Moderators of the self-congruity effect on consumer decision-making: A pre-registered study protocol for an updated meta-analysis

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Moderators of the self-congruity effect on consumer decision-making: A pre-registered study protocol for an updated meta-analysis

Abstract

The self-congruity effect is of important managerial importance influencing brand attitudes and purchase behavior, thus generating a sustainable competitive advantage for brands and their products (Aguirre-Rodriguez, Bosnjak, & Sirgy, 2012; Beerli, Meneses, & Gil, 2007; Branaghan & Hildebrand, 2011; Sirgy, 1982; Sirgy et al., 1997). In a previous meta-analysis, Aguirre-Rodriguez et al. (2012) have confirmed the self-congruity effect and several moderators influencing the strength of the relation between self-congruity and consumer decision-making. The underlying meta-analysis extends the previous meta-analysis by including recent data (i.e., those published between 2011 and 2019) and using selected moderators based on the current state of research (Sirgy, Lee, & Yu, 2016). From the previous study, the meta-analysis considers the product stimulus abstraction, the involvement with decision making and the impression formation process, and the interactions impression formation process x involvement with decision making, product stimulus abstraction x impression formation process and product stimulus abstraction x involvement with decision making from the previous study. Additional moderators are involvement with product class, product knowledge, direct vs indirect measure, and the interactions among the moderator pairs cultural setting x self-motive socialness, product conspicuousness x self-motive socialness and response mode x enhancement motive.

1. Introduction

The congruity-effect is an important factor in determining consumers' brand attitudes and purchase behavior, offering a possible sustainable competitive advantage to marketing practitioners (Aguirre-Rodriguez, Bosnjak, & Sirgy, 2012; Beerli, Meneses, & Gil, 2007; Branaghan & Hildebrand 2011; Sirgy, 1982; Sirgy et al., 1997). Sirgy, Lee, and Yu (2016) define self-congruity as "the psychological process and outcome that a consumer engages in given that the consumer compares his or her perception of a brand image (more specifically, brand personality or brand-user image) with his or her own self-concept (e.g., actual self-image)". In other words, consumers compare different facets of their self-image (e.g. being athletic or trendy), to a specific brand or product (e.g. running shoe with athletic attributes or a fashionable clothing brand). The better the match between the consumers' self-concept and the brand image the stronger the self-congruity effect and the likeliness that a consumer will have positive brand attitudes or purchase intentions. Moreover, a positive brand image can set indistinctive products (e.g. bottled water) apart, therefore enhancing brand equity (Freling &

Forbes, 2005). As a consequence, an expressive brand image congruent with the consumers' self-concepts represents a decisive advantage for marketing practitioners, as it can be used to increase market shares (Aguirre-Rodriguez et al., 2012). Marketing practitioners can use the self-congruity effect to target specific consumer groups by actively fitting a brand image to the consumers' self-concepts. For instance, a consumer target group with a specific self-concept (e.g. being an environmentally friendly person), can become more inclined to a brand or product by making the product or brand image more suitable (e.g. energy-efficient). In this manner, market practitioners are able to keep their current customers loyal, or target new customers and widen their target group.

Given a varying strength of the self-congruity effect, Aguirre-Rodriguez et al. (2012) have conducted a meta-analysis providing evidence for several moderating effects. As they state, a meta-analysis is the right tool for assessing construct validity and generalizability (Lipsey & Wilson, 2001). Furthermore, it allows to generate an overall picture of the current research findings concerning the self-congruity effect, outlining its current limitations and shortcomings. The following study creates an updated overview by including recent studies by using the same advantages being a meta-analysis. Furthermore it replicates selected moderators from the original study (Aguirre-Rodriguez et al., 2012), with additional moderators based on current research (Sirgy & Su 2000; Sirgy et al., 2016). The moderators taken from the original study are product stimulus abstraction, involvement with decision making (cognitive elaboration) and the impression formation process, and the interactions among the moderators impression formation process x involvement with decision making, product stimulus abstraction x impression formation process and product stimulus abstraction x involvement with decision making. The additional moderators are involvement with product class, consumer knowledge, direct vs indirect measure, and the interactions among the moderator pairs culture x self-motive socialness, product conspicuousness x self-motive socialness and response mode x enhancement motive. Therefore the meta-analysis not only tries to confirm the findings from Aguirre-Rodriguez et al. (2012) but also deepen the understanding of the self-congruity effect.

