based on 5,000 bootstrap samples and 95% confidence intervals.

The results revealed a significant relative indirect effect of the high exposure rate on helping intentions through perceived ability to perform prosocial behavior, $b = .08$, $SE_b = .04$; 95% CI [.0069, .1724]. Exposure to a higher number of prosocial behavioral displays in the status updates had a significant positive effect on the perceived ability to perform prosocial behavior, which in turn was positively related to helping intentions. For all other outcomes, no significant indirect effects were found. See Table 12 for an overview of the results.

Table 12

Mediation analyses with the dummy-coded independent variable amount of exposure to prosocial behavioral displays, perceived ability to perform prosocial behavior as a mediator, and prosocial behavioral outcomes as dependent variables

		<i>Outcome variables</i>														
		Civic engagement (<i>N</i> = 134)			Easy helping (<i>N</i> = 134)			Civic engagement intentions (<i>N</i> = 134)			Easy helping intentions (<i>N</i> = 134)			Donations (<i>n</i> = 113)		
		<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>	<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>	<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>	<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>	<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>
<i>Total effects (c):</i>																
	D1 (low exposure vs. control)	-.05 (.14)	-0.37	.711	-.06 (.14)	-0.44	.658	.02 (.16)	0.12	.906	-.17 (.15)	-1.07	.286	-.10 (.24)	-0.43	.671
	D2 (high exposure vs. control)	-.05 (.13)	-0.39	.698	.14 (.14)	0.96	.337	.00 (.14)	0.00	.996	.02 (.14)	0.14	.888	-.17 (.18)	-0.94	.347
<i>Direct effects (c'):</i>																
	D1 (low exposure vs. control)	-.06 (.14)	-0.42	.674	-.08 (.14)	-0.59	.558	-.02 (.15)	-0.12	.908	-.20 (.15)	-1.32	.191	-.13 (.26)	-0.50	.622
	D2 (high exposure vs. control)	-.07 (.14)	-0.51	.611	.09 (.14)	0.65	.518	-.08 (.14)	-0.55	.581	-.06 (.15)	-0.37	.708	-.22 (.22)	-0.99	.323
	Perceived ability to perform prosocial behavior	.03 (.05)	.54	.592	.07 (.05)	1.21	.229	.12 (.06)	1.86	.066	.12 (.06)	2.11	.037	.08 (.08)	0.97	.333
		$R^2 < .01,$ $F(3,130) = 0.15,$ $p = .928$			$R^2 = .03,$ $F(3,130) = 1.22,$ $p = .306$			$R^2 = .03,$ $F(3,130) = 1.17,$ $p = .323$			$R^2 = .04,$ $F(3,130) = 1.92,$ $p = .129$			$R^2 = .02,$ $F(3,109) = 0.39,$ $p = .759$		
		<i>Mediator (perceived ability to perform prosocial behavior)</i>														
<i>Effect of the independent variable on mediator (a):</i>					<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>				<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>			
	D1 (low exposure vs. control)				.31 (.23)	1.32	.189				.33 (.26)	1.26	.209			
	D2 (high exposure vs. control)				.65 (.22)	2.99	.003				.62 (.24)	2.59	.011			

Additional Exploratory Analyses

The previous analyses show that the manipulation of the amount of exposure to prosocial behavioral displays in the present study had an impact on the perceived ability to perform prosocial behavior, but did not (directly) affect any of the prosocial behavioral outcomes. In order to receive more insights on what might explain these findings, exploratory analyses were conducted with regard to the perceptions and evaluations of the status updates.

In this regard, it was explored how motivating the status updates, which participants had seen over the 6 weeks, were perceived, in terms of how much they affected their prosocial motivations (e.g., “to become a better person”). The results of an ANOVA show that there was no significant difference between conditions, $F(2,131) = 0.09$, $p = .918$, $\eta_p^2 = .001$.

However, participants’ average evaluation of the status updates (based on their daily ratings) was significantly different between conditions, $F(2,131) = 5.66$, $p = .004$, $\eta_p^2 = .08$. Post hoc tests (Bonferroni corrected) show that the evaluation was significantly better ($p = .004$) in the high-exposure ($M = 4.39$, $SD = 0.49$) compared to the control group ($M = 3.99$, $SD = 0.56$). The low-exposure group ($M = 4.12$, $SD = 0.65$) did not significantly differ from the other groups. When only the prosocial status updates are taken into account in the experimental conditions, the effect is stronger, $F(2,131) = 22.34$, $p < .001$, $\eta_p^2 = .254$; Levene’s test, $F(2,131) = 6.60$, $p = .002$, and the evaluation is significantly more positive in both the high- ($M = 4.72$, $SD = 0.63$) and the low-exposure group ($M = 4.92$, $SD = 0.86$) compared to the control condition ($p < .001$). In the high- as well as in the low-exposure condition the prosocial status updates were rated more favorably than the neutral status updates: A paired-samples t test revealed a significant difference between the average evaluation of the neutral ($M = 3.73$, $SD = 0.59$) and the prosocial status updates ($M = 4.82$, $SD = 0.76$) across both conditions, $t(87) = 14.68$, $p < .001$, Cohen’s $d = 1.61$.

In order to further explore the explanatory value of the status updates evaluation in the cause–effect relationships between the exposure condition and prosocial behavioral outcomes, five mediation analyses were conducted (for civic engagement, easy helping, civic engagement intentions, easy helping intentions, and donations). The overall evaluation of status updates was used as a mediator, and the independent variable, amount of exposure to prosocial behavioral displays, was dummy coded (D1 representing the low- and D2 the high-exposure group). For the analysis, 5,000 bootstraps and 95% confidence intervals were used.

Table 13

Mediation analyses with the dummy-coded independent variable amount of exposure to prosocial behavioral displays, status updates evaluation as a mediator, and prosocial behavioral outcomes as dependent variables

	<i>Outcome variables</i>															
	Civic engagement (<i>N</i> = 134)			Easy helping (<i>N</i> = 134)			Civic engagement intentions (<i>N</i> = 134)			Easy helping intentions (<i>N</i> = 134)			Donations (<i>n</i> = 113)			
	<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>	<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>										
<i>Total effects (c):</i>																
D1 (low exposure vs. control)	-.05 (.14)	-0.37	.711	-.06 (.14)	-0.44	.658	.02 (.16)	0.12	.906	-.17 (.15)	-1.07	.286	-.10 (.24)	-0.43	.671	
D2 (high exposure vs. control)	-.05 (.13)	-0.39	.698	.14 (.14)	0.96	.337	.00 (.14)	0.00	.996	.02 (.14)	0.14	.888	-.17 (.18)	-0.94	.347	
<i>Direct effects (c'):</i>																
D1 (low exposure vs. control)	-.09 (.14)	-0.65	.516	-.11 (.14)	-0.83	.408	-.05 (.15)	-0.33	.745	-.21 (.15)	-1.37	.172	-.11 (.24)	-0.43	.666	
D2 (high exposure vs. control)	-.18 (.13)	-1.34	.182	-.02 (.13)	-0.17	.865	-.21 (.14)	-1.49	.139	-.12 (.15)	-0.83	.406	-.18 (.18)	-1.02	.311	
Status updates evaluation	.31 (.10)	2.99	.003	.40 (.10)	3.81	< .001	.52 (.10)	5.09	< .001	.36 (.10)	3.40	< .001	.03 (.08)	0.37	.714	
	$R^2 = .08,$ $F(3,130) = 3.14,$ $p = .028$			$R^2 = .13,$ $F(3,130) = 5.23,$ $p = .002$			$R^2 = .17,$ $F(3,130) = 8.67,$ $p < .001$			$R^2 = .09,$ $F(3,130) = 4.09,$ $p = .008$			$R^2 < .01,$ $F(3,109) = 0.45,$ $p = .720$			
<i>Mediator (status updates evaluation)</i>																
<i>Effect of the independent variable on mediator (a):</i>				<i>b</i> (<i>SE_b</i>)			<i>t</i>			<i>p</i>				<i>b</i> (<i>SE_b</i>)	<i>t</i>	<i>p</i>
D1 (low exposure vs. control)				.13 (.13)			0.96			.339				.07 (.15)	0.45	.656
D2 (high exposure vs. control)				.40 (.11)			3.54			< .001				.39 (.12)	3.16	.002

Results revealed a consistent pattern of indirect effects of the high-exposure condition through status updates evaluation on: (a) civic engagement intentions, $b = .21$, $SE_b = .07$; 95% CI [.0817, .3691]; (b) helping intentions, $b = .14$, $SE_b = .05$, 95% CI [.0488, .2537]; (c) civic engagement at T2, $b = .12$, $SE_b = .06$, 95% CI [.0298, .2639]; and (d) helping behavior at T2, $b = .16$, $SE_b = .06$, 95% CI [.0624, .2769]. This shows that exposure to a higher number of prosocial behavioral displays in the status updates led to a more favorable evaluation of the posts, which in turn had a significant positive effect on current and intended prosocial behavior. See Table 13 for an overview of the results.

9.4 Discussion

The present study aimed to enhance the research on social norm perceptions and normative influence in the context of SNS by applying an experimental study that investigated normative effects over time for the domain of prosocial behavior. Specifically, a repeated measures experiment was conducted over a period of 6 weeks to examine whether passive exposure to prosocial behavioral displays in other users' broadcasted SNS communication influences viewers' perceived prosocial norms, prosocial behaviors, and intentions as well as perceived abilities to engage in future prosocial behavior as a function of the exposure rate. The amount of exposure was varied as a between-subjects factor (high vs. low exposure vs. none).

Since SNS are heavily used, connect users to relevant contacts from their offline lives, and provide opportunities to consume and interact with the contents provided by their networks of peers (Ellison & boyd, 2013), this work has proposed that SNS provide a natural and likely venue for encountering information that has the potential to impact norm perceptions. In contrast to media sources that provide explicit information about social norms, such as group statistics in social norms marketing campaigns (Burchell, Rettie, & Patel, 2013), information streams on SNS that provide the aggregated posts of a user's network can be characterized as an implicit and more natural way of receiving normative information that could, over time, form and foster users' normative beliefs. Building on prior research that has demonstrated the relationship between exposure to other users' behavioral displays on SNS and normative perceptions as well as behavioral outcomes for the context of health behavior effects (e.g., Beullens & Vandenbosch, 2016; Brunelle & Hopley, 2017), the goal of the present approach was to gain more confidence about the causality of the relations, to examine the influences for different rates of exposure, and to investigate whether the assumptions

derived from social norms research can be adopted to the SNS environment and the topic of prosocial behavior.

