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## SPECIAL ISSUE ARTICLE

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# When does a social norm catch the worm? Disentangling social normative influences on sustainable consumption behaviour

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## Abstract

Sustainable consumption obtains ever-increasing importance due to pressing social, environmental and economic issues. Extensive research has proposed the use of social norm communication as an effective means to encourage various kinds of pro-environmental behaviour, as well as sustainable consumption. However, although crucial to the development of effective social norm campaigns, tangible evidence for specific processes and conditions through which social norms foster sustainable consumption remains scarce. Thus, we aim to illuminate the underlying mechanisms and boundary conditions of social normative influences and clarify how to effectively communicate social norms. Study 1 examines personal norms as a mediator of social normative influences on consumers' purchase intention for an unsustainable product, including the interacting role of personal traits (i.e., self-efficacy and self-concept). The results reveal that personal norms fully mediate the effect of perceived social norms on purchase intentions. For participants expressing high generalized self-efficacy, an additional direct effect of perceived social norms on purchase intentions arises. The same pattern appears for a strong collective but not for a strong relational self-concept. Study 2 investigates sender-specific (i.e., social distance) and recipient-specific (i.e., gender and pro-sustainability world view) factors impacting the relative influence of social normative message frames (i.e., injunctive vs. descriptive) on purchase intentions towards a sustainable product. The results reveal an interaction effect for social distance and for gender, but not for pro-sustainability world view. This research proposes implications for researchers, as well as marketers, and emphasizes auspicious aspects as a springboard for future research.

## 1 | INTRODUCTION

One of the most current pressing issues is the challenge to achieve a sustainable development of our societies. Introducing sustainable consumption patterns is a central cornerstone for its achievement (United Nations, 2015). *Sustainable consumption* is a way of consumption that meets the needs of the present without compromising the ability of future generations to meet their own. On behalf of consumers, this means incorporating issues regarding ecological

(e.g., conservation of natural resources), social (e.g., reduction of social tension) and economic (e.g., making economic issues consistent with ecological concerns) aspects into defining the various practices of consumption behaviour (Balderjahn et al., 2013; Geiger, Fischer, & Schrader, 2018; Glavi & Lukman, 2007). Thus, numerous advocates of sustainable development (e.g., marketers of sustainable products or services and public policy agents) are concerned with finding means to motivate consumers towards more sustainable consumption.

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One of the major obstacles to that end is that consumers, when being asked in market polls (e.g., Cone Communications, 2017), persistently express high levels of support and intentions to consider socio-ecological aspects within private consumption. However, market agencies reveal on-going low market shares of products that actively endorse high socio-ecological standards (e.g., organic or fair trade products) and relatively unsusceptible market shares of products that violate commonly held socio-ecological values (e.g., sweatshop labour and resource squandering) (Prothero et al., 2011). This phenomenon, known as the *Attitude-Behaviour-Gap*, was already subjected to extensive research (Auger & Devinney, 2007; Carrington, Neville, & Whitwell, 2010; Carrington, Neville, & Whitwell, 2014; Young, Hwang, McDonald, & Oates, 2010) yet remains as a challenge to motivate sustainable consumption to the present day (Kilian & Mann, 2020; White, Habib, & Hardisty, 2019).

The current research addresses an approach with the potential to motivate consumers complementary to personal attitudes, that is, the exploitation of normative influences, which have been proven to affect individual behaviour in various domains including sustainable (consumption) behaviour. Research has established that perceived social norms stimulate various pro-social and pro-environmental consumption behaviours, such as purchasing environmentally safe products, recycling household garbage (Minton & Rose, 1997), buying clothes made from organic materials (Kim, Lee, & Hur, 2012) or making choices in favour of a more ecologically friendly espresso machine (Bertrandias & Elgaaied-Gambier, 2014).

However, while there is abundant research demonstrating the overall effect of perceived social norms on sustainable consumption behaviour (e.g., Demarque, Charalambides, Hilton, & Waroquier, 2015; Kim & Johnson, 2013), there is limited information regarding specific processes and contingencies behind these effects and recommendations for effective inclusion into marketing strategies are scarce at best (White et al., 2019).

Therefore, the objective of the current research is twofold. First, we aim to provide insights into the process through which perceived social norms unfold influence on sustainable consumption behaviour and how they interact with personal traits of consumers. Second, we aim to provide insights into the question of how to effectively communicate social norms within marketing communication, by investigating context dependencies that might interfere with such approaches. Thus, our research contributes to the overall understanding of how perceived social norms influence sustainable consumption behaviour, and informs marketing managers and public policy agents how to improve and develop effective social norm communication campaigns to encourage sustainable consumption.

## 2 | CONCEPTUAL FOUNDATION

### 2.1 | Social normative influences on sustainable consumption

Social normative influences, or *social norms*, are deemed to be powerful drivers of human behavioural changes (e.g., Cialdini et al., 2006;

Cialdini & Goldstein, 2004; Cialdini, Kallgren, & Reno, 1991; Cialdini & Trost, 1998). They are shared beliefs about how we ought to act, which are usually enforced by threat of sanctions or promise of rewards (e.g., Schwartz & Howard, 1982; Thøgersen, 2006), and express consensus about appropriate behaviours within a specific group (Thibaut & Kelley, 2007). In addition, social norms are well recognized and incorporated by major theories, explaining human behaviours; e.g., theory of planned behaviour (Ajzen, 1991), focus theory of normative conduct (Cialdini et al., 1991) or goal framing theory (Lindenberg & Steg, 2014).

In the context of (general) sustainable behaviour, social norms proved their (positive) influence in a plethora of behavioural domains, such as transport choice (de Groot & Steg, 2007; Harland, Staats, & Wilke, 1999), littering (Cialdini, Reno, & Kallgren, 1990; Reno, Cialdini, & Kallgren, 1993), composting (White & Simpson, 2013) and actions to adapt to climate change (Nguyen et al., 2018). Furthermore, public messages, containing information about social norms, have proven to effectively motivate various kinds of pro-social and pro-environmental behaviours, such as not stealing petrified wood (Cialdini et al., 2006), reusing towels (Goldstein, Cialdini, & Griskevicius, 2008) and reducing water usage (Jaeger & Schultz, 2017).

In terms of sustainable consumption, social normative influences were already the subject of research regarding food choice (Chekima, Chekima, & Chekima, 2019; Dowd & Burke, 2013; Zhou, Thøgersen, Ruan, & Huang, 2013), purchase of everyday necessities (Demarque et al., 2015; Minton & Rose, 1997; Pickett-Baker & Ozaki, 2008), energy-efficient household appliances (Nguyen, Lobo, & Greenland, 2016) and clothing (Kim et al., 2012). While numerous studies evidence effects of social normative influences on sustainable consumption practices (e.g., Cheah, Shimul, Liang, & Phau, 2020; Demarque et al., 2015; Dowd & Burke, 2013; Joshi, Sangroya, Srivastava, & Yadav, 2019; Kim et al., 2012; Loschelder, Siepelmeyer, Fischer, & Rubel, 2019; Minton & Rose, 1997), there are instances that evidence none (Chekima et al., 2019; He & Kua, 2013; Zhou et al., 2013), while others report their ambiguous influence—they affect intentions, but not behaviour (Nguyen, Lobo, Nguyen, Phan, & Cao, 2016). More importantly, while it is theoretically implied that social norms function as a catalyst to personal norm formation, which, in turn, represents the primary determinant of pro-social behaviour (Hopper & Nielsen, 1991), most studies on sustainable consumption do not explicitly investigate this motivational route as well as its relevance for influences of perceived social norms on behavioural intentions.

