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ORIGINAL PAPER

Consumer awareness and sustainability-focused value orientation as motivating factors of responsible consumer behavior

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Abstract Consumers are put in the driver seat on the road to a sustainable development. Following a consumer-centric approach, this paper explores the dimensionality and the antecedents of responsible consumption from a psychological perspective. Concerning the dimensionality, the study proposes that responsible consumption should comprise a societal as well as an individual dimension. The data (N = 339) supported this two-dimensional approach, differentiating between societal responsibilities of consumers (doing good) and consumers' responsibilities for their personal well-being (doing well). Moreover, the results indicate that both consumer awareness and sustainability-focused value orientation have a direct positive influence on responsible consumer behavior. In addition, the hypothesized mediating role of consumer awareness is confirmed, with mediations for societal or personal responsible consumer behavior by the respective consumer awareness

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dimension. Consequently, it is crucial for organizations to flank their sustainable offers with appropriate communication activities in order to motivate consumers to engage in more responsible consumption.

1 Introduction

The term "sustainability" is one of the key concepts in the twenty-first century (Schaefer and Crane 2005). Although the concept is not without criticism (Benson and Craig 2014), it builds the dominant normative framework in the 21st century. The high relevance attached to the normative ideal of sustainability is closely related to a variety of unresolved problems in the globalized world, such as poverty, the finiteness of natural resources, climate change, and environmental pollution. For years, researchers have emphasized that many of such problems are the outcome of today's prevailing way of life (e.g., Meadows et al. 1972; Thøgersen 2005). Accordingly, the question arises how to promote sustainable behavior in the modern society.

In the eyes of many, business bears a substantial share of responsibility for the current unsustainable lifestyle (Porter and Kramer 2011; Schaltegger and Wagner 2011). In simple terms, corporations are blamed for making profits at the expense of sustainable development (Beschorner and Mueller 2007). As a result, they are increasingly expected to assume Corporate Social Responsibility (CSR; e.g. Lee and Carroll 2011) in order to actively contribute to sustainable development (Martínez-Ferrero and García-Sánchez 2015). Against this backdrop, it is not surprising that more and more corporations practice CSR and disclose information on their CSR activities (Escrig-Olmedo et al. 2014; Gamerschlag et al. 2011).

Indeed, corporations significantly shape the way of life in the modern society. It cannot be denied that, time and again, they behave in an unsustainable fashion, for example in terms of corruption, over-exploitation of resources, human rights abuse, unfair buying practices, and environmental pollution (Lin-Hi and Mueller 2013). However, the way of how business is run is influenced by consumer behavior (Haase 2008; Kotler 2011). In a nutshell, consumer behavior is the way of how consumers buy goods—or in the words of Kotler and Armstrong (2011, p. 134) it is about "what consumers buy, where they buy, how and how much they buy, when they buy, and why they buy". Consumer behavior influences business because consumers' buying decisions are a signal for the types of products and production processes that they desire (Caruana and Crane 2008; Dickinson and Carsky 2005). Even though pro-green attitudes are widespread among consumers, so far only few people opt for green products, especially if they have to make any sacrifices such as higher prices or reduced performance (Olson 2013).

Overall, responsible corporate behavior and responsible consumption are two sides of the same coin addressing the supply and demand sides of the market (Connolly and Prothero 1998). Therefore, motivating consumers to make use of their economic "vote" and change their consumption behavior is considered as an important policy goal and also a business opportunity (Wells et al. 2011). In light of this, it is reasonable to discuss the social responsibility of consumers for sustainable development in terms of responsible consumer behavior (RCB) in order to complement companies' CSR efforts. In simple terms, RCB can be understood as consumer behavior that contributes to sustainable development. Indeed, several researchers agree that RCB is a powerful driver for sustainable development (e.g., Sheth et al. 2011; Uusitalo and Oksanen 2004). However, there is an ongoing discourse about the meaning of the concept of a "responsible" consumer (Caruana and Chatzidakis 2014).

Despite the complex, multi-dimensional nature of sustainable development in terms of balancing economic, ecological, and social goals at the same time, previous research often focused on single dimensions and issues: "The majority of research in the area of ethical or sustainable consumption focuses on one specific, pre-defined aspect of consumption […]" (Wooliscroft et al. 2014, p. 68). For example, research addresses specific consumer habits such as consumers' orientation towards fair trade products (Castaldo et al. 2009), a range of environment-friendly behaviors (Thøgersen and Ölander 2003), or single product sectors (McDonald et al. 2009). In comparison to social and environmental issues, less attention has been paid to the economic dimension of sustainable consumption (for a conceptually integrated model, see Balderjahn et al. 2013). Accordingly, there is little research in the field of RCB that takes the multi-dimensional nature of sustainability into account. Hence, the first aim of this study is the conceptualization and assessment of consumer responsibility based on the established dimensions of sustainability covering environmental, social, and economic aspects.

Moreover, Sheth et al. (2011) outlined the need to systematically apply a consumer-centric view of sustainability. Researchers agree on the notion that consumption and personal well-being are interlinked in both positive and negative ways (e.g., Dittmar 2005; Kasser and Ahuvia 2002). However, the existing conceptualizations of RCB rarely differentiate between consumers' responsibility for society as a whole and their responsibility for their own person (Sheth et al. 2011). Therefore, the second main purpose of this study is the comprehensive assessment of RCB encompassing (environmental, social, economic) consequences for society as well as personal consequences (physical, socio-psychological, financial).

Concerning the antecedents of RCB, researchers identified a wide range of factors predicting sustainability-related consumer behaviors, e.g., demographics, values, attitudes, knowledge and circumstances (Wells et al. 2011). However, in their review of existing research on sustainable consumption, Prothero et al. (2011) make a compelling call for further research that "[…] should make a concerted effort to significantly extend understanding of when and why consumers do not behave in accordance with their articulated, prosustainability values" (p. 32). Thus, since values are seen as an important facet in the motivation of responsible consumer behavior, it is important to understand how and when they translate into behavior.

In this respect, Stern et al.'s (1999) value–belief–norm (VBN) model suggests that a key feature and potential mediator of consumers' values is their belief that one's action makes a difference. So far, consumers' belief in making a contribution has been studied in a very domain-specific way (Ellen et al. 1991), with a focus on solving environmental problems, for example pollution abatement (Kinnear et al. 1974) and water and energy conservation (Obermiller 1995). Hence, the third important aim of this study is to conceptualize and analyze these beliefs, hereinafter referred to as consumer instrumentality awareness, in regard to the potential effects on responsible consumption.

Taken together, this study aims to contribute to the discussion on RCB in multiple ways. First, RCB will be conceptualized in a more comprehensive way by differentiating its environmental, social, and economic aspects in line with Elkington's (1997) triple bottom line approach. Moreover, following the customer-centric view of sustainability proposed by Sheth et al. (2011), this is one of the first studies that differentiates and empirically examines societal as well as personal RCB. In this process, new scales are developed to measure RCB. Second, the study answers to the call for more research on the question of how to promote responsible consumer behavior (Kotler 2011; Tanner and Wölfing Kast 2003). Drawing on Stern et al.'s (1999) value–belief–norm model, the study introduces sustainability-focused value orientation and consumer awareness as central psychological antecedents of RCB. Specifically, sustainability-focused values are conceptualized as specific values based on Elkington's (1997) triple-bottom-line approach. Moreover, three forms of consumer awareness are differentiated and related to RCB with the assumption that instrumentality beliefs act as mediators to explain how consumers' sustainability-focused values are linked to RCB. Overall, the study extends the existing research on responsible consumption and its underlying psychological mechanisms and provides an important step in unleashing the considerable potential of responsible consumer behavior for the promotion of sustainable development.

2 Consumer responsibility in the context of sustainability

2.1 Conceptualization of responsible consumer behavior

In general, *consumer behavior* is thought to broadly encompass "[…] the processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires" (Solomon et al. 2013, p. 5). Simply put, consumer behavior serves the purpose of fulfilling a consumer's needs. However, in light of the sustainability concept, a discussion emerged how individual needs can be fulfilled in a sustainable way. This was stressed especially by the widely used definition of *sustainable development* by the Brundtland commission which claims that the needs of future generations should not be impaired: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987, p. 43). Therefore, certain consumer behaviors have been

marked as unsustainable, e.g. purchasing products which are known to be environmentally harmful (e.g., Thøgersen 2014). In the same vein, consumption that turns into overconsumption—as is often the case with conspicuous consumption, or consumption motivated by materialism—has been considered as unsustainable (Sheth et al. 2011). In both cases such consumer behavior can be considered as irresponsible from the perspective of sustainability.