2. Self-congruity effect

The self-congruity effect is the interaction between a brand image and a consumer's self-concept (Sirgy, 1982; Sirgy et al. 1997) . By comparing a brand image to their self-concept, consumers engage in a psychological process that influences their pre- and post-purchase behavior (Aguirre-Rodríguez et al. 2012; Sirgy et al., 2016). The self-congruity effect can be derived from several theoretical frameworks. According to Festinger's (1957) cognitive dissonance theory, individuals strive to act consistently between their beliefs, attitudes and behaviors, since not acting consistently, can lead to psychological distress, anxiety and tension. This assumption is fortified by the self-verification theory, according to which, individuals desire other individuals to perceive them the way they perceive

themselves (Swann Jr, 1983, 2012). They thus engage in behaviors that support their self-concept, trying to verify not only its positive aspects, but also negative ones (Huber, Eisele, & Meyer, 2018). As a consequence, a better match between a brand image and a consumer's self-concept will produce positive purchase behavior, enabling marketing practitioners to increase market shares for a product (Aguirre-Rodriguez et al., 2012; Beerli et al., 2007; Branaghan & Hildebrand 2011; Sirgy, 1982; Sirgy et al., 1997).

Over the last 35 years, the self-congruity theory has been integrated in consumer behavior and marketing research (Sirgy et al., 2016). However the self-congruity effect heavily relies on the constructs it is based on. Literature shows that both the self-concept and product image have undergone several stages of development (Aaker, 1997; Kim, 2015; Sirgy 1982; Sirgy et al., 1997; Reed II, Forehand, Puntoni, & Warlop, 2012). As a result different aspects of the constructs have been considered. The terms and definitions used in the meta-analysis is based on the original work from Aguirre-Rodriguez et al. (2012).

2.1. Self-concept

Rosenberg (1979) defines the self-concept as the feelings and thoughts a person has making reference to him or herself. The self-concept defines who an individual is, by containing the beliefs someone has about himself. In the context of consumer research, the self-concept can generally be distinguished by four different facets: the actual self, the ideal self, the social self, and the ideal social self. Each facet is driven by one of four distinct self-concept motives: self-consistency, self-esteem, social consistency and social approval; resulting in one of four self-congruity effects; actual self-congruity, ideal self-congruity, social self-congruity and ideal social self-congruity (Claiborne & Sirgy, 1990; Higgins 1987; Sirgy 1982; Sirgy & Su, 2000).

The socialness motive ranges from private to public. Private self-motives are self-centered in a way that they focus on the perspective of the consumer himself. Private self-motives predispose consumers towards brands congruent with his actual self-image and ideal self-image. They serve intra-personal acceptance goals (Sedikides, 1993). Public self-motives focus on a third party's perception of a consumer. Public self-motives predispose consumers towards brands congruent with their social self and ideal social self (Sirgy, 1982; Sirgy & Su, 2000). They serve social acceptance goals (Claiborne & Sirgy, 1990; Sirgy, 1982).

The degree of self-enhancement sought ranges from consistency type motives to enhancement type motives. Consistency type motives encourage a consumer to stay loyal to the current state of his self-concept. Consistency type motives predispose consumers towards brands congruent with their actual self and social self (Aguirre-Rodriguez et al., 2012; Sedikides & Strube, 1995). Enhancement

type motives encourage consumers to present themselves as positively. As a consequence, they tend to brand images reflecting how they want to be, rather than to how they currently are. Enhancement type motives predispose consumers to brands congruent with their ideal self and ideal social self (Aguirre-Rodríguez et al. 2012; Sedikides & Strube, 1995).

The actual self, driven by the self-consistency motive, results in the actual self-congruity effect (Sirgy, 1982). It refers to how a consumer perceives himself or herself (Hosany & Martin, 2012; Sirgy et al., 2016). The need for self-consistency reflects the consumer's desire to act consistent with their identity (Sedikides & Strube, 1995). Furthermore, according to the self-verification theory, consumers are motivated to acknowledge their self-views (Burke & Stets, 2009). Literature has proven the actual self-congruity effect to be a strong predictor of brand choice (Beerli et al., 2007; Hung & Petrick, 2011).

The ideal self, driven by the self-esteem motive, results in ideal self-congruity (Sirgy, 1982). It refers to how a consumer would like to perceive himself or herself (Hosany & Martin, 2012; Sirgy et al., 2016). Consumers pursue a self-image as positive as possible, attainment of which will boost their self-esteem (Amin, 1979; Ascher, 1985; Cast & Burke, 2002; Shang, Reed, & Croson, 2008). The ideal self-congruity effect is a strong predictor of brand choice as well (Beerli et al, 2007; Ekinci, Dawes, & Massey, 2008).