Furthermore, when utilizing social normative influences in communication activities as means to foster sustainable consumption behaviours, different approaches in terms of the underlying motivational source can be employed (e.g., Chekima et al., 2019; Loschelder et al., 2019). To that end, Cialdini et al. (1990) distinguish between *injunctive* and *descriptive* social norms. The first is described as “[...] what most others approve or disapprove [...]” (Cialdini et al., 1990, p. 1015), while the latter outlines “[...] what most others do [...]” (Cialdini et al., 1990, p. 1015). Thus, the motivational source of

injunctive norms regards a normative evaluation of certain behaviours, whereas, for descriptive norms, the motivational source is information about (potentially) effective behaviour (Cialdini, 2007). While both motivational sources can encourage sustainable consumer behaviour, research on their relative effectiveness reveals mixed results (e.g., Carlsson, Schimmack, Williams, & Bürkner, 2017; Scheibehenne, Jamil, & Wagenmakers, 2016). Only limited research points towards relevant contingencies, such as normative message focus (Cialdini et al., 2006) or type of claim (Kim et al., 2012) that determine the relative effectiveness of both motivational sources to foster sustainable consumption behaviours, and inform marketers how to adjust social normative messages to the specific contexts at hand as means to motivate sustainable consumption.

## 2.2 | Research agenda

To broadly disentangle social normative influences on sustainable consumption behaviour, the current research investigates the dependency of social normative considerations on the motivational route via personal norms, and the relative effectiveness of the motivational sources within social norm communication. Thus, in the first study, we focus on the motivational route and investigate the potential of perceived social norms in influencing purchase intentions. To that end, we study the role of personal norms within the influence of perceived social norms on sustainable purchase intentions. In addition, we also investigate potential personal consumer traits that might account for the level of independent influences of perceived social norms on purchase intentions from personal normative considerations.

In the second study, we focus on the motivational source, addressing the effects of social normative communications on sustainable purchase intentions. To that end, we study the role of contextual factors that might account for relative differences regarding the effectiveness of different social normative message frames. Since descriptive norms, in its original sense as static information regarding the prevalence of a desired or undesired target behaviour, can produce undesired boomerang effects (e.g., Cialdini, 2003), we focus on a type of descriptive norm frame that derives from an emerging stream of literature—shaping descriptive norms in a *dynamic* style (Loschelder

et al., 2019; Sparkman & Walton, 2017, 2019; Sparkman, Weitz, Robinson, Malhotra, & Walton, 2020). The overall research framework is depicted in Figure 1.

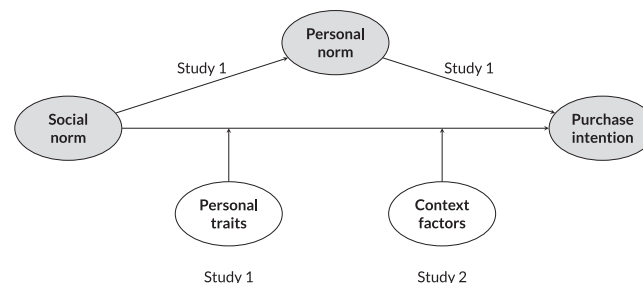
## 3 | STUDY 1: MOTIVATIONAL PATHS FOR INFLUENCES OF PERCEIVED SOCIAL NORMS

The social cognitive theory generally suggests continuous monitoring of self-conduct by individuals with regard to their (social) environment (Bandura, 1986). Within this process, perceived social norms are recognized as imperatives for behavioural conduct that motivate individuals to adherence due to anticipated potential social sanctions (Schwartz & Howard, 1982). Therefore, if a social group relevant to the consumer can be expected to approve or disapprove certain consumption behaviours, consumers' purchase intentions can be expected to be steered towards approved consumption options and away from disapproved ones. Thus, when a consumption option is perceived as having poor socio-ecological performance, and a perceived social norm regarding its socio-ecological performance is apparent (i.e., a norm for sustainable consumption), consumers can be expected to be motivated to refrain from choosing that option to adhere to the social norm (Cheah et al., 2020; Loschelder et al., 2019). Therefore, we hypothesize:

**Hypothesis 1a:** *Perceived social norms for sustainability considerations negatively affect purchase intentions regarding a consumption option with poor socio-ecological performance.*

### 3.1 | Personal norm as mediator

The cognitive moral development theory of Kohlberg (1984) suggests that the degree to which morality (i.e., considerations of right and wrong) is incorporated within individual behaviour is dependent on the degree of cognitive abilities for moral understanding and judgement. In line with the norm activation model (NAM) (Schwartz, 1977), a reasoning process about contingencies “below the surface”



**FIGURE 1** Research framework

regarding moral implications of potential behavioural directions results in moral judgement, which, in turn, potentially leads to internalization of a social norm. It is then the motivational force of self-expectations, which, in turn, let personal norms affect the behaviour a social norm refers to (Schwartz, 1977). This suggests an effect of social norms on behavioural intentions regarding a consumption option with poor socio-ecological performance is dependent upon the formation of a personal norm. Therefore, we hypothesize:

**Hypothesis 1b:** *The influence of perceived social norms for sustainability considerations on purchase intentions regarding a consumption option with poor socio-ecological performance is mediated by the degree of internalization of the social norm (i.e., as a personal norm).*

### 3.1.1 | Generalized self-efficacy

We propose that the influence of perceived social norms is not always fully mediated by the level of internalization into the consumers' belief system as a personal norm. Integrating the social identity theory (Stets & Burke, 2000) with the concept of *generalized self-efficacy* (Sherer et al., 1982), we suggest that depending on the level of generalized self-efficacy a direct effect of perceived social norms for sustainability considerations will appear next to the mediation pathway on purchase intentions regarding consumption options with poor socio-ecological performance. The social identity theory posits that individuals derive a significant portion of self-worth from feelings of belonging to social groups, which is manifested through expressed acceptance by the members of the group (Abrams & Hogg, 1990). Thus, to maintain this source of self-worth, individuals are expected to be motivated to adhere to the norms of a social group, independent of the level of actual integration into one's own belief system as a personal norm in the first place.

However, we propose that consumers might apply different strategies to cope with the tension between personal norms and social normative expectations. While humans are generally likely to adjust or even build personal beliefs in accordance with their desired goals (Kunda, 1990), we suggest one possible process to resolve the tension between personal norms and social normative expectation is that consumers incorporate the social normative content into their own belief system to strive for social approval and are, therefore, ultimately driven by their "motivated personal norms." Thus, this process blends into the indirect effect of social norms on behavioural intentions via personal norms.

Yet, another possible coping strategy is that consumers just go along with social expectations by merely performing the behaviour without changing personal beliefs. This, in turn, would contribute to a direct effect of social norms on behavioural intentions. We expect that occurrence of the latter is more likely for consumers that perceive the exertion of the respective behaviour as relatively easy. Since people are generally motivated to maintain a stable self-concept

(Epstein, 1973) a "just follow through" approach might be the default mode when the behaviour is perceived as easy to perform. However, when the behaviour is perceived as difficult, this coping strategy might be prevented, and changing one's beliefs might be more likely.