Building on their potential to provide exemplary evidence for the occurrence of a certain behavior among peers, it was assumed that SNS posts could influence the perceived prevalence of the behavior in the reference group (i.e., descriptive norms).

With regard to H1, which proposed that exposure to a higher number of prosocial behavioral displays in SNS posts leads to stronger descriptive prosocial norm perceptions, the results of the present study reveal that different amounts of exposure did not lead to significantly different changes in participants' prosocial normative perceptions over the course of the experiment. The descriptive norm for civic engagement was basically the same between and within groups, while the perception of the descriptive norm for easy helping behavior decreased over time across groups. The additional analyses for injunctive and subjective norm perceptions (RQ1) showed no significant effects of the experimental manipulation either.

A potential explanation for the nonsignificant effects on normative perceptions could be linked to the artificial situation of the experiment and the difficulty to experimentally manipulate normative cues in SNS settings as stemming from the relevant group of a person's actual friends. As suggested by empirical evidence from research concerned with the effects of explicit norm messages, it is important that receivers associate the information with a relevant reference group (Berkowitz, 2005) and perceive them as believable for that group (Polonec et al., 2006). Thus, the impact of the prosocial behavioral displays used in this study on participants' norm perceptions relies heavily on whether they were able and willing to associate them with their friends, which might not have been the case for all participants.

With regard to behavioral effects, this study holistically examined the impact of repeated exposure to prosocial behavioral displays, as a function of the exposure rate, on self-reported current (H2) as well as intended (H3) offline prosocial behavior and by means of an objective measurement for prosocial behavior in the form of an actual donation to charity (H4). The results revealed that participants' engagement in prosocial behavior did not significantly change over time with the amount of exposure to prosocial behavioral displays, neither for civic engagement nor for easy helping behavior. Furthermore, no effects of the experimental manipulation were found for the amount donated to charity after the experiment or for future intentions of civic engagement or easy helping behavior. However, the additional analyses showed that frequent exposure to prosocial posts can indirectly influence offline prosocial behavior and future intent when the posts are positively evaluated.

To explain the findings on behavioral outcomes, social cognitive theory and the mechanisms of social modeling and observational learning suggest that other SNS users, who post about their prosocial behavioral conduct, could serve as social models for the observers' own behaviors. Since exposure to these prosocial behavioral displays did, however, not affect observers' prosocial behavior or intentions, leading to the rejection of the hypotheses H2–H4, a critical reflection of the propositions of the social learning mechanism and its application in the present study might provide an explanation for the findings: According to Bandura (1986), observational learning from a live or symbolic behavioral model involves the four key processes of attention, retention, production, and motivation. These imply that, in order to have an effect on an observer's behavior, it is necessary that a modeled behavior is noticed, cognitively processed and remembered, translated into action, and finds the observer sufficiently motivated to actually perform the behavior. With regard to the present study, the most prominent difference to the classic research on observational learning is that participants did not observe a model's actual performance of a behavior, but only the report about it in a social media display. This can have consequences for the acquisition as well as performance of the behavior. Concerning the acquisition and the first two processes of attention and retention, the procedure of the study, specifically the experimentally controlled forced exposure design, ensured that participants in the experimental conditions were exposed to status updates with prosocial behavioral displays and paid at least so much attention to provide a short evaluation of each post. In addition, the results from the manipulation check lend support for a sufficient retention process as most participants seem to have processed and remembered the prosocial behavioral displays.

With regard to the production and motivation processes, which are relevant for the performance of a behavior, it is, on the one hand, possible that participants were not able to derive conceptions of adequate patterns of behavior from what others reported in their SNS posts. In fact, this was aggravated by the diverse types of prosocial behavior modeled in the presented stimuli. On the other hand, participants might not have been sufficiently motivated to perform the behavior they had observed. Thus, it is possible that the observation of prosocial behavioral displays in other users' status updates had an impact on participants' acquisition of the represented behavior, but not on their enactment, because they were not able or not willing to translate the actions observed into actual behavioral responses. To disentangle the two possibilities, future research could experimentally manipulate the level of motivation by including social feedback information in the displays as a form of vicarious reinforcement. For example, the inclusion of positive social feedback information in the status

updates, such as likes and appreciating comments, might be interpreted as a sign for a valued and beneficial outcome of the displayed behavior and increase the motivation to perform the action.

A first hint that a positive evaluation of behavioral displays in SNS posts facilitates their influence on behavioral outcomes is provided by the additional analyses performed for the present study: The results revealed a consistent pattern of indirect effects of exposure to a high number of prosocial behavioral displays on current as well as planned prosocial behavior through the mediator *status updates evaluation*. This indicates that exposure to SNS posts with references to prosocial behavior can indirectly affect offline prosocial behavior when the posts are positively evaluated. However, no direct or indirect effect was found on participants' donations. An explanation for the overall low amount donated by participants (who received course credits), which might be indicative of a floor effect, could be that the conversion rate of 0.5 course credits into 1 euro was perceived as disproportionate. From students' perspective, receiving 0.5 course credits is probably worth more than 1 euro. In addition, a higher conversion rate might have increased the feeling of efficacy of the action (i.e., that their donations actually have an impact), which is positively related to higher donations (Cryder & Loewenstein, 2011).

Apart from these findings on participants' behaviors, the study revealed a significant impact of high exposure to prosocial behavioral displays on receivers' perceived ability to conduct prosocial behavior, which was examined in H5.

This result highlights that frequent exposure to various displays of other peoples' prosocial actions has a positive effect on a person's judgment of his or her own abilities to perform the displayed behavior. It is in line with Bandura's (1994) propositions regarding the impact of vicarious behavioral experiences on self-efficacy perceptions and extends the mechanism to the context of SNS displays. Moreover, it underlines the positive effects of SNS use and shows that passive consumption of other network members' posts is not limited to negative influences on a user's self-perception and subjective well-being as prior research might suggest (e.g., Chen, Fan, Liu, Zhou, & Xie, 2016; Ding, Zhang, Wei, Huang, & Zhou, 2017), but can be beneficial for a user's ability perception. A reason and potential amplifier for the effect could be that behavioral displays on SNS are typically provided by various members of a person's network, which – compared with exposure to a single model's display – might be more effective (Bandura, 1977). This is in line with the finding that only participants in the high-exposure condition had significantly higher ability perceptions than the control group participants. Future research should validate the finding for different types

of behavior and could extend empirical knowledge by varying not only the number of modeled behaviors in SNS displays, but also model characteristics, such as similarity and closeness of the displayers to the observer.

In sum, the significant effect on participants' perceived prosocial abilities might indicate that exposure to a high number of prosocial exemplars in SNS posts increased a user's perceptions of "I could do it" but did not necessarily result in the decision of "I will do it," as behaviors were not directly affected.

Theoretical and Practical Implications

From a theoretical perspective, the present study provides a starting point for studying the potential of causal and prolonged effects of passively using SNS on normative perceptions and behavioral outcomes. Building on prior research concerned with the perception, misperception, and influence of social norms, classic sources of norm perceptions were extended to the online environment of SNS. Specifically, behavioral displays in others' posts, a form of user-generated content that provides exemplary evidence about peer behavior, was investigated as an implicit normative information. The empirical results of the present study did, however, not support this assumption, which emphasizes how difficult it is to influence and change social norm perceptions. Future research is needed to test whether a more precise matching of the exemplars and the normative reference group would lead to different results. In addition, the study extends prior research on social influence mechanisms in SNS environments by investigating effects of SNS posts on receivers' offline behaviors and ability perceptions for future intent. In this regard, the study uses social cognitive theory as a framework and shows that even an indirect observation of behavioral performance, in terms of learning about others' behavior from what they display in their SNS posts, can influence perceptions of capabilities and indirectly affect behaviors when the behavioral displays are positively evaluated.

From a practical point, social media platforms that allow users to encounter behavioral displays of peers can be an opportunity as well as a challenge. Challenges and negative implications of the exposure to other users' displays that can be used as comparative information have extensively been studied for self-related outcomes such as self-esteem and subjective well-being. In addition, negative implications for behaviors have already been addressed in the context of health risks as well as by research building on social modeling effects, which prognosticate potential hazardous effects of, for example, the aggressive commenting behavior on social media sites on other users' aggressive tendencies (Rösner &

Krämer, 2016). This study, however, highlights the opportunities of SNS to empower users with regard to the performance of normatively desirable behaviors, such as civic engagement and helping. Operators of SNS and designers of behavioral change or normative marketing campaigns could try to motivate users to post about their desirable behaviors as these might give other readers more confidence of being able to emulate the deeds.

Limitations and Outlook

The study has several limitations, which should be considered when interpreting the results: First, the study employed an experimentally controlled forced exposure design, which comes along with an artificial setting as a trade-off for more internal validity. Although a huge effort was made to establish an ecologically valid experiment, for example, by specifically creating an online platform for the stimulus exposure that was recurrently visited and incorporated in the participants' daily routine in order to emulate the way they consume broadcasted posts on SNS, the study used fictitious prosocial behavioral displays that were not actually posted by participants' friends and not received in the typical stream of information consisting of the aggregated contents shared and provided by a user's personal network. Despite the possibility that the prosocial behavioral displays were perceived as extraneous and not as conveying the designated norm for the reference group of a participant's friends and acquaintances, using more than one behavioral display per day might have increased the salience of prosocial behavior and the impact on participants' behavioral outcomes. The design, however, intentionally excluded a condition that exposed participants exclusively to prosocial content, in order to not prime participants too much on the topic of prosocial behavior. For a similar reason, the study used a pre-post measurement of norm perceptions only, instead of having multiple repeated measures. Although multiple inquiries at different points in time could show trends and developments of normative perceptions, the risk of this approach is that owing to the repetition of the questions, participants' norm perceptions are artificially increased. A limitation, however, pertains to the duration of the experiment: 6 weeks of exposure might be too short to change normative perceptions.