However, so far no common understanding of a "responsible consumer" exists as many different concepts have been proposed and discussed in the literature: e.g., political consumerism (Hansen and Schrader 1997), sustainable consumption regarding environmental effects (Schaefer and Crane 2005), ethical consumerism (Auger et al. 2008), socially conscious consumption practices (DeVincenzo and Scammon 2015), green consumption (Gleim et al. 2013), mindful consumption (Sheth et al. 2011), consumer citizenship (Dickinson and Carsky 2005), socially responsible consumer (Mohr et al. 2001) or voluntary simplicity (Shaw and Newholm 2002).

Two main conclusions can be drawn when comparing these approaches. First, many authors conceptualize consumer responsibility from a one-dimensional perspective, focusing, for instance, on the environmental impact of consumption (Sudbury-Riley and Kohlbacher 2016). However, commonly three core dimensions of sustainability are differentiated, namely environmental, social and economic dimensions (Phipps et al. 2013). The environmental objective refers to the preservation of the natural environment and life support systems (Nath 2008), the social dimension is centered on social and cultural systems (Hediger 2000), and the economic dimension is linked to the promotion of the economic welfare of the society (Sheth et al. 2011). Hence, a one-dimensional understanding may fall short and will not capture consumer responsibility to a full extent.

Second, those concepts focus mostly on the effects that consumption is bringing about for society at large. Yet, this may underestimate the effect that (responsible) consumer behavior has on consumers' personal lives. According to Valor and Carrero (2014), responsible consumption can be seen as a personal project of a consumer which is primarily driven by consumers' goal to live a more meaningful life. In this regard, it is important to acknowledge that besides bringing about positive or negative effects for society, consumption behavior also has direct positive or negative effects for the consumer at the personal level (Brinkmann and Peattie 2008). Hence, it seems valuable to consider that the role of a consumer also implies responsibilities for one's personal life. This is also reflected in Berg's (2007) characterization of today's prudent consumers, who "[…] should be ego-oriented and smart, as well as other-oriented and wise" (p. 418).

The notion that there are two sides of consumer responsibility is closely paralleled by two motivating principles in the discussion of CSR: *doing good* and *doing well*. More specifically, *doing good* focuses on bringing about positive effects for society and the related moral obligation to improve societal welfare (e.g., Bowie 1991; Evan and Freeman 1988), whereas *doing well* is related to the benefits of responsible behavior for corporations (e.g., Du et al. 2007; Porter and Kramer 2006).

For consumers, the societal perspective of *doing good* reflects their consideration of the ecological, social, and economic consequences (Bansal 2002). Focusing on the perspective of *doing well* from a consumer's point of view means that a consumer succeeds in meeting his personal needs both in the present and in the future. In this regard, "consumption is not only a basic necessity for survival, it is also critical to our personal, social and economic well-being" (Sheth et al. 2011, p. 24). According to Sheth et al. (2011), the three pillars of sustainability can be translated to the individual consumer by considering the impact of consumption on the consumer itself with regard to each dimension. Following his suggestions, the environmental dimension of sustainability represents the physical constitution of the consumer (e.g., health, human well-being depending on environmental influences), the social dimension of sustainability can be understood as socio-psychological well-being (e.g., individual and family well-being, quality of life), and the economic dimension of sustainability relates to the financial well-being of the consumer (e.g., financial prosperity). The analogy is supported by consumer research that focused on constructs relating to the suggested pillars for the consumer. The pillar concerning the physical constitution of the consumer is addressed in literature and research when health-conscious consumer behavior is ascribed as a constitutive characteristic to the lifestyle of health and sustainability (LOHAS; Cohen 2007). Moreover, research suggesting that the anti-consumption attitudes of voluntary simplifiers are motivated by reducing socio-psychological stress and striving for a better work–life balance and life satisfaction (Zavestoski 2002) lends support to the pillar of socio-psychological well-being. Regarding the pillar of financial well-being, research has centered, for instance, on the financial literacy of consumers (Remund 2010).

Taken together, the literature supports different dimensions of consumers' societal responsibilities (*doing good*) and consumers' personal responsibilities (*doing well*) as a consumer (see Table 1 for a conceptual overview).

Table 1 Conceptual overview of the dimensions of responsible consumer behavior

Dimensions of sustainability	Impact of responsible consumer behavior	
	Impact on society (*doing good*)	Impact on consumer (*doing well*)
Environmental	Impact of consumption on environment (e.g., pollution of air, soil and water, animal welfare)	Impact of consumption on physical constitution and health (e.g., potential health benefits of organic food vs. risks of pesticides)
Social	Impact of consumption on society (e.g., fair wages, no discrimination of workers)	Impact of consumption on socio-psychological well-being (e.g., happiness and life satisfaction, quality of personal relationships)
Economic	Impact of consumption on economy (e.g., supporting responsible companies)	Impact of consumption on financial situation (e.g., financial risks due to overconsumption, debt-burdens)

Bringing both dimensions together, *responsible consumer behavior* (RCB) is conceptualized as an overarching and comprehensive construct that is targeted toward the minimization of harmful effects and the maximization of beneficial societal effects (environmental, social, economic) as well as personal consequences (physical, socio-psychological, financial) of consumption. Hence, RCB can be defined as sustainability-oriented consumer behavior that consists of societal responsible consumer behavior (RCB-S), including environmental, social, and economic aspects, and personal responsible consumer behavior (RCB-P), including physical, socio-psychological, and financial aspects.

2.2 The role of values in responsible consumption

A better understanding of how to motivate consumers to behave more responsibly and promote sustainable development is an important goal for policy makers and marketers. For this reason, research has studied a wide range of factors in relation to various responsible consumer behaviors (Wells et al. 2011). The findings indicate that demographic characteristics explain only a very small proportion of the variance of socially responsible consumer behavior (Diamantopoulos et al. 2003). Hence, research has focused on psychological and context-related factors (e.g., Tanner and Wölfing Kast 2003), such as environmental concern (Minton and Rose 1997), beliefs (Roberts 1996), personal norms (Nordlund and Garvill 2003), and values (Pepper et al. 2009; Thøgersen and Ölander 2002).

As values are defined as enduring beliefs that pertain to desirable end states or behaviors, transcend specific situations, and guide the selection or evaluation of behavior and events (Schwartz and Bilsky 1987, p. 551), they are of special interest for research and practice in regard to responsible consumption. Consequently, various studies have focused on the relationship between values and sustainable consumer behaviors (e.g., Stern et al. 1993; Straughan and Roberts 1999; Urien and Kilbourne 2011). Thøgersen and Ölander (2002) show that, at least from a short-to-medium-term perspective, the predominant causal influence between basic values and pro-environmental consumer behavior indeed moves from values to behavior, not counterwise. Thus, the value system of a consumer is essential in order to understand responsible consumer behavior (Pedersen and Neergaard 2006).

Much of the research in the area of responsible consumption has employed the universal set of values proposed by Schwartz (De Groot and Steg 2008). Specifically, it is shown that higher self-transcendent values, such as universalism and benevolence, are related to more socially conscious consumption that is considering the ethical reputation of companies and issues of fair trading (Pepper et al. 2009). Apart from past behavior, universalism values also prove to be a direct predictor of environment-friendly consumer decisions (Thøgersen and Ölander 2002).

However, the Schwartz value system measures broad value orientations and contains few items specifically focusing on environment- or consumption-related issues (De Groot and Steg 2007). Therefore, De Groot and Steg (2007, 2008) built on the Schwartz value system and developed a more specific instrument to assess egoistic, altruistic, and specifically biospheric value orientations. Using this more

specific set of value items, they are able to explain about 30 % of the variance in environmental concern, with the biospheric value orientation as the strongest predictor (De Groot and Steg 2008).

Moreover, other research suggests that values show the strongest prediction of behavior if both values and behavior are assessed at a comparable level of abstraction. For example, Eyal et al. (2009) are able to show that broad and abstract values are also more closely related to behaviors construed on a higher, abstract level. Hence, scales that are more specifically targeted at sustainability issues and incorporate a higher degree of relevance to consumption situations could have the potential to deepen our understanding of the values driving the specific construct of responsible consumer behavior. To ensure a comprehensive perspective on consumers' sustainability-focused value orientation, the conceptualization could again be based on the established ecological, social, and economic dimensions of sustainability, as suggested by Elkington's (1997) triple-bottom-line approach.