With regard to the self-efficacy theory and the related concept of generalized self-efficacy (Bandura, 1977; Gardner & Pierce, 1998), it is suggested that individuals differ in terms of general self-expectancy regarding the ability to successfully perform tasks in a variety of achievement situations (Gardner & Pierce, 1998). We argue that this self-expectation can facilitate the occurrence of a "just follow through" tendency as response mode to social normative expectations. Specifically, we expect individuals with high self-efficacy perception to be more likely to choose behavioural adaptation to the normative content (independent from the level of its internalization) as a strategy to maintain group adherence, and, therefore, induce a direct effect of social norms on behavioural intentions. For individuals with low generalized self-efficacy perception, we do not expect a direct effect since a (potential) "motivated" integration of a personal norm is captured within the mediation process. Therefore, we hypothesize:

**Hypothesis 2:** *For consumers with low generalized self-efficacy beliefs, no independent direct effect of perceived social norms for sustainability considerations on purchase intentions appears. For consumers with high generalized self-efficacy beliefs, personal norms only partially mediate the effect of perceived social norms for sustainability considerations on purchase intentions, and a direct effect remains.*

### 3.1.2 | Self-concept

In this section, we argue that an additional direct effect of perceived social norms for sustainability considerations might derive from two distinct motivational sources, depending on the consumers' self-concept. *Self-concept* can be understood as a multifaceted cognitive schema housing information relevant to the self (Markus & Wurf, 1987). A recent theory distinguishes three levels of chronic self-concepts, namely an individual self-concept and two distinct socially oriented self-concepts—relational and collective (Brewer & Gardner, 1996). A relational self-concept is based on the extent to which individuals incorporate self-definitions in terms of their connections and role relationships with significant others (Johnson, Selenta, & Lord, 2006). At this level, behaviour is driven by a desire to maintain favourable relationships with "specific" others, which, in turn, determine self-worth. Thus, being confronted with social normative expectations of significant others that are different from one's own normative beliefs might, in case of acting against it, pose a threat to the relationships where one's collective self-concept is partly based on. In turn, this can elicit an independent motivation to adhere to social normative expectations driven by a mere desire for *relationship maintenance*. Thus, we expect that consumers with strong relational self-concept might exhibit, next to a reasoning-based internalization

of a social norm, a motivation to adhere to their relational requirements by following the perceived social normative expectations of significant others, which can be independent from the level of internalization of the normative content itself.

**Hypothesis 3a:** *For consumers with a strong relational self-concept, personal norms only partially mediate the effect of perceived social norms on purchase intentions, and a direct effect remains.*

A collective self-concept revolves around social group membership and favourable inter-group comparisons that give rise to self-worth (Johnson et al., 2006; Xie, Bagozzi, & Grønhaug, 2015). In this case, being confronted with social normative expectations of significant others that are different from one's own normative beliefs might, in case of acting against it, pose a threat to membership within a group where one's self-concept is partly based on. In turn, this might elicit an independent motivation to adhere to social normative expectations by a mere desire for *membership maintenance*. Therefore, adhering to perceived social norms might then be motivated independently from internalization of the normative content to maintain group membership as a source of self-worth (Figure 2).

**Hypothesis 3b:** *For consumers with a strong collective self-concept, personal norms only partially mediate the effect of perceived social norms on purchase intentions, and a direct effect remains.*

## 3.2 | Methodology

### 3.2.1 | Participants and procedure

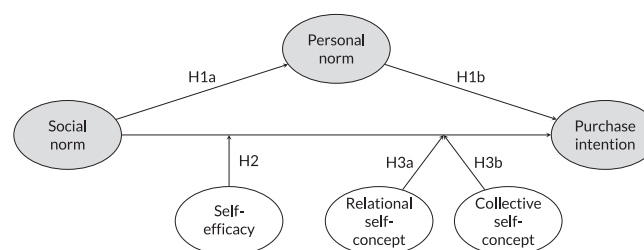
To test our first research model, we conducted an online experiment at a large university in Germany. A total of 306 participants ( $M_{age} = 25.35$ ; 45.8 % female) were recruited from a local subject pool in exchange for a five euro compensation. During the initial registration process, we already measured participants' self-efficacy and self-concept. To avoid discouragement of participation due to long duration of the registration, we reduced the amount of questions per participant. While all participants responded to the self-efficacy measure, only half answered the self-concept measures. Furthermore, to

prevent priming effects when responding to the personality scales, we only emailed the invitation link for the main study after 48 hours (not known to the participants). In the study, participants were first presented a product page for a shopping good—a camping chair, designed in a typical “Amazon”-way (see Appendix). Since this is a common product for younger people that is utilized in a variety of leisure activities, we expected our student sample to be familiar with it. To manipulate perceptions of socio-ecological performance, a fictional rating stating a high carbon footprint in the production of the product was included (for a similar approach, see Luchs, Naylor, Irwin, & Raghunathan, 2010).

Participants were then asked to judge different dimensions of product quality, sustainability and desirability. The sustainability rating was utilized as manipulation check for the perceived socio-ecological performance of the product and was measured on seven-point scales, with the items “environmentally harmful” versus “environmentally friendly,” “climate-damaging” versus “climate-friendly” and “ecologically short-sighted” versus “ecologically sustainable” (Cronbach's  $\alpha = .725$ ). The average sum score indicated that our sustainability manipulation was successful, and participants perceived the product as of poor socio-ecological performance ( $t$ -test vs. scale midpoint of four;  $t(305) = -31.92$ ,  $M = 2.15$ ,  $p < .001$ ). After reading information regarding the production mode of the product (not part of the present reporting), participants rated personal norms, perceived social norms to consider socio-ecological aspects within consumption decisions and purchase intentions regarding the product next to other statements. Lastly, participants responded to demographic measures and provided necessary information to receive the compensation.

### 3.2.2 | Measurement

To capture chronic self-efficacy, we employed the short scale of Beierlein, Kemper, Kovaleva, and Rammstedt (2013), consisting of three items that were measured with a seven-point response format ranging from 1 (*does not apply at all*) to 7 (*applies completely*). As measurements for self-concept, we employed the scales for relational and collective self-concept from Johnson et al. (2006) using a seven-point response format also ranging from 1 (*does not apply at all*) to 7 (*applies completely*). These scales were already employed in related contexts and exhibited satisfying levels of reliability (e.g., Xie et al., 2015). The measures for perceived social



**FIGURE 2** Research model of motivational paths for influences of perceived social norms (Study 1)



norms (Taylor & Todd, 1995a), purchase intentions (Perugini & Bagozzi, 2001) and personal norms (Lindenmeier, Schleier, & Priel, 2012) were all measured with a seven-point response format ranging from 1 (*totally disagree*) to 7 (*totally agree*).

To be able to explicitly capture the dependency of the social norm effect on behavioural intentions upon personal norm formation, we tied the content of the social norm and personal norm measurements explicitly to the studied normative context (i.e., consideration of carbon footprint within purchase decisions). Research within normative decision-making suggests that tuning normative beliefs towards particular intentions will generate a higher predictive power of the analysis (Harland, Staats, & Wilke, 2007; Steg & de Groot, 2010). We also assessed perceived product desirability as a control variable with a seven-point response format, with the items “unattractive” versus “attractive,” “unsightly” versus “handsome” and “undesirable” versus “desirable” to isolate social normative effects from individual product perceptions.

In collecting responses to the items for personal norms and purchase intentions, we also addressed the possibility that participants might be motivated to present themselves in a positive light since ethical issues are involved (Kruger & Gilovich, 2004). We suspected that the tendencies of social desirability might interfere with the proposed relationships investigated in this study. To that end, we employed a projective technique (i.e., indirect questioning) to control for social desirable responding (SDR), where participants are asked to respond on behalf of an abstract referent group instead of on behalf of themselves (Fisher, 1993). While SDR scales prevail to control for social desirability biases in consumer behaviour literature (Steenkamp, de Jong, & Baumgartner, 2010), they are often contested because of difficulties in separating valid personality content in the SDR measures from the bias that they intend to measure due to its reliance on ex post analysis (de Jong, Pieters, & Fox, 2010; Paulhus, 2002).

However, the indirect questioning technique prevents SDR tendencies *ex ante* by utilizing humans propensity to respond more truthfully when being able to project own psychological states that are potentially undesirable on another entity (e.g., on a referent group) (Holmes, 1968). Previous research demonstrated its ability to effectively control for SDR tendencies (Fisher & Tellis, 1998) and showcased its benefits within research on SDR sensitive issues in the context of sustainable consumption (Luchs et al., 2010). Therefore, only half of the respondents were asked to rate the measures of personal norms and purchase intentions on behalf of themselves (direct-question type condition), while the other half was asked to rate these measures on behalf of a “typical German consumer” (indirect-question type condition).