With regard to the stimuli, all status updates were pretested and found likely to be seen on Facebook. Moreover, the pretest provided confidence in the material as the prosocial behavioral displays were clearly recognized in the prosocial status updates while participants perceived the neutral status updates as clearly devoid of prosocial acts. Nevertheless, when participants, after 6 weeks of exposure, were asked to indicate in how many of the received status updates, they believe, some form of prosocial behavior was displayed, many

participants in the control condition (as well as in the low-exposure condition) overestimated the actual number. Thus, this might be indicative of the fact that the three experimental groups were not sufficiently distinct in terms of the amount of prosociality displayed.

Another limitation could lie in the choice of using the higher-level category of prosocial behavior as an outcome measure and diverse types of prosocial behavior as exemplars in the stimuli. However, both, the stimuli as well as the items used to assess prosocial behavior and perceptions of the descriptive norm perceptions for prosocial behavior were created to cover key areas of volunteering, donating, and helping behaviors. Still, it is possible that focusing on displays of one concrete prosocial activity (e.g., donating blood) might make subjective estimations of the respective behavior's prevalence easier and more likely. In this regard, research has already shown that individuals are able to infer subjective perceptions of the prevalence of e-cigarette smoking based on the proportion of online comments displaying e-cigarette use or nonuse (Liu et al., 2017). This study, albeit, differs from the present study not only in the fact that it addressed the concrete behavior of e-cigarette use, but also in the fact that the behavior studied is relatively new, meaning that participants probably had only little prior information upon which they built their norm perceptions and, thus, relied more heavily on the information provided by the online comments.

Therefore, further research is needed to test the proposed mechanisms for different types of behavior as well as for more heterogeneous samples, as the present study used a university students sample and results are, therefore, limited in their generalizability. Finally, the study used original items for the measures of prosocial behavior and norm perceptions since there were no validated instruments available. Although higher- and lower-cost activities from the key areas of volunteering, donating, and helping were incorporated in the measures, it is possible that certain aspects of prosocial behavior were not captured. In addition, the measures should be validated in a further study using confirmatory factor analyses. Moreover, the measure of perceived ability to perform prosocial behavior was measured based on items adapted from Ajzen and Fishbein (2010). Future studies could check whether results can be replicated with the self-efficacy measure proposed by Bandura.

Conclusion

In sum, a 6-week online experiment was conducted to investigate the potential of status updates on SNS to influence receivers' social norm perceptions and norm-congruent behavior in the offline world for the context of prosocial behavior. The findings show that frequent exposure to prosocial behavioral displays in other users' posts led to an increase in participants' perceived ability to perform prosocial behavior in the future. Moreover, a consistent pattern of indirect effects occurred, which highlights that a positive evaluation of the behavioral displays could facilitate the impact of a high exposure rate on offline prosocial behavior and future intent. However, the study found no effects of the repeated exposure to prosocial behavioral displays in SNS posts on participants' perceived social norms regarding prosocial behavior.

IV. General Discussion

This dissertation project aimed to investigate mechanisms of social norm perceptions and normative influence in the realm of SNS. The primary research question asks about the potential of individuals' contributions on SNS – in terms of user-generated posts – to shape receivers' perceptions of social norms and to influence their (offline) behavioral conduct. Building on a psychological perspective, key theories and approaches in the research on social norms and normative perceptions were reviewed to provide a fundamental theoretical understanding of the notion of social norms, the ways in which normative perceptions are acquired, and the psychological processes involved in their influences on human behavior. The theoretical analysis of the processes involved in the perception of social norms revealed that individuals can acquire their perceptions about prevailing social norms in their reference groups through direct communication with other group members, by observing others' actions, or through explicit or implicit information about the group norms (Tankard & Paluck, 2016). SNS posts can be considered a form of interpersonal communication with a broader reach, as they can be broadcasted to all of a person's social network contacts (Burke & Kraut, 2014). Thus, passive exposure to this kind of information could be a means for observing what other social referents do and an opportunity to deduce perceptions about the popularity and approval of behaviors in the reference group. In addition, based on the literature on social modeling and vicarious learning (see Chapter 4.2), exposure to behavioral displays online might lead to the adoption of the displayed behavior, or could, in line with the focus theory of normative conduct (see Chapter 3.2.2), draw attention to social normative behavior. Against the backdrop of social cognitive theory, the focus theory of normative conduct, and the current approaches in the social norms literature, a schematic model was derived (see Figure 1) that connects the proposed mechanisms and summarizes the ways by which behavioral displays on SNS could affect behavioral outcomes.

In previous studies, some of the mechanisms have already been applied to the context of SNS, revealing initial support for the potential of SNS posts to influence norm perceptions and behaviors. However, when reviewing prior research on social norms in the context of SNS, several gaps and shortcomings were identified, especially concerning the circumstances under which information on SNS are considered for the formation or adjustment of norm perceptions and the performance of one's own behavior. In addition, prior work on the influence of behavioral displays in SNS posts on receivers' norm perceptions and offline

behaviors has predominantly built on correlational designs and the context of alcohol consumption.

To address these limitations of prior studies and to meet the demand for more systematic research on the potential normative effects on SNS, the present work's aim was to investigate whether behavioral displays in posts on SNS can convey relevant information about social norms and shape users' normative beliefs and behaviors. A mixed methods approach that included a qualitative interview study, a quantitative laboratory experiment, and a quantitative 6-week online experiment with a repeated measures design was applied, to holistically examine the potential processes of influence from different perspectives. In the following section, the key findings of the empirical studies of the present dissertation are summarized and discussed together against the theoretical and empirical background.

10 Synopsis of the Empirical Approach and Research Findings

10.1 Summary of Results

Based on qualitative interviews, the first study (Chapter 7) explored the potential of SNS to serve as a venue for normative information and normative effects from Facebook users' perspective. During the interviews, participants were exposed to exemplary status updates addressing the topic of alcohol consumption. It was explored whether the exposure to such behavioral displays in SNS posts leads users to draw inferences about their friends. Moreover, the study examined which (potential) social influence effects they would anticipate from SNS posts for themselves as well as for others, what potential facilitators of these effects could be, how participants consume content on Facebook, and with whom they are connected on the site. The results show that behavioral displays posted on SNS (at least for the example of alcohol displays) can evoke thoughts about the friends' behavior, about their attitude toward the behavior, and about potential expectations they might have regarding the performance of the behavior by others. The anticipated effects of the posts on users' own drinking behaviors are rather small. Only a few users could imagine adapting to the displayed behavior (e.g., drinking more or less), either by privately accepting the behavior or by public compliance only. A stronger influence is expected for other persons. However, participants mentioned a variety of examples for potential social influence effects on Facebook and described several situations in which a Facebook post had motivated or inspired them to

perform a certain behavior. This indicates that there seems to be a greater potential of other users' Facebook posts to influence viewers' (offline) behavioral reactions that is worth investigating in more depth.

In addition, the study revealed several potential facilitators for social influence effects on Facebook: On the one hand, many participants mentioned that information frequently perceived on Facebook in multiple posts would be more influential than single information. On the other hand, at least for some persons, the influence of a post seems to depend on the source; close friends as well as popular individuals were mentioned as specifically influential. With regard to other users' reactions to a post, such as likes or comments, participants were ambivalent, since some described them as influential, while they were not meaningful for others. The reactions might, however, draw attention to a post. Other message characteristics, such as the formulation of a message or the inclusion of visual stimuli, might, likewise, be less important for the influence of a post on receivers' attitudes or behaviors, but can increase its salience. In this regard, especially posts with pictures or videos and those conveying interesting content, such as personal information of a relevant social contact, are more likely salient to users in the News Feed and examined in more depth. Concerning the social contacts, the interviews show that, in line with prior research (Ellison et al., 2007, 2011), individuals are mainly connected to contacts from their offline lives and that these contacts are mainly composed of friends and peers (e.g., old friends from school).

The qualitative approach allows us to discuss the potential of SNS posts to affect or motivate behavioral reactions and to ask for users' estimations of potential factors that would influence the anticipated effects. It can, however, not assess subconscious mechanisms and, owing to the hypothetical nature of the questions asked, not determine how users actually react toward different forms of Facebook posts with message characteristics described as influential. This can be accomplished in experimental research by exposing participants to experimentally controlled variants of manipulated stimuli. Hence, this method was applied in the two subsequently conducted studies. Since other areas besides the drinking context have largely been neglected by prior work, the two conducted experiments expanded the proposed mechanisms of norm perceptions and normative influence based on SNS posts to the topic of prosocial behavior.

In the second study (Chapter 8), a laboratory experiment with a between-subjects design was conducted to investigate the influence of descriptive and injunctive normative cues about prosocial behavior in status updates in interaction with the source of the posts.

Participants were exposed to several status updates presented in a mock-up Facebook News Feed. The status updates were manipulated to focus either on the performance of prosocial behavior by others (i.e., descriptive norm cue) or on others' approval of prosocial behavior (i.e., injunctive norm cue), in line with the definition by Cialdini et al. (1990). In the control condition, status updates without any references to prosocial behavior were shown. In addition, the source of the posts was manipulated by either introducing the status updates as posts stemming from the person's friends on Facebook or as posts collected by unknown students. The findings of this experiment revealed a significant impact of friends' status updates that focus on approval of prosocial behavior (injunctive norm cues) on volunteering intentions. However, no significant effects of the exposure to prosocial normative cues were found for the perceived ability to volunteer or for donation intentions. Moreover, the effects on social norm perceptions and the accessibility of prosocial norms were explored and the results show that the exposure to prosocial normative information in SNS posts led to a more accessible norm of donating money to charity, while in the control condition the perception that donating money was not normative was more accessible – especially for the reference group of students. The accessibility of the volunteering norm was, however, not affected. The results also show no differences between the experimental conditions concerning perceived descriptive and injunctive prosocial norms for different types of reference groups (friends and acquaintances, important others, other students, other members of society).

The third study (Chapter 9) experimentally investigated the influence of the rate of exposure to prosocial behavioral displays in SNS posts by means of a between-subjects design with repeated measures. Over a period of 6 weeks, participants were exposed to one status update per day (except on Sundays). They saw either four, two, or no (control condition) posts about prosocial behavior each week. The posts were presented as images on an online platform and participants were instructed to imagine that they would see them in their Facebook News Feeds posted by one of their friends. Participants' perceived descriptive, injunctive, and subjective norms concerning prosocial behaviors as well as their frequency of performing prosocial behaviors were measured repeatedly, prior to and after the 6 weeks of exposure. In addition, prosocial future intentions, the perceived ability to perform prosocial behavior in the future, as well as the amount of an actually made donation to charity were assessed after the period of exposure.