Taken together, a sustainability-focused value orientation might be an important foundation of personal and societal responsible consumer behavior (see Fig. 1). Thus, the following hypotheses are suggested:

H1a Sustainability-focused value orientation (SVAL) has positive effects on societal responsible consumer behavior (RCB-S).

H1b Sustainability-focused value orientation (SVAL) has positive effects on personal responsible consumer behavior (RCB-P).

2.3 The role of consumer awareness in responsible consumption

Researchers emphasize that awareness of the future consequences of purchase decisions may be an important presumption pertaining to prudent consumer decisions (Haws et al. 2012). Likewise, Titus and Bradford (1999) argue that a certain state of consumer sophistication is required to achieve a free market economy that rewards ethical and sustainable business practices and minimizes unethical behavior. In the same vein, Chartrand (2005, p. 209) noted that "awareness must precede attempts at control […]". Thus, it is assumed that the creation of consumer awareness is a necessary prerequisite for a change towards responsible consumption and sustainable development (Hansen and Schrader 1997). However, it is suggested that "[…] awareness is not an all-or-none phenomenon" (Chartrand 2005, p. 209). Hence, *consumer awareness* deals with the question to which degree consumers consciously reflect on their behaviors.

While research on different forms of consumer awareness is limited, one frequently cited model that differentiates awareness of consumers is provided by Chartrand's (2005) model of automatic processes. Specifically, Chartrand (2005) differs between three types of awareness, depending on the stages in the process of decision-making of consumers: (a) environmental features, (b) automatic processes, and (c) outcome. At the second stage of automatic information processing, consumers can hardly reflect on their automatic mental processes as they occur unconsciously by definition (Chartrand 2005). However, following Chartrand's

(2005) model, consumers are able to become aware of the (a) environmental features, such as advertising, in-store marketing, and promotions that influence consumers' buying decisions, and (b) outcomes of their behavior. Thus, both of these components should be taken into account in the conceptualization and assessment of consumer awareness.

First, consumers have to become aware of environmental features and how their own behavior is shaped by those influences (Chartrand 2005). Thus, the first dimension of consumer awareness (CA) represents the degree of *consumer susceptibility awareness* (CSA). Building on previous research focusing on special skills to cope with these external influences (e.g., marketing literacy, MacDonald and Uncles 2007; persuasion knowledge, Bearden et al. 2001; consumer susceptibility to interpersonal influence, Bearden et al. 1989), CSA captures the awareness of how consumers are influenced externally by consumer culture and marketing instruments such as advertising, low-price offers, and promotional strategies at the point of sale.

Support for the relevance of CSA can be found in previous research. For example, Beaudoin and Lachance (2006) reason that a heightened awareness of the influence of brands is an important factor in developing more competent consumer behavior. Additionally, skeptical consumers state that they rely less on advertising as a source of information, that they check the truth via other sources, and that they are not prompted to buy a new product immediately (Obermiller and Spangenberg 1998; Obermiller et al. 2005).

Second, consumers can also have different levels of awareness in regard to the outcomes of their behavior. Thus, the second dimension of CA is coined *consumer instrumentality awareness* (CIA) and captures the consumer's awareness of the individual contribution to the solution of certain problems through daily consumption decisions. Koenig-Lewis et al. (2014) stressed the importance of consumers' instrumentality awareness as follows: "In situations where consumers are unable to fully understand the connections between their buying decisions and environmental consequences, [...] heuristics and habit will become a stronger determinant of (non) pro-environmental behavior" (p. 95).

In contrast, consumers' perceived ability to affect environmental outcomes is a strong psychological motivator for many pro-environmental behaviors (e.g., green consumption, recycling, and resource conservation; Cleveland et al. 2012). For example, a study by Gupta and Ogden (2009) revealed that buyers of environment-friendly products have significantly stronger beliefs that their behavior will make a difference than non-green buyers.

Previous research on consumers' perceived instrumentality has been mostly applied with a focus on ecological or social sustainability issues (e.g., Berger and Corbin 1992; Kinnear et al. 1974; Roberts 1996; Thøgersen 1999). Building on Elkington's (1997) triple-bottom-line approach to sustainability, a comprehensive conceptualization of CIA in relation to societal effects should encompass the economic dimension of sustainability as well as the ecological and social dimensions. Furthermore, the consumer-centric approach to sustainability (Sheth et al. 2011) suggests that the awareness of influencing one's personal life positively through consumption decisions is a distinct facet of instrumentality awareness. For

instance, a higher awareness of the financial consequences of their purchasing behavior has a positive impact on consumers' spending self-control (Haws et al. 2012).

Thus, societal and personal instrumentality awareness might be an essential factor that motivates consumers to rethink their consumption activities and take action (e.g., Haws et al. 2012; Nilsson 2008).

Taken together, consumer awareness is composed of consumer susceptibility awareness and consumer instrumentality awareness concerning societal as well as personal effects. Hence, the following hypotheses are proposed for the multidimensional construct of consumer awareness:

H2a Consumer susceptibility awareness (CSA) influences societal and personal responsible consumer behavior (RCB-S/-P) positively.

H2b Societal consumer instrumentality awareness (CIA-S) influences societal responsible consumer behavior (RCB-S) positively.

H2c Personal consumer instrumentality awareness (CIA-P) influences personal responsible consumer behavior (RCB-P) positively.

According to the value–belief–norm (VBN) theory (Stern et al. 1999), a causal chain is proposed that moves from values (relatively stable elements of personality) to beliefs. According to the VBN theory, the effect of values is mediated by instrumentality beliefs that "individual actions could alleviate threats to valued persons or things" (Stern 2000, p. 414). In the same vein, Thøgersen (2000) states that a consumer will be more likely to pay attention to environmental products when the individual actually values protecting the environment and believes that buying the product helps to achieve this goal. Hence, becoming aware of the consequences of one's consumption choices and thus being more conscious about one's impact and role as a consumer can be seen as an important process of the influence of values on responsible consumer behavior.

Taken together, the hypotheses for the relationships between consumer awareness, sustainability-focused value orientation and responsible consumer behavior are put forth as follows:

H3a Consumer susceptibility awareness (CSA) mediates the relationship of sustainability-focused value orientation (SVAL) and societal and personal responsible consumer behavior (RCB-S/-P).

H3b Societal consumer instrumentality awareness (CIA-S) mediates the relationship of sustainability-focused value orientation (SVAL) and societal responsible consumer behavior (RCB-S).

H3c Personal consumer instrumentality awareness (CIA-P) mediates the relationship of sustainability-focused value orientation (SVAL) and personal responsible consumer behavior (RCB-P).

The complete model is depicted in Fig. 1.
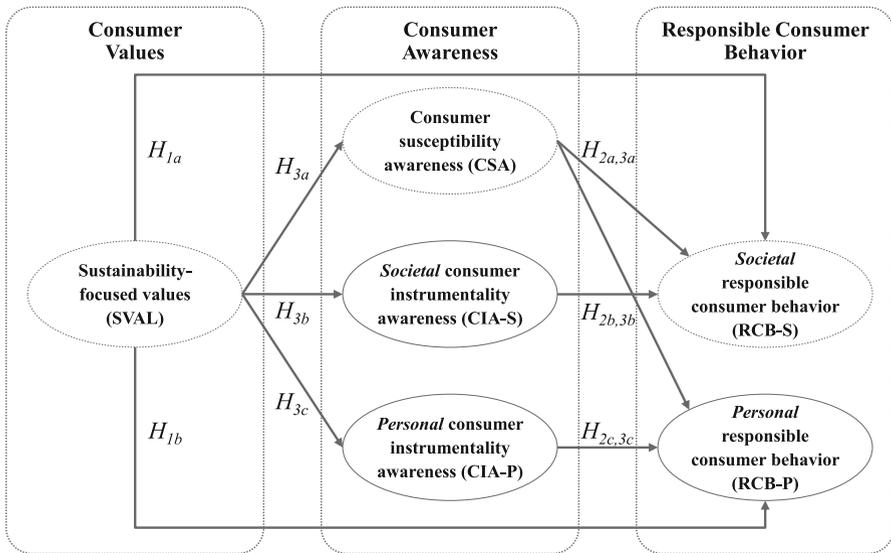
Fig. 1 A process model of responsible consumer behavior and the mediating role of consumer awareness

3 Method

3.1 Participants and procedure

Data were collected through an anonymous online survey conducted with German consumers, hence all questions were asked in German. Research indicates that paper-and-pencil and Internet data collection methods generally produce equivalent results (e.g., Weigold et al. 2013). Moreover, anonymous online surveys have the advantage to yield significantly lower social desirability scores than non-anonymous or face-to-face surveys (Dodou and de Winter 2014). To avoid any self-selection effects, the topic of the survey was announced as a survey on "consumer behavior and opinions of consumers" without explicitly referring to sustainability issues. The link to the survey was spread via university mailing lists and online communities (e.g. social networking sites like facebook and xing or online forums). Students were contacted via mailing lists for different fields of studies (especially social sciences and economics but also technical studies) and from several universities. As an incentive, participants were given the chance to win one of three €15 gift cards. Completing the survey took on average 15 min.