The social self, driven by the social consistency motive, results in social self-congruity effect (Sirgy, 1982). It reflects how a consumer thinks he is being perceived by others (Hosany & Martin, 2012; Sirgy et al., 2016). The social self is based on a consumer's identification with a group or social category (Reed, Forehand, Puntoni, & Wallop, 2012). Validating the social self, by purchasing a specific brand, the consumer increases his feeling of belongingness to a group and good feelings about his identity (Burke & Stets, 2009). In contrast, doubting his social self will induce negative feelings like anxiety (Large & Marcussen, 2000). As a consequence, the social consistency motive encourages consumers to maintain the image of how they think others perceive them. The actual social self-congruity has proven to be a significant predictor of brand choice (Shu, King, & Chang, 2015; Sirgy, Johar, Samli, & Claiborne, 1991).

The ideal social self, driven by the social enhancement motive, results in ideal social self-congruity (Sirgy, 1982). It reflects how a consumer would like to be perceived by others (Hosany & Martin, 2012; Sirgy et al., 2016). As a consequence, consumers will act to leave a good impression, trying to earn approval of others (Sirgy et al., 2016). Since actions inconsistent with ideal social self-image can lead to social disapproval, thus consumers experience tension (Riley, 1995). Consequently, they are motivated to act congruent with their ideal social self. Research suggests the ideal social self-congruity effect as a predictor of brand choice (Kiliç & Sop, 2012; Sirgy et al., 1991).

2.2 Brand image

The self-congruity effect consists of the relation between a consumer's self-concept and the brand image. Brand image focuses on how a brand is being displayed. Self-congruity research has mainly documented brand image as brand-user image or brand personality (Aguirre-Rodriguez et al., 2012; Sirgy et al., 2016). Brand image can be formed in a direct or indirect way (Plummer, 1985). The direct way refers to the brand-user image, it is based on the typical brand-user. In other words, a brand is being represented by its consumers, employees or CEO's. As such, the original meta-analysis from Aguirre-Rodriguez et al. (2012) refers to it as "brand-person". The brand-user image favors a strong congruity effect, since the typical brand-user as a human person allows the consumer to incorporate the same set of attributes. A potentially similar set of attributes facilitates comparing the self-concept to the brand image.

Brand personality displays brands as having human-like personality (Aaker, 1997). Perceptions of brand personality traits can be formed both the direct and the indirect way (Plummer, 1985). Consequently brand personality contains the brand-user image. However brand personality also stems from indirect associations with the brand itself, such as the logo, or price. According to Aaker (1997), a common challenge was how to define brand personality. Research has mostly resorted to two types of measurements. Researchers used ad hoc tests, developed for specific studies, thus not generalizable, or they have adapted personality traits from human personality scales, encompassing traits that may not fit brands. Since human personality scales were specifically adopted to human beings, it is uncertain if they are capable to capture brand personality in its entirety. Therefore, Aaker (1997) has developed a brand personality scale. However this brand personality scale doesn't apply equally to all settings. Research has shown significant variances in brand personalities due to cultural settings (Aaker, Benet-Martìnez, & Garolera, 2001; Supphellen & Grønhaug, 2003). Moreover brand personality changes for the product types offered by brands, the brand image is different for brands offering services (e.g. travels) in the touristic sector, than brands selling goods (Ekinci & Hosany, 2006).