The results show that a high exposure rate to prosocial behavioral displays had a positive effect on participants' perceived ability to engage in prosocial behavior. No direct

effects of the exposure rate were found for participants' current or intended prosocial behaviors, nor for their donations. However, a pattern of significant indirect effects was revealed, which shows that the repeated exposure to a high number of prosocial behavioral displays in status updates was significantly related to a positive evaluation of the posts, which, in turn, was significantly related to higher prosocial behaviors and prosocial intentions. Perceptions of prosocial norms were not affected by a high or low rate of exposure to prosocial behavioral displays in SNS posts.

10.2 Interpretation of and Reflection on Results

Overall, the studies show that the influence of behavioral displays in SNS environments on users' perceived social norms concerning the displayed behavior as well as on their own behaviors or intentions to perform the behavior is more complex than expected. In the following section, the results are compared and discussed against the background of existing psychological theories and prior findings.

Behavioral Displays on SNS: A Source for Social Norm Perceptions?

Perceived social norms are the subjective representations of social norms at the individual level (see Lapinski & Rimal, 2005), which can diverge from the actual norms held at the group level (Berkowitz, 2005), and have a substantial impact on human behavior. In this work, perceived descriptive and injunctive social norms were treated as independent social constructs, as suggested by Cialdini et al. (1990), and conceptualized as perceptions of what other people do (descriptive) and what other people approve of (injunctive). Moreover, subjective norms (see reasoned action approach, Fishbein & Ajzen, 2010) were distinguished from this conceptualization, since they have been characterized as perceptions of social pressure stemming from the perceived expectations of important others (see also Park & Smith, 2007).

As outlined in Chapter 4, social norm perceptions are dynamic and can be acquired or updated through explicit norm messages (e.g., strategically spread through social norms marketing campaigns, Berkowitz, 2005) as well as through more implicit and natural ways, including interpersonal communication processes (Rimal & Lapinski, 2015) and social observations of other persons' behaviors, either live or vicariously through symbolic models in media environments (see social cognitive theory, Bandura, 1986, 2001). Based on the argument that SNS provide the opportunity to interact with friends and peers and to observe

their displays of thoughts and actions broadcasted via their social networks (Burke & Kraut, 2014), the question was raised whether SNS can be a venue for the acquisition of information about social norms and the formation of norm perceptions. In the present empirical investigations, the focus was placed on the effects of passive use of SNS, in terms of content consumption. Specifically, the exposure to user-generated posts reflecting other persons' behaviors as a potential means to implicitly convey information about a social norm was investigated.

In all three studies conducted in the present dissertation, the question concerning the impact of behavioral displays on SNS on social norm perceptions was addressed from a different angle, revealing an overall inconclusive picture that raises questions regarding potential explanations related to methodological issues as well as underlying theoretical assumptions. The first study provided a first, preliminary step into the investigation by exploring the (potential) inferences users would draw about their friends based on what the friends post on Facebook. The results demonstrate that behavioral displays in SNS posts can give rise to perceptions about how typical the behavior is for the friends who posted it, about the friends' attitudes toward the behavior, and about what they might expect from others. The results, however, do not directly relate to norm perceptions, in terms of more generalized estimations of the behavior's popularity and approval among peers and friends and their perceived expectations regarding the behavior. Nevertheless, they provide insights into a necessary precondition for the potential effect SNS posts might have on the perception of social norms. Participants, at least, seem to draw direct inferences about the persons who posted about a behavior on Facebook. To determine the potential of SNS posts to affect perceptions of social norms, it is vital to investigate whether these inferences can also span larger groups. Thus, a key question is: Can exposure to a few exemplary status updates about a certain behavior posted by a person's friends on Facebook influence his/her perception of how normative the behavior is among his/her friends in general?

A similar question has been explored by related work on the perception of opinion climates in social media. This research has shown that only a few online comments expressed by other users about a controversial news topic can influence readers' perceptions of the public opinion toward the issue (e.g., E.-J. Lee & Jang, 2010; Neubaum & Krämer, 2017; Zerback & Fawzi, 2017). However, it was revealed that other users' comments only affected the perceived opinion climate for more distal groups such as the general public or the general Facebook community; perceptions of the opinions of more closely related reference groups were not affected (Neubaum & Krämer, 2017). This shows that individuals draw inferences

about the perceived opinions of larger groups based on a few exemplary expressions of single persons. The type of the group might, however, depend on the type of expressions received: Online comments posted on a public news page by unknown others might elicit different group perceptions than personal status updates posted to the private network of friends. In addition, the perception of opinion climates from SNS comments might be conceptually different from the perception of norms. Especially for descriptive social norms it might be more difficult to derive a comprehensive picture based on SNS posts, because to gain an impression about a descriptive norm it is necessary to receive information about how frequently individuals do certain things, which they do not necessarily post about in the same frequency on SNS (see also Rui & Stefanone, 2017). Initial experimental work from the field of substance use has, however, shown that exposure to SNS profiles with alcohol displays can influence adolescents' and young adults' perceptions of the descriptive drinking norms of peers (Fournier et al., 2013; Litt & Stock, 2011). Hence, the two subsequently conducted studies of the present dissertation aimed to extend the research concerning the perception of social norms in the context of SNS to the topic of prosocial behavior and to address the gaps of prior work by including measures of descriptive, injunctive, and subjective norms, perceptions for different reference groups, and by focusing on behavioral displays in others' status updates as a source of normative information. Thus, the potential influences of prosocial behavioral displays in SNS posts were explored experimentally; in Study 2 based on a one-time exposure to exemplary status updates about prosocial behavior, in Study 3 based on repeated exposure to experimentally manipulated stimuli over time. In both experiments, however, no significant effects were found for the exposure to prosocial behavioral displays in SNS posts on prosocial norm perceptions. Specifically, the results of Study 2 revealed that neither perceived descriptive nor perceived injunctive social norms regarding the prosocial behavior of volunteering were affected by manipulations of descriptive or injunctive normative cues about prosocial behavior represented by the formulation of the status updates (i.e., focus on the performance or focus on the approval of prosocial behavior). In light of the research from the social norms approach (see Chapter 4.4), this finding could, however, plausibly be accounted for by the fact that other than in social norms interventions or marketing campaigns (for an overview, see Miller & Prentice, 2016), no explicit information about an actual social norm was conveyed in the experiments. Hence, the cues might have been too subtle or not believably reflective of normative behavior, which is an important factor for the effectiveness of social norms messages (Park et al., 2011). The findings of the experiment revealed that not even the norm perceptions for the reference groups that matched

more closely the manipulation of the source of the SNS posts presented in the study were affected (i.e., perceived volunteering norms for students or for friends and acquaintances). An explanation of why this result deviates from the results of Fournier et al. (2013) and Litt and Stock (2011), who found an influence of alcohol displays in student SNS profiles on receivers' drinking norm perceptions, could be that the posts about alcohol consumption are more believable for student SNS users than posts about prosocial acts, because drinking is an integral part of student life (National Institute on Alcohol Abuse and Alcoholism, 2015).

Concentrating in more detail on the potential influence of status updates that display friends' prosocial activities over time (i.e., focus on the behavioral conduct), Study 3 revealed that repeated exposure to such posts over a period of 6 weeks also did not affect participants' perceptions of the prosocial norms of their friends and acquaintances. The conceptualization of Facebook friends as a group of friends and acquaintances might be debatable; the operationalization used here was chosen in line with the findings of the interview study, which showed that users are connected to a variety of friends and acquaintances, such as old childhood friends, peers from school, friends from clubs or university as well as people met at other occasions. Owing to the diversity of contacts on SNS and building on prior social norms research (see Park et al., 2009; Park & Smith, 2007), which demonstrated that perceived social norms can be considered on a more personal level (e.g., for friends, family, and close others), on a societal level (referring to the norms in one's society), as well as on a group level (e.g., for a specific peer group), it appears relevant to further explore how the different levels of perception might be affected by exposure to different SNS content. For status updates posted via the personal network of contacts, the group of friends and acquaintances seemed most fitting.

There are several potential reasons why, across studies, the exposure to behavioral displays in SNS posts had no effects on the perceived social norms concerning the displayed behavior, some of which had already been addressed in the studies' discussion sections and initiated the reflection about potential theoretical and methodological explanations and shortcomings. First, it is questionable whether individuals consider the information provided through some independently perceived status updates of their social contacts on SNS as a reliable source to extrapolate the displayed attitude or behavior to an overarching perception about the group of friends as a whole. Different from rating scores, which provide direct access to the distribution of others' evaluations of an object, or online discussion on one concrete news item, which might provide an overview of the distribution of opinions based on the number of supporting and opposing comments, there is no total number of potential status

updates a person could see on SNS about a certain behavior that could serve as a benchmark for making estimations about the popularity and approval of the behavior among friends. This number would probably depend on the number of friends a person has on the platform, on how frequently these friends post status updates about their behaviors, as well as on the person's own frequency of browsing the site. The results of Study 3, however, show that although an artificial benchmark was created by the duration of the experiment and the different numbers of prosocial displays presented each week, this did not affect the perceptions about how normative prosocial behavior is among friends and acquaintances. Moreover, exemplification theory (Zillmann, 2002) would suggest that a base-rate information about others' behavior is not necessarily a better predictor for the perception of the behavior's prevalence than illustrative single case examples. Thus, another reason for the nonsignificant findings might lie in the complexity of prosocial behavior and the operationalization of prosocial behavioral displays and prosocial norm perceptions. Prior research on social norm perceptions on SNS has focused on more concrete behaviors, such as alcohol consumption (Fournier et al., 2013; Litt & Stock, 2011). Although there are certainly different degrees of severity of getting drunk, drinking alcohol is a concrete behavior that can easily be recognized when it is displayed through posts on SNS. Prosocial behavior, on the other hand, can be understood as an umbrella term for various forms of actions that benefit other people (Batson, 1998). In Study 2, the measured norm perceptions focused on the behavior of volunteering, which is a more specific, typically planned and longer-term form of prosocial behavior (Penner, 2002) that, however, likewise comprises various areas and types of actions. Thus, one potential explanation for the nonsignificant effects of the experimental manipulations of prosocial normative cues in the status updates on perceived volunteering norms for the different reference groups could be related to a mismatch between the displayed normative cues and the measured norm perceptions. Since not all potential forms of volunteering behavior were displayed in the exemplary status updates, it could be that individuals had different associations in mind than what was displayed in the posts. To overcome this limitation and to mitigate this explanation, participants in Study 3 were exposed to a broader variety of prosocial behavioral displays including activities from key volunteering areas (see Gensicke & Geiss, 2010) as well as donation and helping behaviors that were also reflected in the items that measured prosocial norm perceptions. Nevertheless, the results show that the norm perceptions did not change over time with exposure to a higher number of prosocial behavioral displays. Although social cognitive theory suggests that behavioral models can lead observers not only to imitate concrete physical actions but also to

adopt more underlying rules of a behavior by the mechanism of abstract modeling (Bandura, 2001), it is questionable whether the displays of various specific activities of prosocial behavior in this study had activated some general standard of prosociality, similar to what has been suggested by Nook et al. (2016). What the data show is that the perceived prevalence and approval of prosocial behavior among friends and acquaintances was not affected by the displayed behavior.