In total, 552 persons entered the survey. 343 persons completed the full study, leading to a completion rate of 62 %. Most drop-outs occurred directly after visiting the welcome page or the first question page (26 %). After excluding participants with more than five missing values, 339 persons aged between 18 and 69 remained

in the analysis. The mean age was 30 years, and 52 % of the sample had achieved an education level allowing them to study at a university while an additional 36 % had received a university degree. About two-thirds of the sample was composed of women (71 % female, 29 % male).

3.2 Measures

The participants used seven-point Likert scales, anchored from "fully disagree" (1) to "fully agree" (7) to respond to all the items that were part of the scales described below.

3.2.1 Responsible consumer behavior

Based on the assumption that consumption has societal effects (on the environment, society, economy) as well as personal effects on the individual, two separate 9-item scales were developed. In line with Elkington's (1997) triple bottom line of sustainability, societal responsible consumer behavior (RCB-S) considers the environmental, social, and economic consequences of consumption. Hence, the RCB-S scale consists of selected items from existing ecologically and socially responsible consumption scales (e.g., Roberts 1996; Webb et al. 2008) and newly developed items for economic effects (see items in "Appendix"). The internal consistency of the complete 9-item scale was Cronbach's $\alpha = .91$.

Following the idea of the consumer-centric approach to sustainability (Sheth et al. 2011), the personal responsible consumer behavior scale (RCB-P) covers the areas of physical, socio-psychological, and financial well-being of consumers (full scale is provided in the "Appendix"). The internal consistency of the complete 9-item scale was Cronbach's $\alpha = .70$.

3.2.2 Sustainability-focused value orientation

Sustainability as a personal value orientation was only partially covered by existing measurement instruments, such as Schwartz's value survey (1994), or rather focused on single dimensions, for instance, a pro-environmental orientation (Dunlap et al. 2000; Haws et al. 2014) or the economic dimension (Creyer and Ross 1997; Kuckertz and Wagner 2010). Therefore, several items were integrated from existing scales measuring aspects like depletion of natural resources and environmental pollution (Antil 1984), the social responsibility of companies (Kuckertz and Wagner 2010; Singhapakdi et al. 1996), and ethical and fair corporate behavior (Creyer and Ross 1997). Thus, a 12-item scale was developed to cover all three dimensions of sustainability (Elkington 1997) with 4 items for each pillar. Based on item analysis, one item per dimension was discarded, resulting in an internal consistency of Cronbach's $\alpha = .87$ for the final 9-item scale (see "Appendix").

3.2.3 Consumer awareness

According to Chartrand's (2005) distinction of awareness types, consumers can become aware, on the one hand, of the influence of external influences on their behavior and, on the other hand, of the consequences of their behavior. Hence, consumer awareness was conceptualized theoretically as consisting of two dimensions, consumer susceptibility awareness (CSA) and consumer instrumentality awareness (CIA).

3.2.3.1 Consumer susceptibility awareness (CSA) The CSA scale measures consumers' beliefs about the extent to which consumer behavior is influenced by external influences, that is, marketing instruments. For this purpose, CSA measures the perceived impact of various marketing activities on consumers' buying behavior and focuses on consumers' perceived need to cope with those influences and to take an active role as a consumer. Hence, a 10-item CSA scale was developed by adapting items from instruments focusing on specific elements of the marketing mix, for instance skepticism towards advertising (Obermiller and Spangenberg 1998), and scales for specific consumer competencies, such as marketing literacy (MacDonald and Uncles 2007), persuasion knowledge (Bearden et al. 2001), and consumer susceptibility to interpersonal influence scales (Bearden et al. 1989). Three core areas were addressed (see "Appendix"): the influences of advertising, price, and of in-store marketing and sales person activities. The internal consistency of the 10-item scale was Cronbach's α = .92.

3.2.3.2 Consumer instrumentality awareness (CIA) CIA consists of two sub-dimensions, societal consumer instrumentality awareness (CIA-S), regarding the consequences of consumption on society (in line with Elkington's 1997 approach to sustainability), and personal consumer instrumentality awareness (CIA-P) for individual consequences of consumption (following the customer-centric approach to sustainability by Sheth et al. 2011). To measure both dimensions of consumer instrumentality awareness, a multi-item instrument was developed based on an item pre-test with a German student sample ($N = 318$), on expert ratings by psychology and marketing experts, and on a qualitative item pre-test with a small group of consumers to ensure face validity and appropriate item wordings.

In the main study, two 12-item scales were used as measures of societal and personal consumer instrumentality awareness (CIA-S/CIA-P). For CIA-S, some items could be adapted from established scales measuring the extent to which a consumer believes that he contributes to sustainable development by means of his consumer behavior (Nilsson 2008; Thøgersen 1999; Webb et al. 2008). The CIA-S scale encompassed 4 items for each category of sustainable consumption effects. Based on item analysis, one item per dimension was discarded, resulting in an internal consistency of Cronbach's α = .86 for the final 9-item scale (see "Appendix").

The CIA-P scale was constructed similarly by transferring the three pillars of sustainability to the personal life (Sheth et al. 2011); for example, physical health, socio-psychological well-being, and financial situation. Based on item analysis, one item per dimension was discarded, resulting in an internal consistency of Cronbach's $\alpha = .74$ for the final 9-item scale (see "Appendix").

3.3 Analyses

To test the dimensionality of each scale (see sub-dimensions in the "Appendix"), confirmatory factor analyses (CFA) were conducted by using the original items as indicators. For constructing parcels that are equally balanced in terms of item-to-construct relation and difficulty (Little et al. 2002), scales with more than nine items (SVAL, CIA-S/-P, CSA) were refined by selecting the nine items (three items per sub-factor) with highest loadings and comparable means. In a first step, items with loadings below .50 in the initial CFA were dropped (Bagozzi and Yi 2012). In a second step, exploratory factor analyses (extraction of three factors with varimax rotation) were applied to detect items with cross-loadings between sub-factors or low loadings. In a third step, items with divergent means were dropped to balance parcels in terms of their difficulty (Little et al. 2002). Reliability of the resulting scales was assessed by using Cronbach's alpha (>.70, Nunnally and Bernstein 2006).

Before conducting further hypothesis tests by means of structural equation modeling, the domain representative parceling strategy recommended by Kishton and Widaman (1994) was applied to keep the number of indicators manageable and obtain a good ratio of free parameters compared with the sample size (Bentler and Chou 1987). This means that after checking the dimensionality of a construct, items are assigned to one parcel for the broad construct, such that each parcel includes at least one item for each sub-dimension. Thereby, each parcel is equally representative of all the dimensions or aspects related to the higher-order construct. In this way, a multidimensional construct can be further investigated as a single, broad construct encompassing the multiple dimensions (Kishton and Widaman 1994).

From the confirmatory factor analysis including all the constructs with parcels, factor reliability and average variance extracted (AVE) values were calculated for each scale according to the formulas by Fornell and Larcker (1981). Composite reliability of .70 or greater (Bagozzi and Yi 2012) and AVE above .50 indicate convergent validity and an AVE exceeding the squared correlations can be interpreted as discriminant validity (Fornell and Larcker 1981).

As a test for the hypotheses H1a–b, H2a–c, and H3a–c, structural equation modeling of the predicted relationships between the latent variables was employed. The two-step approach recommended by Anderson and Gerbing (1988) was applied to isolate problems of measurement specifications from problems in the structural specifications.