### 3.3 | Results and discussion

#### 3.3.1 | Total effect and mediation

To test our first hypotheses, we regressed purchase intention for a consumption option with poor socio-ecological performance on perceived social norms, with perceived product desirability as covariate and question type as moderator to control for potential

social desirability response biases. The overall model was significant ( $F(301,4) = 54.68, p < .001$ ), and the question type had no significant influence on the relationship between perceived social norms and purchase intentions ( $\beta = .15, p = .146$ ). However, the coefficient for regressing purchase intentions on perceived social norms was, as expected, negative and significant ( $\beta = -.33, p = .048$ ). This means that participants who reported higher perceived social norms also reported lower intentions to purchase the product with poor socio-ecological performance, supporting our Hypothesis 1a. These results support the notion that perceived social norms for sustainable consumption reduce intentions towards consumption options perceived as having poor socio-ecological performance.

Furthermore, to test the role of personal norms as mediator in the relationship between perceived social norms and purchase intentions, we used SPSS PROCESS v3.4 (Hayes, 2018, model 4) with bias-corrected bootstrapping ( $N = 5,000$ ) to generate 95% confidence intervals (CIs). We entered perceived social norms as independent variable (X), purchase intentions as dependent variable (Y) and personal norms as mediator (M). The overall model was significant ( $F(302,3) = 37.18, p < .001$ ) and, as expected, personal norms mediated the effect of perceived social norms on purchase intentions (index = .06, 95% CI, .12 to .01). In addition, no direct effect of perceived social norms remained when personal norms were entered as mediator ( $\beta = -.07, p = .245$ ), suggesting full mediation (Zhao, Lynch, & Chen, 2010). Therefore, these results support our Hypothesis 1b. Similarly, question type had no influence on the (mediated) relationship between perceived social norms and purchase intentions ( $\beta = -.03, p = .708$ ).

The results expose the dependency of social normative influences on purchase intentions with regard to a consumption option with poor socio-ecological performance, on the level of internalization of the normative content into the personal belief system. Particularly, no effect of perceived social norms on purchase intentions remained when entering personal norms as the mediating variable, which indicates that effects of perceived social norms on purchase intentions only occur when also being internalized by the consumer.

#### 3.3.2 | Generalized self-efficacy

Next, to test whether in respondents with high self-efficacy, perceived social norms have an independent direct effect on purchase intentions (aside personal norms), we entered self-efficacy into the mediation model as moderator variable of the direct relationship between perceived social norms and purchase intentions (Hayes, 2018, model 5). As expected, self-efficacy moderated the direct effect of perceived social norms on purchase intentions ( $F(299,1) = 4.10, p < .044$ ). This means that while the indirect effect of perceived social norms on purchase intentions via personal norms persists (index = .06, 95% CI, .11 to .01), for participants with increasing levels of generalized self-efficacy, there is a significant negative influence ( $\beta = -.12, p = .044$ ) on purchase intentions, aside from the mediator personal norms and after controlling for product desirability. Therefore, this supports our Hypothesis 2.

The results support the notion that when accounting for generalized self-efficacy, an independent influential pathway from perceived social norms on purchase intentions arises. Particularly, participants with high levels of self-efficacy and high levels of perceived social norms reduced their purchase intentions independently from the level of internalization of the normative content.

### 3.3.3 | Self-concept

In the same way, we tested our moderating hypotheses for both self-concepts. First, we entered relational self-concept into the mediation model. However, contrary to our expectation, relational self-concept did not influence the (insignificant) direct effect of perceived social norms on purchase intentions ( $F(149,1) = .26, p = .612$ ). This means that full mediation remained regardless of the level of relational self-concept, and no additional impact over the reason-based personal norms appeared due to perceived social norms. Therefore, Hypothesis 3a is not supported.

However, after entering collective self-concept in the mediation model, we found a significant moderation of the direct effect of perceived social norms on purchase intentions ( $F(143,1) = 5.21, p = .024$ ). This means that for participants with higher levels of collective self-concept, there is a significant negative influence of perceived social norms on purchase intentions ( $\beta = -.21, p = .024$ ), aside from mediation via personal norms and after controlling for product desirability. Therefore, Hypothesis 3b is supported.

These results demonstrate that accounting for self-concept can uncover independent influential pathways from perceived social norms to purchase intentions. However, only a strong collective self-concept yielded such an independent pathway, while strong support for a relational self-concept did not. These results propose that a self-concept revolving around adherence to relational requirements does not produce a relevant motivational force independent from internalization of the normative content. However, a self-concept based on social group membership exerts a relevant motivational force independent from internalization of the normative content.

## 4 | STUDY 2: MOTIVATIONAL SOURCES OF SOCIAL NORM COMMUNICATION

While the first study investigated the motivational mechanisms regarding influences of social normative beliefs on sustainable consumer behaviour, we now turn to the motivational sources through which social normative communication can exert its influence on sustainable consumer behaviour. In doing so, we examine relevant contextual factors that might moderate the influence of different message frames that are frequently used in social norm communication—descriptive versus injunctive message frames—on sustainable consumer behaviour. Since communication generally involves some form of sender and recipient embedded in specific contexts (Bowman & Targowski, 1987; Shannon, 1948), there is vast

potential for intervening factors determining the effectiveness of such communication activities. Therefore, we focus on sender-specific and recipient-specific context factors that might influence the relative effectiveness of descriptive versus injunctive social normative messages in encouraging sustainable consumer behaviour.

### 4.1 | Sender-specific context factors

The conception of reference groups proposes the classification of two distinct types of reference persons (e.g., Burnkrant & Cousineau, 1975; Deutsch & Gerard, 1955), which are *normative referents* marked by direct interaction, and *comparative referents* where direct communication is lacking (Childers & Rao, 1992). Cocanougher and Bruce (1971) specified that the first type of reference persons is socially *proximal*, while the second is socially *distant*. We assume the kind of reference person (socially proximal vs. socially distant) works as a moderator regarding the effectiveness of descriptive versus injunctive message frames in encouraging sustainable consumer behaviour. We propose that socially distant reference persons need to explicitly communicate the normative requirements regarding a behaviour within the normative message to make the normative behavioural implications salient to the recipient. Since injunctive norms are characterized by containing explicit normative information (Cialdini et al., 1991), we assume them to have greater influence on sustainable consumption behaviour than descriptive message frames when being communicated by a distant reference person. This can be justified by the fact that people often use distant reference persons to compare themselves with (Childers & Rao, 1992). Since proximal reference persons convey norms and values through possible direct interactions, they do not necessarily need normative information in a normative message. Therefore, we suspect that there is no difference between injunctively and descriptively framed messages for proximal reference persons. In accordance with the hitherto suggested research, we hypothesize:

**Hypothesis 4a:** *For a social norm submitted by a distant reference person, the purchase intention in the injunctive message frame condition is higher compared to the descriptive message frame condition.*

**Hypothesis 4b:** *For a social norm submitted by a proximal reference person, the purchase intention in the descriptive message frame condition is higher compared to the injunctive message frame condition.*

### 4.2 | Recipient-specific context factors

When facing the recipient of normative messages, we focus in this study on two individual characteristics (i.e., gender and pro-sustainability world views) due to three reasons: first, they are relatively stable (Dunlap, van Liere, Mertig, & Jones, 2000; Stern, Dietz,



Abel, Guagnano, & Kalof, 1999; Thøgersen & Ölander, 2002); second, they are influential in (sustainable) consumer behaviour (Dunlap et al., 2000; Luchs & Mooradian, 2012; Pinto, Herter, Rossi, & Borges, 2014; Stern et al., 1999; Wood & Eagly, 2012); third, they are often considered by marketers for consumer segmentation and targeting (e.g., for gender, see Barber, Taylor, & Strick, 2010; Kraft & Weber, 2012; Lee, Kim, Ko, & Sagas, 2011; Mokhlis, 2009; Yelkur & Chakrabarty, 2006; for pro-sustainability world views, see do Paco & Raposo, 2009; do Paco, Raposo, & Filho, 2009; Mostafa, 2009; Straghan & Roberts, 1999; Thompson, Anderson, Hansen, & Kahle, 2010; Zografos & Allcroft, 2007). Furthermore, research frequently evidences gender differences (e.g., Hall, 1978; Hartevelde, Dahlberg, Kokkonen, & van der Brug, 2019; Karjaluo, Riquelme, & Rios, 2010; López-Mosquera, 2016; Morris, Venkatesh, & Ackerman, 2005) and pro-sustainability world view effects (e.g., Bertrandias & Elgaaid-Gambier, 2014; Haws, Winterich, & Naylor, 2014) regarding susceptibility to and processing of social (normative) information, and cues with regard to (consumer) behaviour. Thus, we examine the moderating effects of both gender and pro-sustainability world views of consumers on the influence of social norms on their purchase intention.