Moreover, it could be that perceived social norms for more concrete behaviors are more readily available to individuals and more easily affected by exposure to SNS content than are norms for more abstract behaviors. In this regard, Study 2 yielded some preliminary results concerning the potential of passive SNS use to affect the accessibility of injunctive prosocial norms. The analyses show that exposure to prosocial displays in SNS posts, compared with the control group without prosocial displays, led to a decrease in the accessibility of the perceived negative injunctive norm of donating money to charity, especially among students (i.e., the perception that other students do not think that one should donate money to charity was more accessible in the control group). However, only the accessibility of the norm concerning the more concrete behavior of donating money to charity was affected, not the norm concerning the more abstract behavior of volunteering, which covers various areas and forms of activities (see Gensicke & Geiss, 2010). It is, however, noteworthy that the concrete behavior of a monetary charity donation was not displayed in the stimulus material and that others' perceived approval of behavior was less accessible in the control group compared with the conditions with prosocial behavioral displays. Thus, it seems that displays of related behaviors increased the behavior's salience. An explanation for the findings could be that participants had a more accessible pre-existing negative perception of the norm toward donating money (especially for the reference group of students) that might have been startled by contradistinctive information perceived in the status updates. Since the accessibility of prior normative beliefs was not measured, this assumption cannot be tested empirically based on the present data. The impact of pre-existing norm perceptions and the accessibility of these perceptions should be further explored in future research as it is conceivable that behavioral displays on SNS are perceived and processed differently depending on the strength of prior normative beliefs concerning the behavior. For example, a novel or unexpected portrayal of an action might lead to a biased perception of its prevalence (see, e.g., Briley et al., 2013). Moreover, a strong preexisting perception of a reference group norm might weaken the potential effects that deviating information about the group can have. For example, research on the effects of explicit norm messages has shown that a norm

campaign message is only as effective in reducing normative misperceptions as it is believable (Polonec et al., 2006). Thus, for the context of SNS this means that a vital factor for the potential influence of behavioral displays in status updates of friends on viewers' norm perceptions is that the posts are perceived as plausible representations of the friends' actual behaviors in the offline world. Behavioral displays in SNS might have more pronounced effects for behaviors that are more ambiguous or for behaviors for which individuals already have an association with the reference group. In this respect, probably the most important aspect worth reflecting on with regard to potential explanations for the present findings pertains to the question of whether the posts presented were perceived as believable and representative examples of the respective reference group of friends and acquaintances. The findings seem to indicate that either the messages were not believable for the reference group of friends and acquaintances or the posts were not associated with this group owing to the artificial settings of the experiments. In order to rule out the first possibility, future work could aim for a better fit between preexisting normative beliefs and norm-related displays or to control for the believability of the information. The second concern is related to a methodological issue connected with the research on SNS. Ethical concerns as well as technical restrictions did not allow for the extraction of actual data on participants' friends' information posted on SNS. In a more explorative field experimental approach, it would have been possible to observe individuals' reactions toward displays posted by their actual friends on SNS. However, the controlled designs used in the present studies allowed us to examine causal relations between experimentally controlled factors of passive exposure to behavioral displays and individuals' perceived norms concerning the behaviors. Thus, the artificiality of the experimental stimuli was accepted in exchange for the possibility to compare the influence of specific aspects, such as the formulation or the source of a post, while controlling for other aspects. Without such a forced-exposure design, the direction of these relations would be less certain. For example, it could be that individuals with certain normative beliefs are more likely to selectively expose themselves to posts on SNS that reflect their perceived social norms.

In sum, the findings suggest that the potential of SNS to serve as a source for social norm perceptions must be evaluated as rather low. Overall, the studies provide no support for the proposed connection between the exposure to behavioral displays on SNS and the perceived norm concerning the displayed behavior. Thus, the path in the schematic research model that suggests perceived social norms as a mechanism through which SNS posts could affect behavioral outcomes is not supported by the data. In addition, only weak support was

found for the potential of SNS posts to affect the accessibility of social norms. In this regard, the influence might be more substantial for more concrete types of behavior.

The Impact of SNS Posts on Offline Behavior, Intentions, and Ability Perceptions

The second part of the global research question is concerned with the influence of exposure to behavioral displays on SNS, which potentially convey implicit normative information on viewers' offline behaviors and their perceived capabilities and intentions to perform the displayed behavior in the offline world. As the results concerning the effects of SNS posts on norm perceptions have shown (see previous section), perceived norms as an explanatory mechanism for potential effects of SNS posts on behavioral outcomes seem less certain based on the present data. However, building on the social influence literature, social cognitive theory, focus theory of normative conduct, and current approaches in social norms research, the empirical approach pursued in the present dissertation aimed to examine the potential effects of SNS posts from multiple perspectives. Hence, in the following, the findings are discussed against the background of different theoretical influence mechanisms, such as social modeling, cognitive biases in the perception of descriptive or junctive social norms, perceptions of normative pressure, or the activation and salience of social norms.

In the first study, the potential effects and mechanisms of social influence on SNS were explored in an open-ended way, revealing that general principles of social influence, such as private and public forms of conformity (see, e.g., Deutsch & Gerard, 1955; Kelman, 1958), apply to the context of passive exposure to SNS posts of social contacts. For the example of status updates about alcohol, the interview results revealed that several participants could imagine adapting their behavior to the displayed behavior. Some persons, however, were only likely to imagine going along with the displayed behavior when they imagined a direct encounter with the friends who had posted about their drinking activities. Thus, it is possible that for some persons the effects of observing others' behavioral displays on SNS may only manifest in a visible behavioral reaction in situations where the observed friends are present, which might be one explanation for the weak support found in Study 2 and Study 3 for the influence of SNS posts on receivers' behavioral outcomes. In these situations, however, the current behaviors of the friends on site might be more accountable for a compliance reaction than any cognition about the previously seen alcohol display. Other interviewees, however, anticipated an adaptation of the behavior without mentioning the presence of the others, which indicates that SNS posts could be a venue for the observation and learning of social models' behavioral conduct that might even arouse the intention to

adopt the displayed behavior (see social cognitive theory, Bandura, 2001). In addition, some persons, who were more skeptical about the influence of behavioral displays on their own behavioral reactions and who would not expect a direct effect, could still imagine a subconscious, automatic influence. Assuming that the posts convey normative information, this would be in line with research showing that the influence of a social norm can be nonconscious and unintentional (Nolan et al., 2008). Hence, this highlights that there are several potential explanatory mechanisms through which behavioral displays on SNS could affect offline behavioral outcomes of receivers.

Overall, the interviewees anticipated rather weak effects when they were directly asked about the influence that other users' posts on Facebook could have on their own real-world behavior. They showed a reaction that is typically found in media effects research and that has been characterized as the third-person effect (Davison, 1983): Participants perceived a stronger impact on other, third persons than on themselves. As suggested by the presumed influence hypothesis, through this perceived influence on other persons, the media content could indirectly affect the person's own behavior, since the presumed influence on others might increase the perception of how prevalent and approved the behavior is among peers (Gunther et al., 2006). For example, when a person reads about a friend's latest drinking occasion in a status update, she/he might think that this post could increase other friends' willingness to drink or their approval of heavy drinking, which in turn could lead to the perception that drinking is prevalent and endorsed by friends and that she/he should go out drinking, too. Owing to the semi-public nature of SNS, it is, however, questionable whether the presumed influence mechanism also applies in this realm. In order to presume an influence of media content on others, it is necessary to perceive the "others" as potential audiences of the content. When a user reads a status update of one of his/her friends, this post is not necessarily accessible to the user's other friends, but to the friends of the friend who has posted it. This friend's network of friends might have larger or smaller overlaps or no overlaps at all with the users' network of friends. Thus, future research should investigate in more depth how the number of shared friends affects the presumed influence mechanism for semi-public posts on SNS. In this regard, it is likely that a status posted by a friend with whom a person shares multiple other friends has a more pronounced effect on the person's perceived prevalence and approval of the behavior among their own network of friends than a post by a friend with few shared contacts.

Besides this potential indirect influence of behavioral displays on SNS on norm perceptions through the presumed influence of the posts on others, it is also conceivable that

SNS posts directly affect norm perceptions and behavioral outcomes. With regard to the influence on norm perceptions, the present research found no support for this claim, and the potential explanations and ways by which perceptions of social norms might be influenced through passive use of SNS have already been discussed in the previous section. Concerning the impact on behaviors, the interviews provided a first impression of the potential of SNS posts to affect behavioral reactions and also revealed SNS users' estimations of facilitators of the influence, which were investigated in more depth in the subsequently conducted experiments. Specifically, the impact of the source of the post, the implicitly provided norm focus, and the rate of repeated exposure over time were examined.