In the first step, the six latent variables were modeled as freely correlated first-order factors with their respective indicators to assess the measurement model. In the second step, the latent regression model testing the relations between the latent

variables was specified as hypothesized to test the postulated model (Anderson and Gerbing 1988).

Before testing the complete model, two structural equation models were set up in order to analyze the direct effect of values and of consumer awareness separately. Afterwards, the structural equation model to estimate the direct and indirect effects simultaneously was conducted (Iacobucci et al. 2007; Zhao et al. 2010). Hypotheses 3a–3c proposed multiple potential mediators which can be appropriately modeled in a multiple mediation model (Preacher and Hayes 2008). To take mutual dependencies into account and avoid model misspecifications, errors of the mediators were allowed to covary (Preacher and Hayes 2008). The specific indirect effects of SVAL on RCB-S and RCB-P in the model were assessed and compared with the phantom model approach following the suggestions by Macho and Ledermann (2011). Hence, the main model was extended by so-called phantom models, which consisted only of latent variables and completely constrained parameters. The addition of a phantom model does not influence the estimation of the main model (Macho and Ledermann 2011). Specifically, one phantom model was added to estimate the indirect effect of SVAL on RCB-P via CIA-P and CSA and a second phantom model was added to estimate the indirect effect of SVAL on RCB-S via CIA-S and CSA. The parameters in the phantom model, such as the variance parameter of the phantom exogenous variable $s\_$, direct effects of the phantom exogenous variable $s\_$ on the phantom exogenous variables, and direct paths from the phantom outcome variables to the phantom latent target variable $t\_$, were fixed following the specifications by Macho and Ledermann (2011). Every other path coefficient in the phantom models was equated to the value of the respective path in the main model. The significance of the effects was estimated using the bias-corrected bootstrapping procedure from the AMOS 19.0 software (Cheung and Lau 2008). Missing values were imputed.

To evaluate the fit of the structural model, the χ^2 statistic was used in combination with other fit indices (Vandenberg and Lance 2000). Additionally, the cut-off value for the root mean square error of approximation (RMSEA, Steiger, 1990) of .08 (Hu and Bentler 1999; Vandenberg and Lance 2000) and the comparative fit index (CFI, Bentler 1990) with a lower bound of .90 (Diefendorff et al. 2005; Hu and Bentler 1999) were assessed.

4 Results

4.1 Psychometric assessment of scales before parceling

The statistical criteria for item retention that were met for each item were (a) skewness <2 and kurtosis <7 (West et al. 1995), (b) corrected item-to-total correlations (ITT) above .30 (and in one case, item prcb2, above .20 as a minimum according to Nunnally and Bernstein 2006). Moreover, for each construct a confirmatory factor analysis was calculated in order to determine the fit with the data (for results of the final scales see Table 2). In the case of RCB-S, the error term of two items were allowed to correlate in the CFA model due to their semantic focus

Table 2 Descriptive statistics, reliability, and confirmatory factor analyses for single constructs

Variables	Number of items	Mean	SD	Cronbach's α	χ^2	df	CFI	RMSEA
RCB-S	9	4.48	1.11	.91	162.801	23	.920	.134
RCB-P	9	5.16	.75	.70	76.777	24	.924	.081
SVAL	9	5.64	.85	.87	57.190	24	.972	.064
CSA	10	5.55	.94	.92	91.848	32	.972	.074
CIA-S	9	4.65	.91	.86	68.701	24	.967	.074
CIA-P	9	4.82	.75	.74	44.693	24	.985	.051

RCB-S/RCB-P = societal/personal responsible consumer behavior, SVAL = sustainability-focused value orientation, CSA = consumer susceptibility awareness, CIA-S/CIA-P = societal/personal instrumentality awareness; all the variables use a seven-point Likert scale (1 = *fully disagree*, 7 = *fully agree*); SD = standard deviation. χ^2 test is significant at $p < .001$ (<.01 for CIA-P); df = degrees of freedom. Coefficient alpha values were calculated by using the original items, not parcels; fit indices for latent constructs were calculated from separately conducted confirmatory factor analyses (by using the original items, not parcels)

on fair products (srcb4) and fair companies (srcb9). To refine the scales which had more than nine items (CSA, SVAL, CIA-S, CIA-P) before parceling (Little et al. 2002), four items (sv4, sv6, sv12, pcia7) were deleted with loadings below .50 on their respective latent factor (Bagozzi and Yi 2012). In a next step, exploratory factor analyses for CIA-S and CIA-P suggested to remove four items due to high cross-loadings (scia3, scia5) or lowest loadings on their respective factor (scia9, pcia4). To balance parcels in terms of difficulty, items means were compared for each sub-factor (Little et al. 2002) which gave additional support to delete five of these items (sv4, sv12, scia5, scia9, pcia7) and to reject another item (pcia12). This resulted in 9-item scales for SVAL, CIA-S, and CIA-P. All ten items for CSA were retained as none of the four items from the subscale "promotion influence" showed an indication for deletion. For all final scales, items loaded significantly on their projected factor which indicates convergent validity (Anderson and Gerbing 1988). All factor loadings of the remaining items were above .50 (Bagozzi and Yi 2012), except for one item (pcia8) with a loading above .40. Moreover for each scale, Cronbach's α met the standard of .70 or greater for satisfactory reliability (Nunnally and Bernstein 2006).

Overall, the confirmatory factor and reliability analyses for the final responsible consumer behavior dimensions, the sustainability-focused value orientation dimensions, and the consumer awareness dimensions were all in a good to acceptable range (see Table 2).

4.2 Tests of convergent and discriminant validity after parceling

After establishing reliability and validity for each scale, items were aggregated into parcels which served as indicators of latent constructs in order to reduce the number of parameters (Bagozzi and Yi 2012). A confirmatory factor analysis, including all the scales with domain-representative item parcels (Kishton and Widaman 1994),

Table 3 Results for convergent and discriminant validity from the measurement model with parcels

	RCB-S	RCB-P	SVAL	CSA	CIA-S	CIA-P
RCB-S	–	.53	.67	.34	.43	.25
RCB-P	.28	–	.49	.55	.33	.40
SVAL	.44	.24	–	.44	.49	.29
CSA	.11	.30	.19	–	.41	.38
CIA-S	.18	.11	.24	.16	–	.41
CIA-P	.06	.16	.08	.14	.17	–
Composite reliability	.93	.78	.89	.93	.91	.85
AVE	.81	.55	.73	.82	.77	.66

Values above the diagonal = correlations between latent variables (all the correlations are significant at the 1 % level); values below the diagonal = squared correlations; AVE = average variance extracted (Fornell and Larcker 1981); the correlations, composite reliability, and AVE values for latent constructs were calculated from a confirmatory factor analysis that included all the constructs with parcels

was used to examine the convergent and discriminant validity of the latent factors. All the estimated factor loadings were significant which hints at convergent validity (Anderson and Gerbing 1988). The composite reliabilities were well above .70 (Bagozzi and Yi 2012) and the average variance extracted was above .50 for each scale (see Table 3). All the results imply that convergent validity of the measures can be assumed (Fornell and Larcker 1981). In line with Fornell and Larcker's (1981) criterion of discriminative validity, the average variance extracted (AVE) was also greater than the squares of the correlations between constructs. Thus, it can be concluded that the scales are measures of distinct constructs. As expected, the scales were significantly positively interrelated (see Table 3) with medium-range effect sizes ($r > .30$, Cohen 1992). Taking these results together, support for responsible consumption consisting of two components was given. Moreover, the assumed conceptualization of consumer awareness was also supported.
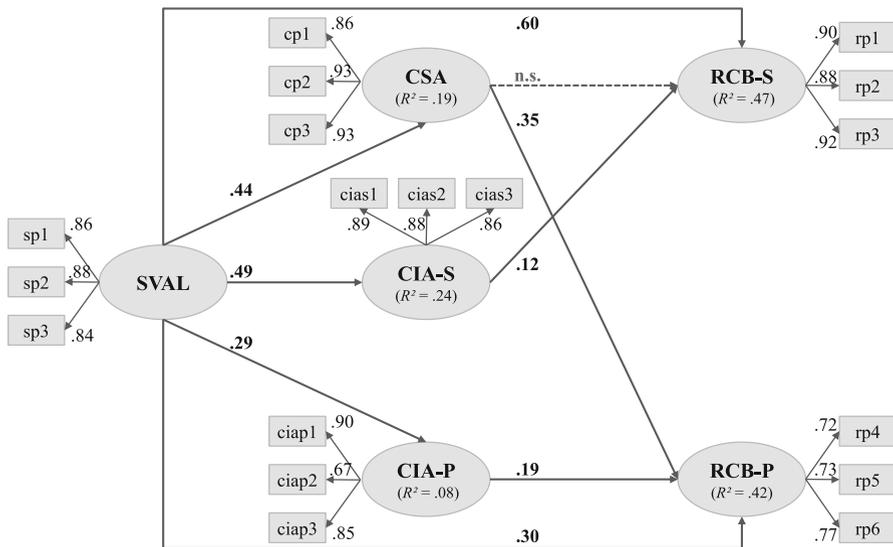
4.3 Structural model

In order to test the causal relations between the latent constructs, three structural equation models were applied. First, the direct effects of sustainability-focused value orientation on both societal (H1a) and personal (H1b) responsible consumption were tested. The latent regression model confirmed that both paths are significant (see model 1 in Table 4). The model resulted in adequate fit criteria and determination coefficients which supports the second set of hypotheses.