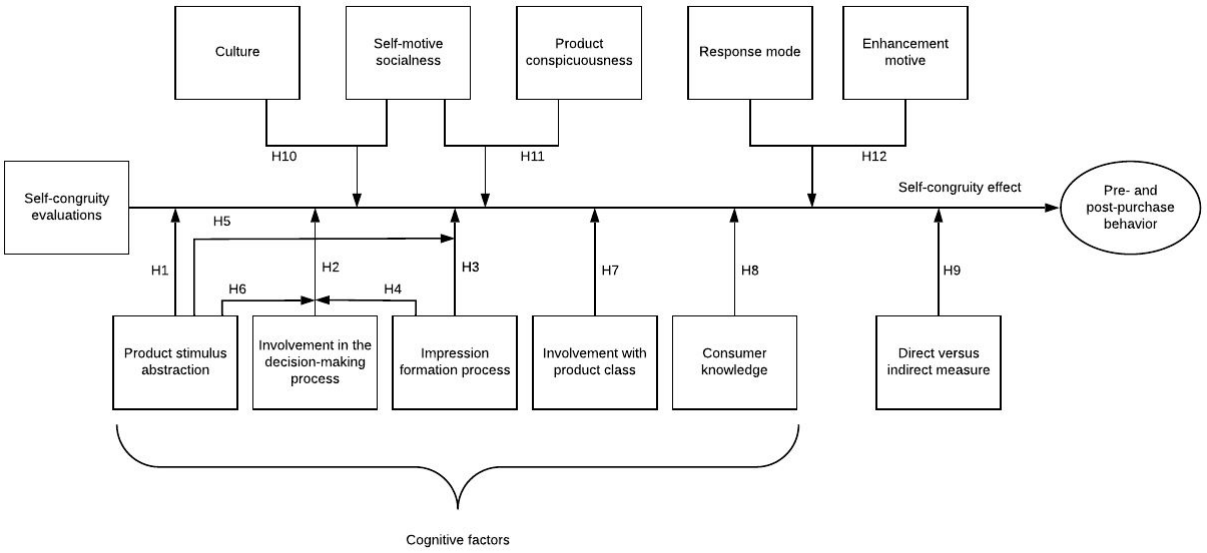

Figure 1. The theoretical model guiding the meta-analysis. Adapted from "Moderators of the self-congruity effect on consumer decision-making: A meta-analysis" by A. Aguirre-Rodriguez, M. Bosnjak, & M. Sirgy, 2012, *Journal Of Business Research*, 65, p. 1180. Copyright 2011 by Elsevier Inc.

2.3. Moderators of the self-congruity effect

Research suggests the self-congruity effect to be moderated by several moderator variables (Aguirre-Rodriguez et al., 2012; Kim, 2015; Sirgy, et al., 2016; Sirgy & Su, 2000). Moderators influence the self-congruity effect, either weakening or strengthening the effect. However some moderator variables also interact with each other, resulting in different outcomes. These moderators can either be related to the self-concept or brand personality or to the consumer himself. In the following section, a selection of moderators investigated by Aguirre-Rodriguez et al (2012) will be illustrated.

2.3.1. Product stimulus abstraction

Consumers cognitively represent brands and products as concrete or abstract attributes (Garner, 1978; Restle, 1959; Tversky, 1977; Tversky and Gati, 1978). Letting consumers judge brand stimuli results in the use of more concrete attributes. Concrete attributes correspond to distinct features, and allow consumers to rate a product based on its properties, e.g. its color or price (Johnson, Lehman, Fornell, & Horne, 1992). Consumers can use these concrete attributes to compare products from the same product class, e.g. the screen sizes of smartphones. However, comparing products from different

product classes is difficult, since they rarely possess the same features, e.g. a consumer may rate a bathtub by its capacity, whereas a television will be rated by its screen size (Johnson, 1984; Paivio, 1971). However, consumers use more abstract attributes to judge product classes (Johnson et al., 1992). Abstract attributes resemble continuous dimensions, enabling to rate products or brands based on more abstract properties, e.g. if it symbolises wealth, or its utility. Consequently, abstract attributes allow to compare products from different product classes, i.e. a bathtub can be more useful than a television depending on the situation (Johnson, 1984; Paivio, 1971).

To evaluate self-congruity, consumers can compare their self-concept to brand stimuli, from brand mental categories or product class stimuli, retrieved from product class mental categories. Consumers have greater experience with product classes than with brands, hence richer and more complete knowledge about product class attributes (Howard, 1977). Product classes are formed by comparing specific products from different brands. Since there are a multitude of products consumers can use to create a product class, the generated product class mental categories are ought to encompass a much more complete image of the stereotypical product. On the other hand, brand stimuli are limited to a product from a specific brand to form a brand mental category, limiting the available information consumers have. As a consequence, consumers have more complete mental categories for product class self-congruity evaluations, leading to a stronger congruity-effect (Aguirre-Rodriguez et al., 2012).

Furthermore, Johnson et al. (1992) suggest that product class stimuli are the preferred stimuli for consumers, as they find them more useful for product category level comparisons. Product class attributes can be used both as abstract attributes and they can be processed to features, making them more useful than brand stimuli (Johnson et al., 1992). With a preference for product class attributes, consumers should therefore tend to use product class attributes for self-congruity evaluations, leading to a stronger effect.

In addition, product class attributes facilitate the comparison process between the consumers' self-image and a product. A consumer's self-image rarely offers characteristics similar to a specific product, making trait-by-trait comparison unfeasible. Abstract product class attributes offer more comparable characteristics to the self-image, simplifying product class self-congruity evaluations (Johnson, 1984).

In conclusion a product class stimuli allow for stronger self-congruity effect than brand stimuli.