That the source of a post is a potential facilitator for social influence effects on SNS was mentioned by several interviewees, who gauged the posts of close friends as well as popular persons as particularly influential. This is in line with prior research on peer influence, which has characterized these groups as key sources of influence (K. Kwon & Lease, 2014). For the context of SNS, prior research by Bond et al. (2012) has shown that close friends on Facebook, who were defined by a high frequency of interaction on the platform, can be an influential source for the spreading of real-world behavior, such as voting. Moreover, social identity theory suggests that a person is more likely to conform to friends and peers who are perceived as members of a socially close reference group that a person greatly identifies with (see, e.g., Abrams et al., 1990). The findings of Study 2, which investigated the impact of the source of SNS posts conveying normative cues about prosocial behavior on their potential to affect behavioral intentions and norm perceptions in more depth, provide partial support for these assumptions. Based on prior work on normative effects of different reference groups (e.g., Cho, 2006; LaBrie et al., 2010), it was proposed that behavioral displays from friends on SNS have a greater influence on the intentions to perform the displayed behavior than posts of unknown students, which – since the sample was recruited from undergraduate university students – were assumed to reflect a more distal reference group consisting of peers. In line with this proposition, it was found that exposure to posts about prosocial behavior that express social approval of prosocial activities led to an increase in volunteering intentions when the status updates were apparently posted by the receiver's own friends on Facebook. However, this superiority of friends' posts was only found for prosocial displays that focus readers on injunctive prosocial norms, not for status updates that focus readers on the performance of the behavior by others (i.e., descriptive norm focus); moreover, the interaction effect was only found for volunteering intentions, not for donation intentions.

A reason for the partial support of the hypothesis could be that both, friends on Facebook as well as other students, were relevant reference groups for the student participants, which might have decreased the variance in the data. Especially when participants received information about others' engagement in prosocial activities (i.e., descriptive norm focus), it seems to be equally relevant whether the information stems from friends or from other students. In this regard, it is possible that the information about the social activities of other students and the information about friends' social commitment lead to similar outcomes for receivers, but potentially for other reasons: While friends might be perceived as a normative reference group, for which individuals feel inclined to conform to the social norms in order to be accepted and liked, other students might constitute a comparative reference group, which serves as a standard for comparison to evaluate their own performance (see Hyman, 1960). Students might feel a pressure to compete with this group of peers because they are their direct competitors on the job market. Thus, since social commitment is often requested in applications for scholarships or jobs, the information about other students' engagement in prosocial activities might increase a student's own intentions when the comparison turns out negatively for him/her (i.e., when the person perceives that he/she is less socially engaged than others).

Another reason why the influence of the source was weak could be that the variety of friends on Facebook was not specified in this study. Hence, some persons might not have had their strong connections in mind when they were exposed to the stimulus material. Thus, it is possible that the effects are stronger when participants feel a close connection to the authors of the posts. This would be in line with the social identity perspective and previous research on online social influence effects, which has shown that even unknown others' online comments can have a substantial influence on readers' attitudes when they identify with the commenters (e.g., Walther, DeAndrea, et al., 2010). In the present research, social identification with one's own friends (or other students, depending on the experimental condition) did not increase the influence of the exposure to prosocial normative cues on viewers' prosocial behavioral intentions. In fact, for the exposure to posts of students, an interaction against the expectations was found, revealing greater volunteering intentions for individuals who greatly identified with other students when they saw neutral posts. A reason why identification with the respective reference group did not increase the intention to perform prosocial behavior when it was displayed in the posts might be related to an insufficient cognitive match between the stimulus material and the reference group due to the artificiality of the setting that was discussed earlier (i.e., the posts might not have been

perceived as representative examples of the reference group). Measuring the identification with the perceived authors of the status updates might reveal an effect in line with the hypothesis.

With regard to the manipulation of the focus on descriptive or injunctive prosocial norms in the status updates, it is important to note that no significant main effects on behavioral outcomes were found in the study. Hence, the information that the status updates with injunctive norm cues had been posted by friends seems to have been a decisive factor for the significant effect on volunteering intentions. The distinction between descriptive and injunctive norm cues was based on the focus theory of normative conduct (Cialdini et al., 1990) and the assumption that SNS post could focus readers on the respective norm by displaying what friends and peers do or what they approve of. As suggested by the theory, it was assumed that these displays of prosocial norm cues increase the salience of prosocial norms and thereby the likelihood that viewers themselves intend to perform the behavior. Prior work on the effects of passive exposure to content on SNS on norm perceptions and behaviors (e.g., Fournier et al., 2013; Litt & Stock, 2011) has not distinguished between different types of content, but has predominantly focused on the frequency of exposure to examples of the respective behavior on SNS. According to Cialdini and colleagues' (1990) conceptualization of normative influence, descriptive and injunctive social norms are characterized as two distinct dimensions that can have unique effects on behavior. Thus, the perception that many others are engaged in a certain behavior can have a substantially different effect than the perception that others think that one should perform a certain behavior. In Study 2, however, the displayed posts about prosocial behavior did not affect perceived descriptive or injunctive prosocial social norms, neither when the posts conveyed injunctive norm cues, nor when they conveyed descriptive norm cues (see previous section). In addition, based on the weak and inconsistent findings for the norm accessibility, it seems unlikely that the posts made salient an already existing norm perception concerning volunteering that increased the motivation to volunteer owing to its temporarily increased salience. Hence, the injunctive norm cues in status updates of friends appear to have influenced participants' volunteering intentions although no effect was found on the perceived prevalence or approval of volunteering by relevant reference groups and the perceived norm was not more salient than in other conditions.

Nevertheless, in the case of the injunctive norm cue message presented in the study, it is possible that the posts have focused on the perception that others think that one should be more prosocial and increased some feeling of oughtness. This might be a reason why

specifically the combination of injunctive norm cues in status updates of friends led to an increase in participants' volunteering intentions: There is probably only little perceived pressure to conform to a behavior that is only observed in the online representation of rather unrelated peers. Whether or not the person adopts the observed behavior would not be visible to these peers, which has been suggested as a significant moderator for the influence of social norms on behavioral outcomes (see A. Chung & Rimal, 2016). More concretely, not complying with the prosocial examples would not be directly controlled or sanctioned by peers if the behavior is only conducted in private. Thus, in this case an adaptation of the behavior would be more likely related to internal acceptance of the behavior. However, normative social influence could also occur, but probably only when participants believe that they would be discussing the behavior or performing the behavior together with their friends offline, or that their friends would otherwise receive knowledge about their own neglecting of prosocial behavior. Therefore, particularly injunctive norm information received from friends' posts seems to have an impact on offline behavioral intentions, because friends are the people that one eventually needs to justify oneself to. In addition, the effects seem more likely for behaviors that become known to others or could be performed together with others. This might also explain why volunteering intentions were affected, which is an activity likely performed over a longer period in public, while the intentions to donate, which is typically a one-time activity conducted in private, was not influenced.

That no effects on behavioral intentions were found for the posts with a focus on others' prosocial activities (descriptive norm cues) must also be discussed against the backdrop of social cognitive theory (Bandura, 1986) and the findings of Study 3, which investigated the influence of different rates of exposure to posts about prosocial behavioral conduct over time. In his social cognitive theory of mass communication, Bandura (2001) proposes that symbolic representations of behavioral models in media environments can provide individuals with knowledge about the performance of a behavior, confidence in their abilities to perform the behavior, and nudge or prompt them to adopt the displayed behavior. Based on these propositions, it was examined whether SNS could serve as a venue for social modeling and, specifically, whether the observation of others' presentations of their prosocial activities in status updates could influence receivers' perceived ability to engage in prosocial activities as well as their current and intended prosocial behavior.

Concerning these assumptions, the results of the one-time exposure to exemplary status updates about prosocial behavior in the laboratory setting (Study 2) revealed no conclusive insights. However, in Study 3 some limited support was found: The results show

that under the condition of frequent exposure to prosocial behavioral displays in status updates that are constantly received over a period of 6 weeks, individuals' perceived abilities to conduct prosocial behaviors increased. In this regard, Bandura (1977, 1994), who referred to the term *self-efficacy*, showed that the observation of other persons' actions can be a means to affect an individual's belief in his/her own capabilities of accomplishing certain actions in order to achieve a specified performance. Moreover, also Fishbein and Ajzen (2010), who used the term *perceived behavioral control*, argue that the perception of what other people do can help an individual to learn about certain barriers or necessary resources of performing an action and thereby increase his/her own perceived ability to perform the behavior. Thus, in light of the empirical findings of Study 3, it seems that individuals who frequently encounter displays of homogeneous types of behavior on SNS when they passively browse friends' updates can enhance their perceived abilities concerning the displayed behavior vicariously through the observation of the displayed experiences of their social contacts. The frequency of exposure appears to be a decisive factor for this influence, since the perceived ability increased only in the high-exposure condition (i.e., exposure to four prosocial posts per week) not in the low-exposure condition (i.e., exposure to two prosocial posts per week), nor in the one-time exposure to some exemplary displays of prosocial behavior presented in the laboratory experiment (Study 2).

A reason for this could be that the multitude of prosocial status updates presented in the high-exposure condition during the 6-week experiment had been perceived as stemming from many different actors, which were all perceived as capable of engaging in prosocial activities. Hence, in line with Bandura's research on self-efficacy (1977), observing multiple models reporting about their (successful) prosocial behavior might be more influential than an observation of a single model. Thus, perceiving that many of a user's social contacts on the SNS are capable of engaging in some prosocial activity might increase the user's own perceived ability to behave more prosocially. Another reason why the effect was only significant when multiple examples of prosocial behavioral displays were observed could be related to the complexity of prosocial behavior. As already discussed in the previous section, it might have been difficult for participants to abstract from the concrete examples of prosocial acts displayed in the posts to the more general concept of prosocial behavior. For this more abstract modeling (see Bandura, 2001) of the general concept of prosociality, more diverse examples of prosocial behavior might have been necessary to extract the mutual, underlying rule of conduct.

The complexity of prosocial behavior and the fact that various forms of exemplary actions were modeled instead of one concrete behavior might have hampered the process of observational learning from SNS posts. This could also explain the nonsignificant main effects of the exposure to prosocial behavioral displays on prosocial behavioral outcomes from the social cognitive perspective. According to Bandura's conceptualization of the process of observational learning (1986), the acquisition and the performance of behavior are treated separately and four subfunctions of observational learning are distinguished: attention, retention, production, and motivation. Knowledge of a behavior can be acquired by selectively attending to a behavioral model and by extracting and storing relevant information for a cognitive representation of the conceptions in memory. The observed behavior may then be produced by translating the theoretical conceptions into behavioral action, and the final performance of the learned behavior is determined by the person's motivation of doing so, which can be influenced by different forms of incentives (Bandura, 2001).