#### 4.2.1 | Gender

Based on the biosocial theory of sex differences and similarities (Wood & Eagly, 2002), gender differences jointly result from different demands on men and women with regard to reproductive success (evolutionary-biological perspective) and their roles in society (socio-constructivistic perspective). It is assumed that different roles of each sex are facilitated by sex-typed social expectations pertaining to the respective tasks each sex typically has to perform within society (Wood & Eagly, 2012). In this regard, women are more likely to take on chores, raise children and are thus attributed with characteristics such as empathy, care and relationship. On the other hand, men tend to play roles that serve to care for the family and are, therefore, associated with characteristics, such as factual orientation, independence and assertiveness (Eagly & Wood, 2016; Wood & Eagly, 2002). Thus, women often incorporate a more collectivistic-oriented self, reflecting in higher importance of relationships with others where others are also part of the self, while men often incorporate a more individualistic-oriented self in which others are less a part of (Clark & Kashima, 2007; Kashima et al., 1995; Madson & Trafimow, 2001).

Furthermore, on the one hand, the literature on gender differences shows evidence that women are more attentive to social cues and feedback of others than men (Venkatesh & Morris, 2000; Williams & Best, 1982), while, on the other hand, some research suggests that women and men are equally attentive to social cues, yet women are more responsive (Roberts, 1991; Venkatesh & Morris, 2000). Nevertheless, it is stated that men are less likely to conform to social cues pertaining to the majority opinion than women (Crawford, Chaffin, & Fitton, 1995; Eagly, 1978; Maccoby & Jacklin, 1974). Therefore, we

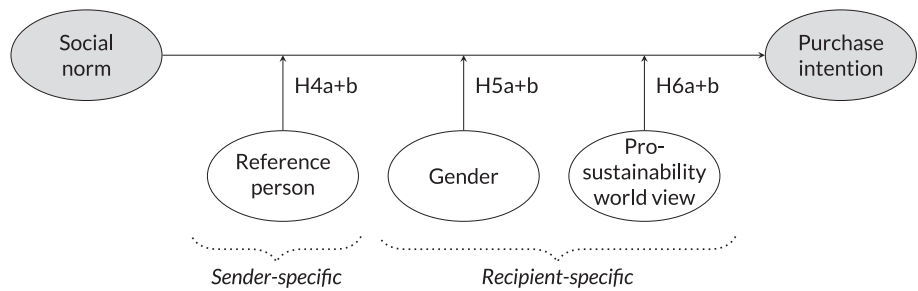
assume that when men encounter a social normative message entailing implicit information about a majority opinion (i.e., descriptive norm frame), its influence on behaviour will be limited. However, when the social normative message explicitly states the normative expectations to the individual (i.e., injunctive message frame), it triggers the individualistic self of men and, in turn, might lead to stronger behavioural influences. For women, we assume no differences in their response to either social normative message frames, since declines in responses to descriptive message frames (as assumed for men) are cushioned by a "majority opinion effect." Thus, we hypothesize:

**Hypothesis 5a:** *For men, the purchase intention is lower in the descriptive than in the injunctive message frame condition.*

**Hypothesis 5b:** *For women, there is no difference between the two normative message frames on purchase intention.*

#### 4.2.2 | Pro-sustainability world view

In line with the theory of mind (Bradford, Jentzsch, & Gomez, 2015; Leslie, Friedman, & German, 2004) consumers should be likely to infer underlying world views and values of the submitter from the content of the normative messages they transmit. Therefore, when an individual is approached with a social normative message regarding sustainability considerations within purchase decisions, this individual should be likely to infer that the submitter endorses higher levels of caring for the environment and future generations (Antonetti & Maklan, 2016). Thus, when there is a perceived discrepancy between the inferred pro-sustainability world view of a significant other and the one held by the recipient, individuals can be expected to be motivated to adapt to the norm of the significant other to maintain feelings of belonging and self-worth (e.g., Hystad & Carpianno, 2012). We further assume that injunctive normative message frames lead to inferences of higher pro-sustainability world views than descriptive normative message frames, because the first explicitly makes salient what the submitters value, whereas the second only provides information about others and does not necessarily entail a basis for inferences of the submitter's pro-sustainability world view (Loschelder et al., 2019). Thus, when recipients of a social normative message endorse low pro-sustainability world views, we assume that they are more influenced to follow the normative expectation when it is framed injunctively than when it is framed descriptively, because they infer a higher pro-sustainability world view from the injunctive message frame. This leads to perceptions of a higher discrepancy between the pro-sustainability world view of the submitter and the recipient than when the message is framed descriptively. However, when recipients themselves endorse high pro-sustainability world views, the type of message frame should not differ in its influence on purchase intentions for a sustainably manufactured product, since the motivational effect of the perceived discrepancy is attenuated (Figure 3). Therefore, the following hypotheses are proposed:



**FIGURE 3** Research model of motivational sources of social norm communication (Study 2)

**Hypothesis 6a:** For consumers with low pro-sustainability world views, the purchase intention is higher in the injunctive than in the descriptive message frame condition.

**Hypothesis 6b:** For consumers with high pro-sustainability world views, no difference between the two normative message frames on purchase intention occurs.

Please think of a person who does not belong to your close social environment but whose opinion regarding styling questions is of relevance to you (e.g., sport stars, actors, or social media stars, among others). Please fill in the name of the person you are thinking of: \_\_\_\_\_.

To retrospectively evaluate whether the manipulation was successful, we asked the participants to state which function the named person has to them by using the following clauses depending on the respective treatment condition (i.e., proximal [distant]):

Please fill in, how you are related to the person you named before (e.g., your mother, father, or friend, among others) [(e.g., idol or role model in sports, as a star or actor, among others)]: \_\_\_\_\_.

Afterwards, a text passage affiliated, introducing the following hypothetical purchase situation in which the participants should put themselves in:

Please imagine: You are sitting at home in front of your personal computer. Thereby, you are quarrying for new shoes. Your old shoes, a pair of sneakers from label X [traditional brand], pleased you a lot, wherefore you want to buy such pair of shoes again. You come across the website and the related online shop of brand Y [sustainable brand]. It is a manufacturer of sustainably produced sneakers, which closely resembles your old shoes that need to be replaced. In doing so, you remember a clause [name of the reference person] once said:

We chose a shoe as a product stimulus<sup>1</sup>, because social norms can be expected to be especially relevant for those purchase intentions, since its usage is publicly visible. Thus, for studying differences between social normative message types, a shoe seemed suitable.

The person, the participants specified in the preparation step of the experiment, served as the communicator of the social normative statement. The content was either stated injunctively or descriptively. The injunctive normative message frame was verbalized as expressing what one is expected to do. The descriptive normative message frame was formulated as a dynamic descriptive norm (Sparkman & Walton, 2017), expressing what increasingly more people are doing to indicate an

## 4.3 | Methodology

### 4.3.1 | Participants and procedure

One hundred and forty students at a public university in Germany participated in the online study. For recruiting the participants, a university institution was utilized, whence a convenience sampling out of a given subject pool resulted. Due to the source through which participants were recruited, the experimental study needed to be conducted in German language. In editing the data, we cleaned up the dataset by deleting all participants who—according to their own statements—could not vividly visualize the used hypothetical purchase situation. Values from 1 (*very bad*) to 4 (*neither bad nor good*) were deleted. Thus, the final analysed dataset consisted of 106 participants (52.4% female;  $M_{age} = 26.11$  years;  $SD_{age} = 6.23$ ).