Second, the direct effects of the consumer awareness dimensions on responsible consumption were analyzed (see model 2 in Table 4). As expected, CSA influences both RCB components (H2a) positively, whereas CIA-S and CIA-P only have significant influences on the respective RCB facets in line with hypotheses H2b and H2c. This model also showed good fit indices. The determination coefficient for RCB-S was lower than in the first model, whereas the determination coefficient for RCB-P increased.

Table 4 Determinants of responsible consumer behavior

Independent variables	Model 1: Dependent variables		Model 2: Dependent variables	
	RCB-S	RCB-P	RCB-S	RCB-P
SVAL	.68	.52		
CSA			.19	.44
CIA-S			.33	n.s.
CIA-P			n.s.	.21
R^2	.46	.27	.22	.36
χ^2	76.422 (df = 25, p < .001)		169.634 (df = 81, p < .001)	
CFI	.973		.974	
RMSEA	.078		.057	

Model 2 included correlations between error terms of the independent variables CSA, CIA-S and CIA-P (r = .38–.41)

$\chi2$ = 205.918 (df = 123, p = .000); CFI = .980; RMSEA = .045
Error terms of consumer awareness factors are correlated: $r_{CSA,CIA-S}$ = .24; $r_{CSA,CIA-P}$ = .29; $r_{CIA-S,CIA-P}$ = .32

Fig. 2 Structural equation model with multiple mediation effects: standardized regression coefficients and determination coefficients

Third, a structural equation model was specified including all the variables of the process model (see Fig. 2; error terms are excluded in the figure for reasons of readability). The fit of the resulting structural model was good with CFI above .95 and RMSEA below .06 (see fit indices in Fig. 2). The determination coefficients for the outcome variables RCB-S and RCB-P were highest in this model (R^2_{RCB-S} = .47, R^2_{RCB-P} = .42). The hypotheses tested above (H1a, H1b, H2b, H2c) were again confirmed. However, H2a was only partially confirmed as the path of CSA on RCB-S was not significant (see Table 5).

Table 5 Unstandardized parameter estimates of paths between latent variables

Hypothesis	Predictor	Criterion	b	SE
H1a	SVAL	RCB-S	.792***	.083
H1b	SVAL	RCB-P	.249***	.053
H3a	SVAL	CSA	.458***	.060
H3b	SVAL	CIA-S	.540***	.063
H3c	SVAL	CIA-P	.261***	.054
H2a, H3a	CSA	RCB-S	.039	.068
H2a, H3a	CSA	RCB-P	.273***	.052
H2b, H3b	CIA-S	RCB-S	.148*	.068
H2c, H3c	CIA-P	RCB-P	.168**	.056

b = unstandardized regression coefficient, SE = standard error; * $p < .05$, ** $p < .01$, *** $p < .001$

4.4 Mediation analysis

The complete model testing the mediation showed that sustainability-focused value orientations influenced all the consumer awareness dimensions positively (see Fig. 2) and consumer awareness significantly mediated the effect of sustainability-focused values by the following indirect paths: CIA-S on RCB-S ($p < .05$), CSA on RCB-P ($p < .01$), and CIA-P on RCB-P ($p < .01$, see Table 6). Hypothesis H3b and H3c were fully confirmed, whereas hypothesis H3a was only partially confirmed as CSA only mediates the effect on RCB-P but not on RCB-S. The contrast between the specific effects on RCB-P via CSA and CIA-P was significant as well ($p < .05$). Thus, the mediation effect of SVAL on RCB-P is mediated more strongly by CSA than CIA-P. Because both the indirect and the direct path of consumers' values to responsible consumption were significant, this represents a "partial" or "complementary" mediation effect according to the classification by Zhao et al. (2010).

5 Discussion and conclusions

5.1 Summary of results

In order to achieve sustainable development, both the supply and the demand side of the market have to change their practices (UNCED 1992). On the supply side, CSR has already been extensively discussed in the literature and in practice. In contrast, the social responsibility of consumers receives rather little attention (Brinkmann and Peattie 2008; Uusitalo and Oksanen 2004; Wells et al. 2011). Hence, the present study sought to explore the dimensionality and the antecedents of responsible consumer behavior. In line with the discussion in the realm of CSR (Falck and Heblich 2007), it was proposed that responsible consumer behavior includes both societal (*doing good*) and personal dimensions (*doing well*). The results of the study lend support to the two-dimensional conceptualization of RCB with a societal and personal perspective. Moreover, the present study confirms that societal responsible consumer behavior can be measured along the three sustainability dimensions (environment, society, and economy). Furthermore, the findings support the idea

Table 6 Specific effects or contrasts and bootstrapped standard errors and 95 % confidence intervals

Hypothesis	Effect being tested	Value[a]	SE	Bias corrected 95 % CI	
				Lower	Upper
Indirect effects of SVAL on RCB-S					
H3a	Specific indirect effect (via CSA)	.018	.031	−.034	.072
H3b	Specific indirect effect (via CIA-S)	.080*	.037	.021	.142
	Contrast between indirect effects	.062	.053	−.025	.148
	Indirect effects of SVAL on RCB-P				
H3a	Specific indirect effect (via CSA)	.125**	.029	.083	.178
H3c	Specific indirect effect (via CIA-P)	.044**	.018	.019	.077
	Contrast between indirect effects	−.081*	.035	−.148	−.029

CI = confidence interval; [a] Point estimate of the specific effect or the difference of the two effects being compared; * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed significance test)

that the second facet, personal responsible consumer behavior, can be operationalized by transferring the three pillars of sustainability to the context of consumers' lives. In this context, this study represents a first step to empirically assess the consumer-centric approach to sustainability suggested by Sheth et al. (2011).

While the nature and meaning of responsible consumer behavior are not yet clearly conceptualized (Caruana and Crane 2008; Valor and Carrero 2014), the conceptualization and the findings of the current study help to systemize and integrate previous research. Specifically, existing streams of research focusing on specific behaviors can be aligned under the umbrella of societal and personal responsible consumer behavior. For instance, the LOHAS (Cohen 2007) segmentation takes into account the personal perspective of health enhancement as well as the societal perspective of contributing to sustainability. However, the proposed framework of the current study shows additional dimensions that might be important to include for segmentation purposes, for instance, the socio-psychological and financial well-being of consumers.

Moreover, the study was set up in order to identify the antecedents of both personal and societal responsible consumer behavior with a particular focus on values and the relevance of consumer awareness. In previous research, basic value orientations have often been examined as the foundation of pro-environmental behavior (e.g., De Groot and Steg 2007, 2008; Dunlap et al. 2000; Nordlund and Garvill 2003; Urien and Kilbourne 2011), for instance drawing on Stern et al.'s (1999) value-belief-norm theory. Nevertheless, value types such as universalism from Schwartz's (1994) circumplex model only show moderate relations with behavior (Bardi and Schwartz 2003) due to their abstract nature. Hence, it was suggested that values should be measured more specifically, on the one hand targeted to the issue of sustainability (De Groot and Steg 2007, 2008) and on the other hand to the consumption context (Eyal et al. 2009). In Hypotheses 1a and 1b it was proposed that such sustainability-focused value orientations will affect societal and personal responsible consumer behavior. Indeed, the corresponding results stressed the role of values as a fundamental basis of responsible consumer behavior.