Since status updates on SNS typically display the end result of a behavior only, not the way of performing an action, the exposure to behavioral displays online differs conceptually from social modeling in the classic sense. However, owing to the forced-exposure designs of the experiments and the fact that many participants remembered various prosocial actions observed during the experiments when asked at the end of the questionnaires, it could be that relevant patterns of the behavior were learned from the status updates but not transformed into action. In this regard, Bandura suggests that an enactment of the observed behavior is only expected for observers who are also motivated to adopt the behavior. In line with the results of Study 3, which shows that receivers' prosocial behavior could be indirectly affected by frequent exposure to prosocial behavioral displays through a positive evaluation of the posts, this might indicate that prosocial behavioral patterns were learned but the behavior was only performed when individuals were also motivated by the posts. This means that for individuals who experience other persons' presentations of their prosocial actions on SNS as inspiring, interesting, and motivating, the perception might increase their own prosocial intentions and the uptake of prosocial actions.

In sum, the present findings show that although individuals anticipate that SNS users would be particularly prone to the influence of behavioral displays in status updates when they were posted by a relevant source, such as friends, or when multiple posts about the same behavior were observed (Study 1), the evidence for these effects found in the experimental studies (Study 2 and Study 3) is rather weak. It seems that the expression of approval in the posts of friends is a necessary element for the influence of prosocial behavioral displays on

prosocial intentions. In addition, frequent exposure to multiple, repeatedly observed prosocial displays in the status updates of an SNS user's social contacts might not directly affect receivers' current or planned prosocial behaviors, but can increase their perceived ability to perform the displayed action. This might, in the long run, lead to more prosocial behavior when they are sufficiently motivated.

In the following chapter, the consequences for the assumed theoretical processes of the perception of normative information and normative influence on SNS are presented and practical implications are derived.

11 Theoretical and Practical Implications

Based on the present research, several implications can be derived for the underlying theoretical principles of social norm perceptions, normative influence, and the mechanism of observational learning of behavior in the realm of SNS.

Applying social norms theories to the influence of passive SNS use, the present work contributes to the literature on social influence mechanisms in social media realms by investigating the impact of exposure to user-generated messages on SNS on social norm perceptions and offline behavior. The focus on offline behavioral intentions and outcomes is an important extension to previous work investigating effects of evaluative user-generated content on evaluations and attitudes toward news topics, products, or other issues (e.g., Hong & Park, 2012; Winter et al., 2017) as well as the research on conformity reactions in online situations (e.g., Rösner & Krämer, 2016; Zimmerman & Ybarra, 2016). In addition, by examining effects on prosocial behavior, it broadens the perspective of the literature on social norm mechanisms in SNS environments, which is, so far, predominantly concerned with the potential risks of SNS related to the spreading of negative social norms concerning alcohol consumption and risky health behaviors (e.g., Beullens & Vandebosch, 2016; Nesi et al., 2017).

The causal relationship between social norms and behavior has been proposed in several psychological theories, such as the TRA and TPB (see Chapter 3.1.1), the focus theory of normative conduct (see Chapter 3.2.2), as well as the TNSB (see Chapter 3.2.1). In contrast to the vast amount of research on the influences of social norms, little is known about how perceptions of social norms are shaped in the first place. Hence, this work adds to the literature that has started to explore SNS as a source of normative information and the role of these platforms in the formation of norm perceptions. Existing models propose that social

norms are formed through communication processes and the observation of peers (e.g., Rimal & Lapinski, 2015). Moreover, initial research, such as the work by Geber et al. (2017), suggests extending theoretical models on the norm–behavior relation to include peer communication as a determinant of the perception of norms. In addition to face-to-face communication in the offline world, the present work examined whether computer-mediated forms of communication and observation, specifically the exposure to information shared through broadcasted messages on SNS, might be another determinant of social norms that could complement the model. Although SNS facilitate the communication with a wide range of social contacts via computer-mediated ways and allow for the passive browsing of the content provided by friends and peers that might give some indication of their attitudes and behaviors, the empirical findings do not allow us to draw a final conclusion about the potential influence mechanisms. However, they provide several important insights concerning potential boundaries of the influence of SNS posts on the perceptions of social norms. These could help us understand whether theoretical models on the perception of social norms might benefit from incorporating passive use of SNS as a potential mechanism involved in the formation of these perceptions.

Specifically, the following implications for the influence and the underlying theoretical assumptions of the influence that behavioral displays on SNS might have on receivers' norm perceptions were discussed based on the nonsignificant results of the present studies (see Chapter 10.2): (a) norm perceptions might be derived from passive use of SNS when the messages observed provide believable displays of behavior associated with relevant reference groups; (b) norm perceptions might be more likely affected for more concrete behaviors; (c) the validity of a social norm perception derived from SNS might depend on the network structure on SNS and the type of content the social network members communicate about; (d) an indirect effect on norm perceptions through the presumed influence mechanism might depend on the perceived or actual overlap of one's friends' networks of friends. These assumptions can be understood as an outset for future work, which is needed to determine whether passive use of SNS can be more generally considered as a norm-building factor.

With regard to the accessibility of social norms, the present work is innovative in applying a measure for norm accessibility to the context of SNS. In this regard, it provides initial insights for the literature concerned with the accessibility of social norms in the prediction of behavior (see, e.g., Rhodes & Ewoldsen, 2009; Rhodes et al., 2014), as it is the first to demonstrate that the exposure to SNS posts could affect the situational accessibility of injunctive social norms. Moreover, the third study of the present dissertation represents a

methodological novelty for the research on social influence effects and social norm perceptions on SNS as it investigated the impact of repeated exposure to behavioral displays over time in a controlled experimental design. Thereby, it incorporates the factor time in the research on norm perceptions and offline behavioral outcomes, while retaining control over the type and amount of exposure to behavioral displays in SNS posts and potential causal mechanisms. Both, the integration of norm accessibility measures as well as the application of experimentally controlled repeated measures designs seem to be promising approaches for future research.

In addition to the investigation of the role of passive SNS use in the formation of normative perceptions, the present work contributes to the research concerned with the association of the exposure to behavioral displays on SNS and offline behavioral outcomes and intentions (for the context of risky health behavior, see Branley & Covey, 2017). Combining the work on social influence effects on social media with the social norms literature and perspectives from behavioral theories, the experimental approach provides a valuable extension to this work as it allows us to infer cause–effect relations. Building on the focus theory of normative conduct (Cialdini et al., 1990) and the distinction between descriptive and injunctive social norms (see Chapter 1.1.1), it was revealed that injunctive norm cues on prosocial behavior in SNS posts of friends could evoke prosocial behavioral intentions without altering the perceived prevalence and approval of the behavior among friends and peers. Although the effect was only found for one subform of prosocial behavior, the findings indicate that this type of post might more directly induce a pressure to conform and to emulate others' deeds – if observed in messages of a person's friends on SNS. This is an important enhancement of prior research which, so far, neglected studying the specific effects of injunctive normative information in SNS environments.

Moreover, the findings have implications for social cognitive theory and the principle of social modeling (Bandura, 1986), which was applied to the context of behavioral displays in SNS posts. According to Bandura, individuals can learn behavior vicariously by observing and interpreting how others perform the behavior, even when these behavioral models are observed in the media (Bandura, 2001). The present findings reveal partial support for the assumption that individuals can learn behaviors from the observation of other SNS users' displays of behavior presented in their status updates. Specifically, the results show a significant influence of frequent exposure to prosocial behavioral displays on receivers' perceived ability to perform prosocial behavior, even though the measure was assessed 5 days after the experiment, minimizing the possibility of priming effects. That the perceived ability

to engage in a displayed behavior can be malleable via SNS posts is a novel finding that contributes to the literature on social modeling effects in social media realms. Hence, the research highlights that it is relevant to consider the individual SNS user's perception of browsing SNS based on the content he/she sees, and shows that those users who observe many of their friends and peers post about prosocial engagement may be particularly likely to feel empowered to emulate their deeds. In addition, the results highlight that frequent exposure to behavioral displays in SNS posts might indirectly contribute to the adoption of displayed behaviors when the posts are perceived as positive and inspiring examples. This is in line with Bandura's (2001) proposition that social learning of behavior does not necessarily lead to the enactment of the learned action. According to social cognitive theory, behavioral action is likely to occur when the person feels in control of the action and is motivated to do so. Although this mechanism needs to be tested more thoroughly in further studies, the findings provide some indications for the applicability of the modeling principle to the impact of online presentations on offline behavior. In this regard, future work should acknowledge key features of SNS when examining social modeling effects in these realms, for example the fact that SNS are highly popular and prevalent, mix interpersonal and mass media communication, link users to relevant reference networks, and provide highly visible, easy and always accessible models for behavioral conduct (see Chapter 5.1). While in traditional media, such as television, the similarity of models is limited to categories like age, gender, or skin color, levels of personal closeness might be more important on SNS, where users are connected to friends from real life.

With regard to practical implications, the present findings provide an optimistic or a pessimistic picture, depending on the content displayed on SNS. Prior research has predominately focused on potential negative effects of SNS use on (mis-)perceptions of social norms and the adaptation of risky health behaviors. The priority of studying negative outcomes of media use seems characteristic for media effects research, since there are, for example, far more studies on the consequences of media use on aggressive behavior than on prosocial behavior (see for an overview, e.g., Rösner, 2016). This work, however, emphasizes that some of the proposed mechanisms and effects of the exposure to behavioral displays in SNS environments could also be found for more desirable outcomes, such as prosocial behavior. Hence, aside from the present concerns about hate speech, fake news, and the manipulation of attitudes and opinions in social media (e.g., Farkas, Schou, & Neumayer, 2018), it stresses that for some groups and networks of friends, SNS could also be a venue for communicating and spreading positive norms and values, prompting, for example, prosocial

behaviors. Whether SNS can, in the long run, actually contribute to the prevalence of prosocial norms and behaviors might also depend on the visibility of prosocial content on the platforms and the social dynamics of their users. For example, observing a minority of users engaging in a very visible behavior might be better remembered than a more common but less visible behavior (Berkowitz, 2005). Thus, the perceived prevalence of a behavior, such as volunteering, might increase when more individuals talk about it online and make it more visible. On Facebook, this perception and the potential behavioral consequences could be intensified by the company's algorithm used to determine what is presented to users in their News Feeds. Since this would also be true for more undesirable behaviors, SNS companies have a great responsibility and should constantly monitor their network algorithms to avoid the risks of harmful perception biases related to the overestimation of undesirable behaviors or the underestimation of desirable behaviors.