An experimental study with four treatment conditions (proximal vs. distant reference person  $\times$  injunctive vs. descriptive norm) was utilized to test the research hypotheses. The allocation of the participants ensued randomly to one of the conditions, following a between-subject design.

First, participants needed to designate one reference person, depending on the treatment condition they were assigned to. Those in the proximal condition received the following instruction:

Please think of a related person with whom you are regularly in contact with and whose opinion regarding styling questions is of relevance to you (e.g., mother, father, siblings, partner, or close friend, among others). Please fill in the name of the person you are thinking of: \_\_\_\_\_.

On the other hand, participants in the distant condition group got the instruction below:

advancing of the norm over time (Loschelder et al., 2019). This is a rather novel approach to deliver descriptive normative content and simultaneously circumvent the often mentioned drawbacks of static descriptive norms (i.e., stating what a specified amount of people is doing), which can cause undesired boomerang effects (Cialdini, 2003). The clause a subject received was depending on a randomized allocation to the injunctive or descriptive condition. Those who participated within the injunctive condition group got the sentence:

I think apart from the optics you should also pay attention to the production conditions and buy shoes, which are sustainably manufactured.

On the other hand, participants in the descriptive condition group received the normative statement:

Meanwhile, more and more students are buying sustainably produced shoes.

Afterwards, the participants were asked to rate their purchase intention as well as some questions about the situation and the reference person.

#### 4.3.2 | Measurement

We measured the dependent variable purchase intention for the sustainable product by using a multi-item scale consisting of four indicators. The pro-sustainability world view was measured using the new ecological paradigm (Dunlap et al., 2000) as a proxy construct. The validating factor analyses as well as the average variance extracted indices (AVE), and Cronbach's  $\alpha$  indicated a satisfying scale performance (see Appendix for indicator wording and values). The socio-demographic variables were compiled using an open entry question for age and a single-choice question for gender. Furthermore, participants needed to state if they could well imagine that the reference person they named within the previous step of preparing the treatment would say a clause like the one used in the stimulus. We also measured perceived behavioural control using items from Taylor and Todd (1995b) to be able to isolate (potential) effects of the social normative messages from personal efficacy beliefs. Finally, we used a set of control variables to check if participants conducted the study attentively and thoughtfully. These included whether the participants could rightly remember the shoe brand displayed in the stimulus and if they accomplished it alone as an indicator for undisturbed processing.

### 4.4 | Results and discussion

#### 4.4.1 | Manipulation check

To check whether our manipulation was successful, we first examined the names of the reference persons filled in by the participants. All

named reference persons in both groups (proximal vs. distant condition) met the criteria mentioned in the task description of the study. In the proximal condition, persons belonging to the groups of parents, siblings, partners and friends were entered. Distant reference persons relevant to participants' choice of clothes were actors (e.g., Leonardo DiCaprio or Jennifer Lawrence), singers (e.g., Ariana Grande, Kurt Cobain or Eminem), sports heroes (e.g., Kobe Bryant or David Beckham) and celebrities (e.g., Ariel Charnes, Heidi Klum or Victoria Beckham). Thus, we can assume that the manipulation was successful.

#### 4.4.2 | Type of social norm and reference person

First, we ensured that there were no differences in preferences for the conventional brand by comparing evaluations and preferences towards the brand across all four groups. No significant differences between the treatment groups with regard to evaluation ( $t_{RP}(104) = .38, p = .705$ ;  $t_{SN}(104) = .75, p = .458$ ) and preference ( $t_{RP}(104) = .87, p = .388$ ;  $t_{SN}(104) = -.36, p = .719$ ), for the conventional brand appeared across all four groups. We further checked if there were variations concerning both the probability ( $t_{RP}(104) = 1.06, p = .291$ ;  $t_{SN}(104) = -1.69, p = .093$ ) and imaginability ( $t_{RP}(104) = 1.00, p = .322$ ;  $t_{SN}(104) = -1.57, p = .120$ ) of the reference person communicating the normative statement, yielding no significant differences. This indicates that both proximal and distant reference persons were perceived as plausible submitters of a normative statement in the research setting.

Next, we conducted a two-way ANCOVA with type of reference person and type of social norm as independent variables, purchase intention for the sustainable product as dependent variable and perceived behavioural control as covariate (Hair, Black, Babin, Anderson, & Tatham, 2006). The type of reference person moderated the influence of social norm type on the purchase intention for the sustainable product ( $F(104,1) = 4.77, p = .031$ ). In addition, we conducted planned contrasts, revealing that the mean for purchase intention was significantly lower in the descriptive ( $M_{descriptive} = 4.03$ ) than in the injunctive norm condition ( $M_{injunctive} = 4.76$ ) when being communicated by a distant submitter ( $F(101,1) = 4.07, p = .046, d = .53$ ). In contrast, when being communicated by a proximal submitter, no significant differences ( $F(101,1) = .81, p = .371$ ) occurred when comparing the means for purchase intention in the descriptive ( $M_{descriptive} = 5.09$ ) versus the injunctive norm condition ( $M_{injunctive} = 4.69$ ) (see Figure 4). These results support Hypothesis 4a, stating that a social norm submitted by a distant reference person leads to higher purchase intentions in the injunctive than in the descriptive message frame condition. However, Hypothesis 4b, which stated that a social norm submitted by a proximal reference person leads to higher purchase intentions in the descriptive than in the injunctive message frame condition, is not supported. Furthermore, the descriptive norm impacts the purchase intention significantly more ( $F(101,1) = 7.31, p = .008, d = 0.68$ ) when being communicated by a proximal ( $M = 5.09$ ) than a distant ( $M = 4.03$ ) reference person.

These results demonstrate that when being communicated by a distant reference person, a descriptive normative message frame is less effective in raising purchase intentions towards the sustainable product compared to an injunctive normative message frame. However, when being communicated by a proximal reference person, no differences in the effectiveness in raising purchase intentions towards the sustainable product were found. Interestingly, both normative message frames in the proximal reference person condition were equally effective as the injunctive normative message frame in the distant reference person condition ( $p > .656$ ). That means the combination of a descriptive norm with a distant reference person as a submitter is inferior with respect to effectiveness to motivate sustainable purchase intentions, while all other combinations are equally effective.

#### 4.4.3 | Type of social norm and gender

First, we controlled for the possibility, that one gender is more prone to sustainability issues than the other. The results show that there was no significant difference between the sustainable values of women and men ( $t(101) = .23$ ;  $p = .815$ ). To examine the influence of the recipient's gender, we conducted a two-way ANCOVA with type of social norm and gender as independent variables and purchase intention for the sustainable product as dependent variable, as well as perceived behavioural control as covariate.

There was a significant interaction effect between gender and normative message frame on purchase intention ( $F(98, 4) = 3.77$ ,  $p = .05$ ). Particularly, while there was no significant difference between the influential effect of injunctive ( $M = 4.70$ ) and descriptive ( $M = 5.08$ ) norms for women ( $F(98, 1) = .91$ ,  $p = .342$ ), there was a marginal significant difference between the injunctive ( $M_{injunctive} = 4.96$ ) and descriptive ( $M_{descriptive} = 4.35$ ) normative message frame ( $F(98, 1) = 3.09$ ,  $p = .082$ ,  $d = .47$ ) for men. Furthermore, for injunctive norms, no significant difference between purchase intentions of women ( $M = 4.70$ ) and men ( $M = 4.96$ ) occurred ( $F(98, 1) = .57$ ,  $p = .452$ ). In addition, descriptive norms performed significantly better ( $F(98, 1) = 4.16$ ,  $p = .044$ ,  $d = .47$ ), when the recipient is a woman ( $M = 5.08$ ) instead of a man ( $M = 4.35$ ). Therefore, the results corroborated our hypotheses, which

stated that, for men, the purchase intention is lower in the descriptive than in the injunctive message frame condition (Hypothesis 5a), while for women, no difference between the two normative message frames on purchase intention occurred (Hypothesis 5b) (Figure 5).