Using structural equation modeling, a sustainability-focused value orientation had significant positive relationship with societal and personal responsible consumer behavior. Specifically, societal responsible consumer behavior shows the strongest relationship sustainability-focused value orientations. When looking at the positive influence of sustainability-focused values on personally beneficial consumer behavior, the results suggest that persons who regard sustainability as important are also more conscious of how their personal well-being is influenced by consumption. Overall, the current findings are in line with previous research suggesting that societal responsible consumer behavior is driven more directly by the striving for sustainability, while personal responsible consumer behavior has psychological sources, such as the striving for life satisfaction and self-actualization (Fraj and Martinez 2007; Zavestoski 2002).

Furthermore, these results shows that in contrast to very broad value measures (e.g., Bardi and Schwartz, 2003), more specific value orientations may have a greater potential to be linked to consumer behavior. In the area of sustainable consumption, this finding is in agreement with studies on value effects on environmental concerns (De Groot and Steg 2008), green purchasing (Thøgersen and Ölander 2002), and socially responsible consumption (Pepper et al. 2009). Additionally, the evidence from this study suggests that Elkington's (1997) triple-bottom-line approach can be used as an integrative framework to measure consumers' sustainability-focused value orientation.

In order to understand the psychological mechanisms underlying responsible consumer behavior, the effect of consumer awareness was analyzed in detail. The proposed theoretical concept of consumer awareness, differentiating susceptibility awareness as well as societal and personal instrumentality awareness could be adequately operationalized. Thus, a latent regression model based on these concepts confirmed that consumers with greater susceptibility and instrumentality awareness are more likely to consider the societal and personal consequences of their consumption, supporting the Hypotheses 2a–c. Overall, the findings support the argument that consumers behave more responsibly when they are aware of their behavior's consequences (Hansen and Schrader 1997) and believe in their ability to contribute effectively to environmental or social problems (e.g., Cleveland et al. 2012; Kinnear et al. 1974; Roberts 1996).

Specifically, supporting Hypothesis 2b it was found that societal responsible consumer behavior is positively influenced by societal consumer instrumentality awareness, while personal responsible consumer behavior is positively influenced by personal consumer instrumentality awareness which lends support to Hypothesis 2c. Moreover, consumer susceptibility awareness had significant effects on personal responsible consumer behavior, supporting Hypothesis 2a, while the effect on societal responsible consumer behavior was only partially confirmed. When comparing the impact of susceptibility and instrumentality awareness, it seems that for societal responsible consumption consumers' belief to make a difference is of importance, while for personal responsible consumption, consumers' awareness of external influences is more important than consumers' belief to make a difference.

Moreover, the linking processes between values and responsible consumer behaviors were examined more closely following Hypothesis 3a–c. Based on Stern et al.'s (1999) value-belief-norm theory, consumer awareness, especially with regard to consumers' belief to control the societal and personal outcomes of consumption, was proposed as a psychological mechanism mediating the effects of the sustainability-focused values. In line with the hypotheses, results showed that the effects of sustainability-focused values on responsible consumption were at least partially mediated by one of the consumer awareness dimensions.

The mediation results show that consumers' sustainability-focused values not only have a direct effect on behavior, they also enhance certain forms of consumer awareness which then support behavior in line with consumers' values. Specifically, we found that the effect of sustainability-focused values on societal responsible consumer behavior is mediated by consumers' belief to make a difference for the society and environment, while a critical view of marketing activities such as advertising and promotions did not mediate the effect. Furthermore, in case of personal responsible consumer behavior, two dimensions of consumer awareness act as mediating variables in the value-behavior-chain. The mediating effect via susceptibility awareness was significant and greater than via personal instrumentality awareness. This suggests that for consumers' personal well-being it is of greater importance to adopt a critical attitude towards the influences in a materialistically-guided consumer society. Additionally, consumers' beliefs to have a positive impact on their daily lives facilitate personal responsible consumption.

5.2 Managerial implications

In order to establish sustainable development, there is a need to understand how to motivate consumers to engage in more responsible consumption. According to the present results, sustainability-focused value orientation and consumer awareness represent a foundation for responsible consumer behavior. Hence, societally responsible marketing has the potential to promote responsible consumption, for example by consumer education or consumer empowerment (Murphy et al. 2013).

In case of values, it has been argued that companies have a considerable impact on the values and norms in a consumer culture and play an important role in co-creating consumers' sense of responsibility (Caruana and Crane 2008; Murphy et al. 2013). For instance, corporate communication implicitly provides consumers with information concerning which behaviors are socially desirable and thereby contributes to defining the responsible consumer as a meaningful social identity (Caruana and Crane 2008).

Moreover, organizations are increasingly investing in business strategies targeted at responsible consumers (e.g., Murphy et al. 2013). An apparent example is the retail sector, in which sellers are more and more integrating organic, fair-trade, and environmentally friendly products into their assortment. Hence, acting in responsible ways becomes easier for many consumers. However, as this study underlines, it is crucial for organizations to flank their sustainable offers with appropriate

communication activities that firstly alert consumers to sustainability issues in the supply chain and secondly make the effects of these consumer decisions transparent. In this sense, transparency is a cornerstone for consumer awareness and in particular instrumentality awareness. Moreover, it is important to show consumers how their decisions have a positive impact on solving sustainability challenges or on achieving improvements for their personal well-being.

It should also be kept in mind that stressing the severity of an environmental problem in social marketing campaigns can in fact be counterproductive as it may impair consumers' instrumentality awareness (Ellen et al. 1991). As Obermiller (1995) noted, a problem focus is useful if the salience of a problem is low. If the problem salience is high, placing the emphasis on the accomplishments achieved or achievable by consumers may be more effective because it activates consumers who feel that they are actually in a position to change something (Obermiller 1995). Therefore, a two-stage approach based on domain-specific customer insight is recommended. First, organizations should measure consumers' awareness of the responsibility issue addressed by the product or service. Depending on the prominence of the issue in consumers' minds, campaigns should be focused on either raising consumers' problem awareness first or on strengthening their instrumentality awareness directly by applying a solution-oriented approach. Moreover, the level of responsible consumption should be accounted for. Haws et al. (2012) showed that reminding consumers of the future consequences of their financial decisions helped especially consumers with low self-control. Therefore, it could be assumed that strengthening instrumentality awareness will help especially consumers with unsustainable, irresponsible consumer patterns but the effect might diminish with increasing levels of responsibility.

Moreover, promoting more societal responsible consumption patterns could have direct positive effects for consumers themselves and thereby create a kind of "double dividend" (Jackson 2005). Hence, companies should look for ways to align the motives for personal well-being with the motives for sustainable product choices, especially to reach a broader market.

Taken together, consumer awareness is a central concept for any company trying to pick up on the growing trend for CSR and to overcome the antagonism of profit versus responsibility. In this regard, undertaking efforts to engage in the co-creation of sustainability-focused value orientation and raise consumers' awareness of the effects on their personal well-being and on the society becomes an important leverage for responsibility-oriented organizations. Overall, the adoption of responsible consumer behavior is a key to putting an organization's responsibility efforts onto a sustainable basis. With constantly growing problems and public attention in this domain, it is likely to be an increasingly more important topic in the short- and medium-term future.

5.3 Limitations and directions for future research

As with all research, the present study has some shortcomings. For instance, the study mainly had to rely on newly composed measurement instruments. However,

the scales were partly based on existing scales representing subsets of the suggested constructs and a pretest was conducted to test and refine scales. Moreover, item parceling was applied which can minimize errors at the item level and improves modeling effects between latent variables (Little et al. 2002). Therefore, the applied study design is reasonable and economic for a first test of the measures and the suggested research model. Still, the measures should be further refined and verified in more diverse samples, in particular if specific consumer groups are of interest (e.g., with a higher average age, lower education levels, or more male respondents).

Moreover, the causality of the relationships cannot be guaranteed because the manifestation of the variables has not been manipulated experimentally or observed over a longer period of time. For the future, longitudinal research designs may be a promising approach to study the potentially reciprocal effects between responsible consumer behavior and consumer awareness. This could be especially the case in the context of consumption effects on consumers' personal lives where consumers have the opportunity to learn based on personal experience and observe causalities by trial-and-error learning. For instance, consumers can learn, firstly, how advertising persuades them to buy things above their financial limit and, secondly, how taking responsibility for their consumption improves their financial situation.