Moreover, the present findings show that SNS posts of friends with an injunctive normative spin seem to be especially effective in influencing behavioral intentions to volunteer. This information could have important implications for the application of persuasive normative messages in social media realms. For example, purposefully disseminated civic engagement appeals, messages for the recruitment of volunteers as well as calls for donations or other charity support on SNS might be more effective when they convey an injunctive normative cue of a friend on the platform. Hence, non-profit institutions and charity organizations should aim to involve SNS users with large social networks in their social media activities, since these users' expressions of support for a campaign message, for example through positive comments, is revealed to their friends and might contribute not only to the spreading of the campaign message, but also to its influence on others.

In addition, the finding that frequent exposure to prosocial behavioral displays in the status updates of friends on SNS could increase receivers' perceived abilities of performing prosocial activities is promising. Charity organizations and volunteering services could make use of this effect by encouraging their members to post about their prosocial activities online, since this might encourage others. Not knowing about the potential means of becoming involved in volunteering as well as the feeling of not being qualified are potential barriers that can prevent young adults from volunteering (Kausmann, Simonson, & Hameister, 2017). The observation of friends' displays of prosocial behavior on SNS could mitigate these barriers, because individuals might learn from the posts about various ways to volunteer and might lose their concerns regarding their volunteering abilities when they perceive that their friends can do it.

12 Limitations and Future Directions

For each presented study, several limitations have been acknowledged in the respective chapters when the research findings were discussed. The following section returns to key aspects identified and addresses the overarching limitations of the empirical approach pursued in the present dissertation. In addition, an outlook for future research is presented.

Although the present work investigated the potential of SNS to convey normative information and to shape users' social norm perceptions and affect their behavioral outcomes from multiple perspectives, using explorative as well as controlled experimental approaches, the research set several priorities, which limit the generalizability of the findings. For example, the research focuses particularly on the effects of passive exposure to behavioral displays in status updates of friends on SNS, building primarily on the SNS Facebook. Thus, first, it disregards self-generated media effects of active usage (see Valkenburg & Peter, 2013), in terms of the influences that the posting of behavioral displays on SNS would have on the sending person's perceptions and actions. For the context of alcohol abuse, research has shown that also the presentation of alcohol displays on SNS is related to drinking behavior, and that this relationship can be explained by the person's attitudes towards alcohol (Geusens & Beullens, 2016). Hence, it is possible that the exposure to behavioral displays of friends and the own displaying of the behavior on SNS have mutually reinforcing effects on a user. In the present work, however, the effects were investigated from the perspective of the recipient of content and are, thus, limited to this direction of media influences. For future research it might be worthwhile to investigate, how both mechanisms act in concert.

Second, the work examined the influence of personally created posts broadcasted through SNS by private network members, neglecting shared content from external webpages or organizations. Although the exposure to shared content displaying a specific behavior might have similar effects for injunctive norm perceptions, because the sharing of an issue might be interpreted as approval of the displayed behavior, this needs to be validated in a further study. For the perception of descriptive norms as well as for the perceived ability concerning the performance of displayed behavior, on the other hand, it might be more relevant to observe, by means of personal status updates, that the behavior was performed by their social contacts on the platform. Hence, it was decided to focus the investigation on the personal status updates a person receives from his/her network members, who, consisting of friends and peers from their offline lives (Ellison et al., 2007, 2011, see also findings of Study 1), are assumed to be relevant social models for behavior (Bandura, 1986).

Third, the results might be limited to the specific SNS Facebook. Social influence effects as well as norm perceptions derived from other SNS, other social media, or other participatory platforms, such as photo- or video-sharing sites, online news forums, or weblogs, might depend on the type of information received and the perception of and identification with the community. For example, Facebook users who use the platform to interact semi-publicly with their friends might derive different perceptions than Twitter users who follow the public statements of other (unknown) users or persons of interest. Moreover, different platforms are used for different purposes (e.g., Alhabash & Ma, 2017), which could likewise affect the impact that passively received content has on users' perceptions and behaviors. Hence, the research should be expanded to other social media, to explore the impact of the specific characteristics of the diverse platforms and services. In addition, the interplay of different channels through with social norms may be communicated should be investigated, to determine the specific role of SNS and to analyze potential interacting effects of these platforms with other sources of learning about norms.

A further limitation of the present research pertains to the focus on the topic of prosocial behavior in the experimental studies. This focus was chosen in order to extend prior research on norm perceptions and behavioral effects of SNS content, which has predominantly studied the effects of alcohol displays, to address more desirable outcomes. Although different facets of prosocial behavior, such as volunteering, donating, or everyday helping, were examined, the results of the experiments might be specific to prosocial behavior and not generalizable to other types of behavior. In fact, the findings revealed no effects of prosocial behavioral displays on prosocial norm perceptions, which is inconsistent with the findings from the research on alcohol displays (e.g., Beullens & Vandebosch, 2016; Nesi et al., 2017). However, this discrepancy might be explained by a methodological issue: As has been discussed in the previous section (see Chapter 10.2), prosocial behavior is a more abstract concept that covers various forms of actions, and the presented displays of exemplary manifestations of prosocial behavior might not have matched participants' associations of the concept. Moreover, a limitation of the present studies is that no information was obtained on how frequently individuals observe prosocial behavioral displays of their friends on SNS prior to the analyses. This information could have been important with regard to the perceived believability and authenticity of the stimulus material. Future work could address this limitation. For example, it might be worth coding for actual representations of prosocial behavioral references on SNS.

Furthermore, a general limitation of the research lies in the subjective perspective on social norms and the mechanisms of norm perceptions and normative influence on SNS for the individual user. A strength of this view is that it allows us to investigate in more depth how individuals are influenced in their perceptions and behaviors by the exposure to behavioral displays on SNS and how different characteristics of the displays, such as the source or norm focus of a post or the frequency of exposure, contribute to the effects. However, this perspective leaves open any potential influences on norm perceptions and behavioral effects on the collective level. For example, based on this approach it can only be speculated how norm perceptions might spread through SNS and how the actual norms in a group or society might be affected by SNS usage.

Although the current research has addressed several research gaps that were identified based on the shortcomings of prior work on social norms in SNS (see Chapter 5.2.3), the empirical findings raise several new questions which should be addressed in future research. For example, future research should further disentangle the potential differences between information that focus on descriptive normative information and those that focus on injunctive norms. Based on social norms theories, such as the TNSB (Rimal & Real, 2005), it is proposed that descriptive and injunctive norms have the greatest impact on behavioral outcomes when they are congruent, that is, when both, the prevalence as well as the approval of a behavior are perceived to be high. Thus, it seems relevant to investigate the influence of the combination of cues on descriptive and injunctive norms in SNS, particularly regarding the impact of congruent and incongruent normative information. Moreover, future research could also examine whether directed appeals are more effective than the more implicit information about social approval that were used in the present approach.

A further aspect future work should address pertains to the potential interacting influences of user reactions, such as likes or comments on the impact of behavioral displays on norm perceptions and behaviors. The intermixture of different sources, such as the source of a proprietor content (e.g., a status update or a news item) and the sources that share or react upon it with likes or comments might create new dynamics that should be investigated in more depth (see Walther & Jang, 2012). In this regard, future work could also investigate the impact of different types of friends as sources on SNS in shaping normative beliefs and behaviors.

Furthermore, this work has predominately focused on text-based behavioral displays. Although visual content was incorporated in the stimulus material, the main manipulation of

the normative information was provided through textual status updates (i.e., short messages reporting about behavioral conduct). Thus, the pictures presented in the material played only a subordinate part. However, visual information about others' behaviors could be a relevant cue for the perception of norms. For example, Young and Jordan (2013) have shown that sexually suggestive pictures of other SNS users can influence perceived descriptive norms intentions concerning sexual risk behaviors. Hence, future studies should have a closer look at the manipulation of normative behavior in visual content and could investigate the differences between visual and text-based normative information more systematically. This appears relevant, since users can observe more and more visual examples of social models, for example, via YouTube or Instagram. However, it is also likely that other social dynamics could play a role on these platforms. On YouTube, for example, users typically follow popular persons or "stars", not their friends and peers from offline social contexts, which should be taken into account when studying norm perceptions and normative influence in these realms.

Finally, future research could investigate transactional and reciprocal effects of behavioral displays on SNS. In this regard, the experimental approach eliminated the risk of selection effects, which can be a confounding aspect in survey approaches, because they cannot rule out the possibility that individuals with previous knowledge and prosocial intentions chose to interact with the SNS posts of individuals who engage in prosocial activities. According to Slater's (2007) reinforcing spirals model, media effects are, however, likely to be transactional, that is, the influence of media exposure and the selection of media may mutually reinforce themselves. Hence, it seems recommendable to investigate the role of normative information in SNS posts in a longitudinally study, to understand the potentially complex dynamics between the selection of and exposure to SNS posts.

13 Conclusion

The continuity with which individuals use SNS for communicating and interacting with their social connections demands for a major diversification of the research field on social norm perceptions and normative influence in the realm for these technologies. Empirical investigations are needed to enhance our knowledge on how these media platforms might contribute to the (mis-)perception of social norms regarding desirable as well as undesirable behaviors and influences on offline behavioral outcomes.

For this purpose, the present dissertation project examined the influences of passive use of SNS from a psychological perspective, building on qualitative as well as quantitative experimental research. The empirical results revealed partial support for the potential of SNS to convey normative information and to affect users' cognitions and intentions concerning their offline behaviors. In addition, limited support was found for the impact of the exposure to SNS posts on social norm perceptions and the accessibility of social norms. Synthesizing the findings of the present work, which extended the research on normative information and social norm perceptions in SNS environments to the context of prosocial behavior, it was shown that other users' behavioral displays on SNS, particularly the exposure to injunctive normative appeals from friends, can influence receivers' behavioral intentions concerning the displayed actions. In addition, frequent exposure to behavioral displays can increase receivers' perceptions of their own abilities to perform the displayed behavior. The findings, however, indicate that, given the large role SNS play in the lives of millions of Internet users all over the world, future work needs to continue investigating the impact of these platforms on the formation and spreading of social norms and the processes through which these platforms may influence individuals' cognitions and behaviors. Nevertheless, the present work demonstrates that psychological theories on social norms and social learning mechanisms can contribute to understand social influence processes in SNS realms.

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