Our results show that when communicated to a male, an injunctive normative message frame was more effective in raising purchase intentions for the sustainable product than a descriptive message frame. However, no significant difference regarding the effectiveness between the two normative message frames occurred for women.

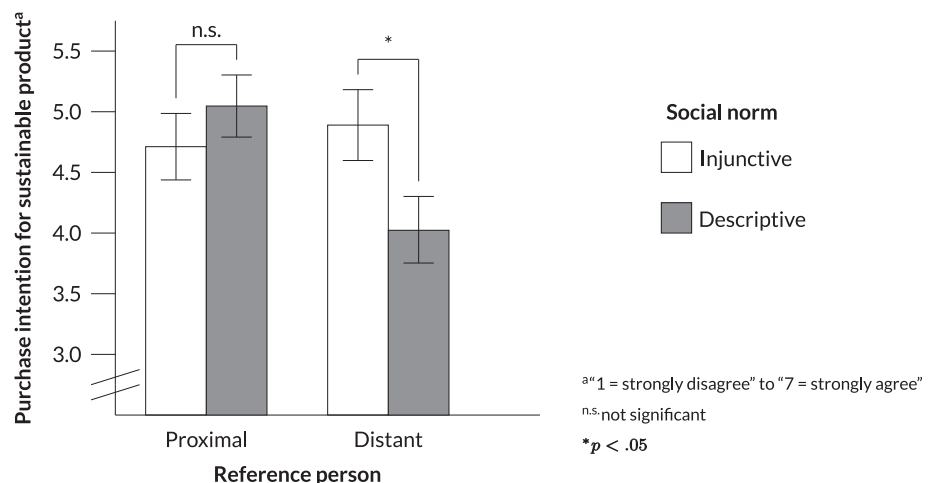
#### 4.4.4 | Type of social norm and pro-sustainability world view

To test the role of pro-sustainability world view as a moderator in the relationship between normative message frame and purchase intentions we utilized SPSS PROCESS v3.4 (Hayes, 2018, model 1). We entered the intention to buy the sustainable product as dependent variable (Y) and social norm as independent variable (X). In addition, pro-sustainability world view was entered as moderator (W) and perceived behavioural control as covariate. The overall model was marginally significant ( $F(104,4) = 2.24$ ,  $p = .070$ ). The results showed no significant interaction between pro-sustainability world view and normative message frame on purchase intention ( $F(101,1) = 1.67$ ,  $p = .200$ ). Thus, Hypothesis 6a and 6b were rejected. However, the sample does not show high variation with regard to pro-sustainability world view ( $M = 5.73$ ;  $SD = .87$ ; 73.6% of participants have a pro-sustainability world view score of more than 5.0), which is a restriction to this result.

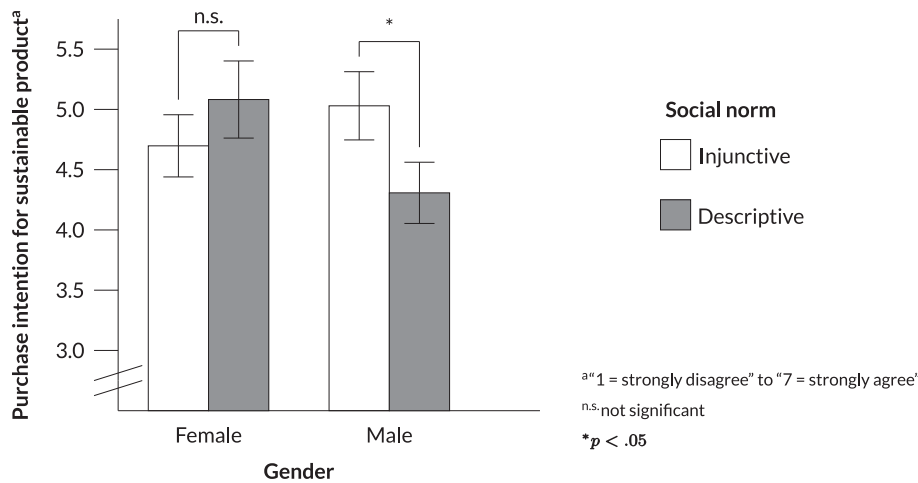
## 5 | IMPLICATIONS

### 5.1 | Academic implications

Our results add to the literature on social normative influences in the domain of sustainable consumption. While most studies on social influences with respect to sustainable consumption only consider the



**FIGURE 4** Means for purchase intention for sustainable product ( $n = 106$ )



**FIGURE 5** Means for purchase intention for sustainable product (n = 103)

overall influences, our research contributes to the stream of literature by gaining a deeper understanding of when and how these influences actually occur. To this end, our research reveals specific contingencies and mechanisms that determine both the influence of social normative beliefs as well as of social normative communication on sustainable consumer behaviour. First, our results suggest that the influence of perceived social norms on behavioural intentions regarding sustainable consumption is fully dependent upon the level of internalization of its normative content as a personal norm. Second, our findings highlight that there are, under certain conditions, additional influencing routes aside from personal norms, when consumers possess high self-efficacy beliefs and a strong collective self-concept. This particularly deepens our understanding regarding the major proposition of the theory of planned behaviour about influences of subjective norms on behavioural intentions in the context of sustainable consumption. To fully comprehend the influences of social normative expectations on sustainable behaviour, academics are advised to consider the pivotal role of personal norms that mediate this relationship. In addition, our study highlights the importance of considering differences in personal traits, which might account for the specific mechanism through which social norms unfold their influences on behaviour. Moreover, our research contributes to the stream of literature on social norm communication by providing a deeper understanding about recipient- and sender-specific contingencies that determine the effectiveness of different social normative communication approaches. Particularly, our results suggest that the relative influence of social normative message frames is dependent upon the social distance of the sender, and upon the gender of the recipient. Descriptive norms decline in effectiveness when, first, the sender is perceived as a distant reference person, and second, for male recipients.

## 5.2 | Managerial implications

The findings of study 1 provide insights for marketing managers and public policy agents who aim at utilizing social normative communication as a means to motivate sustainable consumption. First, our results

suggest that perceived social norms are unlikely to exert influence on consumers' sustainable purchase intentions when the normative content is not part of the internal belief system of the recipient. Therefore, social norm campaigns might rather be effective as complementary reinforcements to persuasion activities that target the individual belief system of consumers. However, our research opens up paths to additional possibilities for utilizing social norm communication via targeting recipients with high self-efficacy perceptions or strong collective self-schemas. Therefore, it is beneficial for marketing managers to take these properties into account within social normative communication campaigns as criteria for segmenting and selecting target groups. These criteria can be traced back to personality structures, which are often the basis of classic target group classifications and lifestyle models, for example, the VALS-Framework (Kahle, Beatty, & Homer, 1986; Mitchell, 1983) or the Roper Consumer Styles (Peichl, 2014). Thus, incorporating these criteria can increase the overall effectiveness of social normative campaigns.

In addition, the results of study 2 indicate that using descriptive normative messages related to purchasing sustainable products can be potentially ineffective when the submitter is perceived as a distant reference person. This is especially relevant for social normative campaigns since they often rely on testimonials that might not be perceived as members of proximal social reference groups. To that end, these findings suggest that when employing descriptive normative messages, it should be ensured that the perceived social distance between utilized testimonials and target groups is minimized. For example, one could use testimonials with typical characteristics, for example, in terms of clothing style or typical behaviour, that match those of the respective target groups, to reduce social distance. However, based on our results, it appears most reasonable to frame social normative messages injunctively since they perform on equal levels for both proximally and distantly perceived referent groups. They additionally perform equally well for male and female, while descriptive normative frames decline in effectiveness for males. Hence our results suggest that although descriptive norms are often regarded as a more effective and yet subtle way to stimulate sustainable behaviour, in context of sustainable consumption, this view is challenged

and injunctive normative messages were ahead in regard of effectiveness, especially concerning social distance stability.