As the study relied on self-reports, social desirability may also have been a distorting factor that has not been controlled for explicitly. However, anonymous online surveys as applied in this study have been shown to yield significantly lower social desirability scores than non-anonymous or face-to-face surveys (Dodou and de Winter 2014). While self-report data is widely used, research in many areas has addressed the relationship of self-report data and objective measures. For example, a meta-analysis from the related field of pro-environmental behavior (Kormos and Gifford 2014) found a large positive correlation between self-reported and objectively assessed behavior ($r = .46$). Moreover, the current study closely matches the suggestions for increasing the validity of self-report data. Specifically, the survey was anonymous and self-administered, and 7-point answer scales were employed to measure the constructs (Kormos and Gifford 2014). Yet, future research examining relationships of sustainability-focused values, consumer awareness and objectively measured RCB is clearly a promising step. In addition, responsible consumer behavior presented in this study mainly focused on reporting behavior in pre-purchase and purchase situations. As consumers' responsibilities may be extended to the use of products and their disposal after usage (e.g., Mohr et al. 2001), future studies could explore what drives consumers' responsible post-purchase behavior in these stages.

Moreover, the predictive validity of these antecedents should be verified in comparison to other, established measures. For instance, internal environmental locus of control which captures consumers' confidence to be personally able to protect the environment by buying green products, donate, or influence peers (Cleveland et al. 2012), should be positively related to consumer instrumentality awareness. However, these stable traits should be empirically distinct from our constructs.

On the value level, one could hypothesize that sustainable values are the "counterpart" of materialistic values as the negative association between materialistic values and pro-environmental attitudes and behavior is more and more established (see meta-analysis by Hurst et al. 2013). Further research is needed to explore this inverse relationship and determine whether materialism in fact has negative effects on consumer awareness and responsible consumer behavior. Consumer awareness as a mediator could possibly mitigate the materialistic consumption influences.

Future research could test whether basic values such as universalism (Schwartz 1994) underlie a sustainability-focused value orientation. Additionally, it could be tested whether egoistic values are predictors of less societal responsible consumer behavior as a negative relation with attitudes towards recycling has been reported (De Groot and Steg 2008). With regard to personal responsible consumer behavior, a non-significant or negative relationship could be expected because egoistic values are centered around the motive to exert power over others, whereas personal responsible consumer behavior is focused on personal well-being, which is not based on social status.

In the sustainability literature, inconsistent consumer behavior has been noted frequently (e.g., McDonald et al. 2009; Valor and Carrero 2014). Therefore, an interesting approach might be to analyze how consumers cope with conflicts between different aspects of societal or personal responsible consumption. Moreover, the role of contextual factors and external constraints, such as time pressure, shopping habits, and peer influence, could be investigated in further studies as more research regarding the interaction of contextual and motivational factors is needed (Steg and Vlek 2009; Thøgersen 2005). For example, research has shown that pro-environmental behavior is influenced by external costs (effort/expense; Hunecke et al. 2001), social context (Bamberg et al. 2007) and situational constraints (Klöckner and Blöbaum 2010). Furthermore, specific situational cues might activate or deactivate the sustainability-focused value orientation (Steg et al. 2014).

Finally, the present study primarily draws on management literature and employed common economic terminology. However, academic disciplines often operate according to their specific logics and have their own paradigms (Kuhn 1970), research questions (Stichweh 1992), and language games (Astley and Zammuto 1992). In consequence, the present article has some limitations when reading it through the lens of another discipline. This particularly holds true for such complex and multi-layered topics as sustainability and responsibility that permeate a variety of disciplines, including anthropology, evolutionary biology, physics, and philosophy (e.g., Pezzey 1992). Accordingly, the debate would benefit from interdisciplinary and transdisciplinary research that builds semantic bridges between different perspectives. Future research could, for example, include Habermas' discourse ethics (e.g., Habermas 1990) in the sustainability debate and conceptualize responsibility as an n-digit relation (e.g., Höffe 1993). This can stimulate new ideas that not only enrich the academic debate but also contribute to tackling the variety of unsolved problems in the context of sustainable development in an innovative way.

Appendix: Scales

Dimension	Items
Societal responsible consumer behavior (RCB-S)	
Environmental	I deliberately try to avoid products that cause environmental damage
	I mostly buy environment-friendly products (e.g. with an organic label)
	When I have the choice between two similar products, I always take ecological aspects into consideration
Social	I try to buy fairly traded products (e.g. with a fair-trade label)
	I strictly avoid purchasing from companies that are known for bad working conditions for their employees
	I deliberately try to buy products from companies that are considered to be socially responsible
Economic	I prefer to buy products from companies for which sustainability is more important than short-term profit
	If a company treats its customers unfairly, I will prefer to buy from others
	When making a purchase, I consider whether the company treats other market participants (e.g. competitors, suppliers) fairly
Personal responsible consumer behavior (RCB-P)	
Physical	When I am shopping, I do my best to avoid products that are harmful to my health
	I am willing to pay a price premium for healthier products
	I always take care of my health when buying a product
Socio-psychological	I try to make purchases in a way in which I do not afterwards resent the time I invested in doing so
	I try my best to make purchases in a way that does not strain my personal relationships
	I always take care that my personal well-being does not depend on what I buy and own
Financial	When I am shopping, I always pay attention to my financial limits
	I try to check contracts carefully for hidden risks
	I compare different products and providers to find the best offer for me
Sustainability-focused value orientation (SVAL)	
Environmental	I think it is more important to save environmental resources than to be able to consume a lot
	It is important to me to learn something about the ecological advantages and disadvantages of a product
	In my opinion, it is reasonable that consumers have to pay higher prices for products that cause environmental damage
Social	In my opinion, acting socially responsibly should be the foundation for all managerial decisions
	From my point of view, companies have a special social responsibility beyond making profits
	Sustainability is, in my opinion, more important for society than economic growth

continued

Dimension	Items
Economic	Personally, I think it is very important that companies act in an ethically correct manner
	It really bothers me if I find out that a company treats its employees unfairly
	I think that firms have a responsibility to treat their customers always in a fair way

Consumer susceptibility awareness (CSA)

Dimension	Items
Advertising	Consumers should invest a lot of time in order to gather product information independently from advertising's influence
	Consumers should become more aware that a product's benefits might be exaggerated in advertising
	Consumers should always make an effort to distinguish between reality and promises made in advertisements
Price	Every consumer should be careful not to be misled to buy something too quickly by the feeling of getting a good bargain
	Consumers should check very carefully if the price–performance ratio of bargain offers is really good
	Consumers should give greater consideration to the potential disadvantages of a bargain offer
Promotion/sales	It is especially important for consumers to become more aware of being often influenced by sales techniques
	Consumers must better keep in mind that marketing activities are aimed at selling as many products as possible
	Consumers should pay a lot more attention to what sales tricks are used, for example, in supermarkets
	Consumers have to make themselves more aware of how their buying behavior is influenced by others

Societal consumer instrumentality awareness (CIA-S)

Dimension	Items
Environmental	What every single consumer buys largely determines the extent of a nation's environmental problems
	The efforts of every single consumer contribute significantly to reducing environmental pollution
	When making a purchase, every consumer is always participating in the decision on whether the environment is preserved for the future
Social	Every consumer supporting socially responsible companies fundamentally contributes to the social conditions of society
	Every single consumer can significantly influence society by purchasing products from socially responsible companies
	Every consumer buying fairly traded products (e.g. with a fair-trade label), is substantially contributing to a more social society
Economic	The purchase behavior of every single consumer has a great effect on the working conditions for a company's employees
	Whether companies always treat their employees fairly strongly depends on the purchase decisions that every single consumer makes daily
	The buying behavior of every single consumer determines whether companies treat other market participants (e.g. competitors, suppliers) fairly

continued

Dimension	Items
Personal consumer instrumentality awareness (CIA-P)	
Physical	The own buying behavior has a central influence on personal health
	Every consumer can make an important contribution to physical well-being with his or her own buying behavior
	For one's own health, it is especially important to think about the purchase of products
Socio-psychological	The individual buying behavior plays an important role in the development and fostering of friendships and social networks
	The own buying behavior strongly influences personal relationships
	With one's buying behavior, one can fundamentally influence one's own happiness in life
Financial	The buying behavior of consumers is crucial for the individual financial situation
	By regulating their buying behavior, consumers can effectively avoid their own financial problems
	The individual buying behavior strongly influences whether one can get by with one's income

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