2.3.2. Involvement in the decision making process

Involvement in the decision-making describes to what extent consumers are involved in the process of selecting a specific brand (Sirgy et al., 2016). The decision-making process consists of choosing a brand within a product class by comparing different brands and picking one. When the involvement in

the decision-making process is low, consumers keep their efforts to a minimum. To foster low involvement into the decision-making, studies can require on the spot rating of brand personality traits (Aguirre-Rodriguez et al., 2012). High involvement in the decision making process requires consumers to make a conscious choice between two or more brands. Consumers are encouraged to actively seek brand information and compare them to make his choice (Sirgy et al., 2016). High involvement in the decision-making process can be fostered methodologically by letting consumers elaborate about the product or product consumption situation (Aguirre-Rodriguez et al., 2012).

For low involvement in the decision-making process, consumers do not actively seek information about a brand, but to make a choice with limited cognitive elaboration. As a consequence, consumers are likely to rely on holistic information processing using a decision heuristic (e.g. brand user image) (Sirgy et al., 2016). The self-congruity effect is likely to be strong for low involvement in the decision-making process since it serves the consumers' purpose by assisting them in making this choice (Beerli et al., 2007). For high involvement in the decision-making process, consumers do not rely as much on decision heuristics and use a higher level of cognitive elaboration to choose a brand, hence weakening the self-congruity effect.

2.3.3. Impression formation process

Consumers can evaluate self-congruity using piecemeal or holistic processing to compare a brand personality to their self-concept (Aguirre-Rodriguez et al., 2012). Piecemeal processing uses a trait-by-trait evaluation of the brand personality. Brand personality judgement will be formed by evaluating each brand attribute separately and then comparing it to the self-concept. Holistic processing gives consumers a more overall impression of a brand personality. When consumers are confronted with a specific stimulus, they will try to categorize it, using data from memory based on prior experiences for holistic processing. The brand personality can either fit a category, fit a category with few modifications, or form a new category (Keaveney & Hunt, 1992).

The self-congruity effect is likely to be stronger for holistic processing than for piecemeal processing, because holistic processing requires less effort than piecemeal processing while taking into account previous consumer experiences. To form an overall judgement using piecemeal processing attribute ratings have to be combined, demanding cognitive resources (Fiske, 1982; Fiske & Pavelchak, 1984). Moreover, this process has to be done for each brand personality, requiring consumers to spend cognitive resources repeatedly (Keaveney & Hunt, 1992). However, consumers automatically form holistic impressions even for initial stimuli, (Fiske & Neuberg, 1990; Fiske & Pavelchak, 1986). Therefore, holistic processing directly offers an overall brand personality image, requiring consumers to spend less cognitive resources, thus strengthening the self-congruity effect as a peripheral cue on brand evaluations (Petty, Cacioppo, & Schumann, 1983). Moreover, since holistic processed brand

personalities are largely based on existing categories, they are likely to offer a more complete brand personality image, than the sum of the traits (Keaveney & Hunt, 1992; Zimmer & Golden, 1988). A more complete brand personality image should allow consumers to better compare the brand personality image to their self-concept strengthening the self-congruity effect (Aguirre-Rodriguez et al., 2012).

2.3.4. Involvement in the decision-making process interaction x Impression formation process

The impression formation process produces strong self-congruity effects with either low or high involvement in the decision-making process. Low involvement in the decision-making process requires consumers to evaluate brand personalities using minimal cognitive resources (Sirgy et al., 2016). Holistic processing produces an overall brand personality image containing the most pertinent brand information, which suits the low involvement in the decision-making process modality, resulting in a strong self-congruity effect (Keaveney & Hunt, 1992). The self-congruity effect for the interaction between piecemeal processing and the low decision-making process modality should be weaker, since piecemeal processing provides many different traits, complicating the low cognitive elaboration approach of the low involvement in the decision making process (Keaveney & Hunt, 1992).

High involvement in the decision-making process requires consumers to actively seek information and compare brand personality images. Consumers can thus process brand personality using piecemeal processing which provides the necessary information to justify a brand choice, leading to stronger self-congruity effect (Sirgy et al., 2016). Holistic processing providing an overall impression should result in a weaker self-congruity effect with high involvement in the decision-making process, since both modalities use different types of information.

2.3.5. Product stimulus abstraction x impression formation process interaction

To evaluate self-congruity with product class stimuli, consumers resort to abstract product attributes from product class mental categories. Abstract product stimuli are dimensional representing more holistic evaluations (Johnson et al., 1992). Consequently, product class stimuli fit holistic impressions, offering a complete holistic product or brand image, resulting in a stronger self-congruity effect (Keaveney & Hunt, 1992). Piecemeal processing results in trait-by-trait information processing, rendering self-congruity evaluations with product class stimuli more effortful, since the attributes have to be combined to form an overall judgment, hence weakening the self-congruity effect (Fiske, 1982; Fiske & Pavelchak, 1984). The evaluation of brand stimuli uses distinct product features which need to be reevaluated for every new stimulus (Johnson, 1984; Paivio, 1971). Piecemeal processing is able to provide these narrow concrete information resulting in a stronger self-congruity effect. Holistic

impressions require more cognitive elaboration to be converted into smaller concrete brand stimuli, weakening the self-congruity effect.