## 6 | LIMITATIONS

However, there are limitations that should be mentioned. First, both studies were conducted for one particular product each under laboratory conditions that might provide results differing from real market fields or from other product contexts and might induce unobserved demanding effects. Second, both studies relied on convenience sampling with younger and more educated participants than the general public; thus, this might concur with a particular sensitivity for sustainability-related issues. Third, our behavioural items were only measures for intentions that often overstate actual sustainable behaviour. Fourth, we only examined subjects who lived in Germany; and it may well be that in countries with different cultural backgrounds, the moral principles underlying sustainable consumption are different and thus effects of social normative influences are stronger or weaker. The same applies to the effect of reference persons. Lastly, the relatively small sample size of Study 2 could be subject to discussion, but since this study aimed to explore an effect of medium or large size, the small sample size is sufficient. The determined effect size is comparable to the results of the study by Goldstein et al. (2008), who worked with a large sample ( $n = 1,595$ ) and can, therefore, be appraised as credible. However, the results should be viewed with some caution. A replica of the study with a larger sample is desirable.

## 7 | CONCLUSION AND FUTURE RESEARCH

The current research suggests that investigating the processes and boundary conditions underlying social normative influences in the context of sustainable consumption might be a fruitful area to further develop motivational strategies for sustainable consumption based on social normative messages. Unlike most studies in this context that primarily examined the direct influence of social norms on purchasing behaviour, we were able to show that influences of social norms on sustainable consumption are mediated by personal norms. Furthermore, our results depict that, especially for people with high self-efficacy and high collective self-concept, there is also a direct influence. Otherwise, the indirect motivational path of influence of social norms via personal norms is of central importance. We also established evidence that the effectiveness of different types of normative communication (injunctive vs. descriptive message frame) in raising intentions to buy sustainable products is moderated by the perceived social distance of the message source (socially proximal vs. distant), gender of the recipient, but not of the pro-sustainability world view of the recipient.

Based on our results, we suggest that it is worthwhile to look more closely at the interplay between social normative message types and various context-specific factors in research on sustainable consumer behaviour. For instance, the age of the recipient, product type,

situation in which a recipient receives the normative message or medium through which the normative message is conveyed could moderate the impact of social norms on behaviour. Specifically, since most research on social normative communication does not consider potential interactions between sender and recipient of social normative messages, in times where sender-recipient interactions are typical on social media, this might be a fruitful stream of research to advance our understanding of effective approaches to social norm communication. It is also interesting to further disentangle the mechanisms and contingencies of social normative influences with regard to products that are used in public versus private consumption contexts. Furthermore, the influence of social norms could differ between different cultural backgrounds, whence this should be the subject of future research. The moderating effect shown by reference persons can be subject to cultural differences as well. It would also be interesting to investigate to what extent the social normative influences also depend on shopping motivations; for example, when buying products for other people as a gift or within family purchases.

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## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## ENDNOTES

<sup>1</sup> Product image used in the stimuli can be obtained from the authors upon request.

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## APPENDIX



Pareedo camping chair "Relax" with foldable footrest and cup holder (various colors available)

by Pareedo



42 Ratings

Price: EUR 19,95

FREE shipping

Delivery approx. one week

- Robust and reinforced steel frame
- Easy to transport in the supplied carrying bag (weight approx. 4 kg)



#### CO<sub>2</sub> Balance of Production\*:



The manufacture of this product releases approximately 40 kg of carbon dioxide (CO<sub>2</sub>) per unit into the atmosphere.

The CO<sub>2</sub> pollution caused by the production of this product is therefore **above average**.

(\*tested by the Öko-Test Foundation)

**FIGURE A1** Stimuli study 1 [Colour figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

**TABLE A1** Measurements study 1

Construct/indicators	Factor loadings	AVE	Cronbach's $\alpha$
Self-efficacy <sup>a</sup>			
I can rely on my own abilities in difficult situations.	.802	.674	0.767
I am able to solve most problems on my own.	.840		
I can usually solve even challenging and complex tasks well.	.820		
Relational self-concept <sup>b</sup>			
If a friend was having a personal problem, I would help him/her even if it meant sacrificing my time or money.	.666	.523	0.744
I value friends who are caring, empathic individuals.	.766		
It is important to me that I uphold my commitments to significant people in my life.	.751		
Caring deeply about another person such as a close friend or relative is important to me.	.778		
Knowing that a close other acknowledges and values the role that I play in their life makes me feel like a worthwhile person.	.645		
Collective self-concept <sup>b</sup>			
Making a lasting contribution to groups that I belong to, such as my work organization, is very important to me.	.731	.451	0.670
When I become involved in a group project, I do my best to ensure its success.	.748		
I feel great pride when my team or group does well, even if I'm not the main reason for its success.	.692		
I would be honoured if I were chosen by an organization or club that I belong to, to represent them at a conference or meeting.	.664		
When I'm part of a team, I am concerned about the group as a whole instead of whether individual team members like me or whether I like them.	.491		
Personal norm <sup>c</sup>			
The CO <sub>2</sub> emissions caused by the manufacture of products should be as low as possible.	.877	.696	0.767
The CO <sub>2</sub> emissions caused by the manufacture of products should be minimal.	.870		
The CO <sub>2</sub> emissions caused by the manufacture of products should be ecologically sustainable.	.750		
Perceived social norm <sup>d</sup>			
Most people who are important to me think that I should pay attention to a good carbon footprint when buying products.	—	.876	0.866
The people who influence my decisions think that I should pay attention to a good carbon footprint when buying products.	—		
Purchase intention <sup>e</sup>			
I would buy the camping chair.	—	.887	0.874
It is likely that I will buy the camping chair.	—		

<sup>a</sup>Beierlein et al., 2013, p. 23.<sup>b</sup>Xie et al., 2015, p. 343.<sup>c</sup>Lindenmeier et al., 2012, p. 1371.<sup>d</sup>Taylor & Todd, 1995a, p. 153–154.<sup>e</sup>Perugini & Bagozzi, 2001, p. 87.



**TABLE A2** Measurements study 2

Construct/indicators	Factor loadings	AVE	Cronbach's $\alpha$
Purchase intention <sup>a</sup>			
I would buy the sustainably manufactured sneaker.	.913	.841	.937
I would consider buying the sustainably manufactured sneaker.	.875		
I would expect to buy the sustainably manufactured sneaker.	.952		
I would plan to buy the sustainably manufactured sneaker.	.927		
Perceived Behavioural control <sup>b</sup>			
I would be able to buy a sustainable shoe.	.899	.700	.774
Buying a sustainably manufactured shoe is entirely within my control.	.739		
I have the resources and the knowledge and the ability to buy a sustainable manufactured shoe.	.861		
New ecological paradigm <sup>c</sup>			
The so-called ecological crisis facing humankind has been greatly exaggerated. (R)	.641	.450	.690
The earth is like a spaceship with limited room and resources.	.674		
If things continue on their present course, we will soon experience a major ecological catastrophe.	.781		
The balance of nature is strong enough to cope with the impacts of modern industrial nations. (R)	.576		
Humans are severely abusing the environment.	.664		

Note:  $n = 103$ ; items measured on a seven-point scale from "1 = strongly disagree" to "7 = strongly agree."

<sup>a</sup>Jin & Kang, 2011, p. 191.

<sup>b</sup>Taylor & Todd, 1995b, p. 174.

<sup>c</sup>Stern et al., 1999, p. 95.