2.3.6. Product stimulus abstraction x involvement in the decision-making process interaction

Self-congruity evaluations derived from product class mental categories use abstract product class attributes. A product class attribute encompasses several concrete brand attributes, making product class stimuli more economical than brand stimuli (Johnson, 1984; Paivio, 1971). Consumers engaging in self-congruity evaluations with low involvement in the decision making process, try to keep their cognitive efforts to a minimum (Sirgy, Lee, & Yu, 2016). Product class stimuli should therefore result in a strong self-congruity effect with low involvement in the decision-making process. Brand stimuli provide more concrete narrow information about brands. They require more cognitive elaboration, thus resulting in a weaker self-congruity effect with low involvement in the decision making process (Keaveney & Hunt, 1992). Brand stimuli provide more specific information about each brand. Consumers with high involvement in the decision-making process actively seek information to compare brands to their self-concept, investing more cognitive resources (Keaveney & Hunt, 1992). Consumers with high involvement in the decision-making process should therefore have a stronger self-congruity effect using brand stimuli to compare brands. Product class stimuli result in a weaker self-congruity effect, since they provide fewer abstract attributes for a comparison.

2.4. Research Gaps: Additional moderators of the self-congruity effect

Current literature suggests additional moderators besides the ones used by Aguirre-Rodriguez et al. (2012). The following moderator variables have been identified by several studies (Kim, 2015; Sirgy & Su, 2000; Sirgy, Lee, & Yu, 2016), however they were not included in the original meta-analysis. Even though the moderators can be supported theoretically, they need to be verified using a meta-analysis.

2.4.1. Involvement with product class

Involvement with product class describes to what extent a product category is important in defining a consumer's identity (Sirgy, Lee, & Yu, 2016). Consumers who are highly involved with a product class, have formed an emotional bond with a product class by interacting with it. Consumers can interact with product classes by consuming products, or by engaging mentally with them on a regular basis, e.g. reading or talking about it. A consumer who is highly involved with a specific product, e.g. automobiles can be involved by reading a car magazine, or driving a car himself. Consequently he is likely to enhance brand relationship quality (Kressmann, Sirgy, Hermann, Huber, Huber, & Lee,

2006). Likewise, high involvement with product class can be observed in travel research. Consumers tend to integrate travelling to their self-concept, either bonding with the type of travel (e.g. cultural tourism, leisure travel), the tourist destination, or the specific culture, they encounter. As a consequence, high involvement with product class, results in a strong self-congruity effect (Beerli et al., 2007; Hou, Lin, & Morais, 2005; Prayag & Ryan, 2012).

2.4.2. Consumer knowledge

Consumers' brand schemas and product class schemas are based on knowledge structures. Consumers initially categorize products at basic level, as they acquire more knowledge, they extend their brand and product class schemas. With increasing knowledge, consumer's expertise improves, allowing them to better categorize new information and compare brands (Alba & Hutchinson, 1987). Product information can be divided into intrinsic and extrinsic cues. Intrinsic cues can be derived from the physical product itself, extrinsic cues contain product related information (Olson, 1973). Rao & Monroe (1988) used product cues to determine a U-shaped relation between product knowledge and brand evaluation.

Limited knowledge limits the extent to which brand or product class schemas can be applied. Consumers lack the knowledge structures to efficiently categorize new product information (Alba & Hutchinson, 1987). Consumers are therefore likely to rely on extrinsic cues, to evaluate brands. Consequently, consumers with low knowledge rely on holistic decision heuristics, bolstering self-congruity. Consumers with moderate knowledge have larger knowledge structures, with more accessible product information (intrinsic cues). As a consequence, they are likely to consider more functional product aspects during their evaluation, weakening the self-congruity effect. Consumers with high knowledge are more skilled in categorizing new information into existing brand or product class schemas (Alba & Hutchinson, 1987). They can resort on already existing schemas, resulting in a more holistic and efficient information processing. This abstraction level should lead to a stronger self-congruity effect. (Kim, 2015; Sirgy et al., 2016).

2.4.3. Direct versus indirect measure

Self-congruity studies have mainly been using two different measures of the self-congruity effect, the traditional indirect measure and the direct measure of self-congruity. The traditional method does not directly measure the self-congruity construct, but assesses self-congruity using self-concept and product user image. By mathematical computing discrepancy scores between both constructs, a self-congruity score is generated. This procedure has to be repeated for each image dimension of a brand or product, which will then be combined into an overall self-congruity score. However, the traditional method of measuring can be criticized methodologically (Sirgy, Grewal, Mangleburg,

Park, Chon, Claiborne, Johar, & Berkman, 1997). First, discrepancy scores have been challenged for being potentially unreliable and having questionable construct validity (Johns, 1981; Peter, Churchill, Brown, 1993). Another important factor is that the discrepancy score does not incorporate any reference to the psychological congruity-experience (Sirgy et al., 1997). A second factor is the use of predetermined images. To rate the consumer self-concept and product user image, studies traditionally use semantic differentials, with either taylormade or a standard set of product images. (Malhotra, 1981; Sirgy, 1982; Sirgy, 1985). While rating semantic differentials using the traditional method, consumers may personally only find few image dimensions meaningful. Since consumers will have to rate other dimensions, which may not be meaningful to them, self-congruity scores constitute random error in measurement. A third factor is the use of the compensatory decision role. Consumers rate self-congruity with a variety of image dimensions, from which they draw an overall self-congruity score. Though, self-congruity may only be experienced for some of the image dimensions, consumers will approximate the score over all image dimensions, generalizing the self-congruity score, biasing self-congruity scores (Sirgy et al., 1997).

The direct measuring method instructs consumers to conjure up a product user image at the moment of response thus thinking about the product user. Consumers are hence conjuring their proper image dimensions, eliminating the problem of the predetermined factors. Next the consumers are asked to rate on a global holistic perception their match with the imagined product user. As such, they not only rate self-congruity directly, but they also eliminate the use of a compensatory decision rule, by taking a more holistic approach. As such the new measuring method solves all methodological problems raised by the traditional method. As a consequence the new self-congruity measures have a higher predictiveness over the traditional one (Sirgy et al., 1997).

2.4.4. Cultural setting x self-motive socialness interaction

Consumers from different cultures have varying self-construals. Self-construals define to what extent an individual sees himself or herself as an independent or dependent entity in relations to others (Agrawal & Maheswaran, 2005; Triandis, 1996). Consumers from individualistic cultures have independent self-construals. In individualistic cultures, the ties between individuals are loose. Consumers from individualistic cultures are self-centered, taking care only of themselves and their close family (Hofstede, 2011). They consider themselves as unique, characteristics that distinguish them from others are valued, as they are less influenced by the opinions of others (Heine, Lehman, Markus, & Kitayama, 1999; Triandis, 2001). Private self-motives dispose consumers towards brands congruent with their actual and ideal self-image, they are serving intra-personal acceptance goals (Sedikides, 1993). Consequently private self-motives should result in a stronger self-congruity effect

for consumers from individualistic cultures than from collectivistic cultures (Litvin & Kar, 2003; Sung & Choi, 2012).

Individuals with interdependent self-construals define themselves in relation to others, they see themselves as part of a group (Agrawal & Maheswaran, 2005; Triandis, 1996). Group membership and social roles are important aspects of their self-concept (Markus & Kitayama, 1991; Singelis 1994). Since consumers with interdependent self-construals see themselves as strongly connected to their social network, they are influenced by the opinion of others (Heine et al., 1999; Triandis, 2001). Public self-motives predispose consumers towards brands congruent with their social self and ideal social self (Sirgy 1982; Sirgy & Su, 2000). They focus on others' perception, serving social acceptance goals (Claiborne & Sirgy, 1990; Sirgy, 1982). As a result, public self-motives should result in a stronger self-congruity effect for consumers from collectivistic than from individualistic cultures (Kim & Hyun, 2013; Sirgy et al., 1991).

2.4.5. Product conspicuousness x self-motive socialness interaction

According to research, the self-congruity effect is likely to be stronger for products that are consumed conspicuously, than for products that are not consumed inconspicuously (Baja, Palacios, & Minton, 2018). Conspicuous products are consumed in public, they symbolize prestige and social status for the consumer (Eastman, Goldsmith, & Flynn, 1999; Veblen, 1934). Public self-motives dispose consumers towards products that either reflect their social self (displaying how they think they are perceived), or their ideal social self (displaying how they like to be perceived) (Hosany & Martin, 2012; Sirgy et al., 2016). As a consequence, consumers are self-conscious, motivating them to purchase products as an expression of their public self image (Berger & Heath, 2007, 2008). However, inconspicuous products do not affect consumers' public self-image, but need to fit their private self-image instead. Therefore, consumers will be driven by private self-motives, disposing consumers towards products congruent with their actual and ideal self-image (Sedikides, 1993).

2.4.6. Response mode x enhancement motive interaction

According to Sirgy (1987), the activation of actual or ideal self-image during self-congruity evaluations is dependent on the consumer's response mode. The response mode can refer to a preference judgement type or brand choice type. For instance, a study can require consumers to rate which product they prefer, or a study can evaluate brand choice, based on the products a consumer actually bought (Sirgy & Su 2000). Sirgy (1987) argues that the self-esteem motive is more likely to be activated in judgement-type decisions, than in choice-type decisions. Since the ideal self-image is driven by the self-esteem motive, ideal self-motives should produce a stronger self-congruity effect when combined with preference judgement type choice (Sirgy, 1982). Conversely, brand choice is

likely to activate a consumer's consistency motives. Since consistency motives drive the actual self-image, the self-congruity effect is likely to be stronger for brand choice than for preference type choice (Hong & Zinkhan, 1995; Varvoglis, 1987).

3. Research Question and Moderator Hypotheses

The self-congruity effect can be an important tool for marketing practitioners. By influencing consumer purchase behavior and brand attitude, the self-congruity effect can potentially offer advantages for marketing practitioners in successfully promoting their product (Aguirre-Rodriguez, Bosnjak, & Sirgy, 2012; Beerli, Meneses, & Gil, 2007; Branaghan & Hildebrand 2011; Sirgy, 1982; Sirgy et al., 1997). To make effective use of the self-congruity effect, it is utmost important to gain insight in its effects and the influencing moderators. As a consequence, several studies have contributed to the self-congruity effect, revealing a multitude of moderators (Kim, 2015; Sirgy & Su, 2000; Sirgy, Lee, & Yu, 2016). These studies are however mostly limited by focusing on a few moderating factors and by being conducted in a specific cultural context. To draw a more complete picture of the self-congruity effect, a meta-analysis should be the right tool, since it considers the current state of research by combining studies into an overall score. Thus a meta-analysis allows to take numerous moderators into consideration while also reuniting studies being conducted with different samples and cultural contexts. As a consequence a meta-analysis can provide evidence of construct validity and generalizability (Lipsey & Wilson, 2001). Furthermore, it should be useful explaining the high variability of the self-congruity research (Bauer, Mäder, & Wagner, 2006). A first meta-analysis was done by Aguirre-Rodriguez et al. (2012), providing evidence for the self-congruity effect. They found significant effects for the moderators product stimulus abstraction, impression formation process and the interactions product stimulus abstraction x impression formation process and product stimulus abstraction x involvement in the decision making process (cognitive elaboration). The moderator involvement in the decision making process (cognitive elaboration) and the interaction impression formation process x involvement in the decision making process (cognitive elaboration) could not be confirmed. Since the meta-analysis was conducted in 2012, more recent studies are not included. The present meta-analysis therefore aims at confirming the findings from the Aguirre-Rodriguez et al. 2012, but also to reinvestigate the moderators that could not be confirmed. Results could differ because studies up to 2020 are integrated. Additionally, a three-level random effects model is employed, to consider dependencies among effect sizes (Konstantopoulos, 2011). The current study furthermore includes the moderators involvement with product class, consumer knowledge, direct versus indirect measure and the interaction effects culture x self-motive socialness,

product conspicuousness x self-motive socialness and response mode x enhancement motive. As a consequence the study outlines a much more complete set of moderating effects (Figure 1).

The following hypotheses are based on the previous theoretical elaborations:

H_1: Product stimulus abstraction moderates the self-congruity effect, producing stronger effects from product class stimuli than brand stimuli.

H_2: Involvement in the decision-making process moderates the self-congruity effect, producing stronger effects under low than high involvement in the decision-making process.

H_3: Impression formation process moderates the self-congruity effect, producing stronger effects for holistic than piecemeal self-congruity effects.

H_4: Involvement in the decision-making process interacts with impression formation process; such that (a) low involvement in the decision-making process produces stronger self-congruity effects with holistic than piecemeal processing, and (b) high involvement in the decision-making process produces stronger self-congruity effects with piecemeal than holistic processing.

H_5: Impression formation process interacts with product stimulus abstraction, such that (a) product class self-congruity evaluations produce stronger self-congruity effects under holistic than piecemeal processing, and (b) brand self-congruity evaluations produce stronger self-congruity effects under piecemeal than holistic processing.

H_6: Involvement in the decision-making process interacts with product stimulus abstraction, such that (a) product class self-congruity evaluations produce stronger effects under low than high involvement in the decision-making process, and (b) brand self-congruity evaluations produce stronger self-congruity effects under high than low involvement in the decision-making process.

H_7: Involvement with product class moderates the self-congruity effect, producing stronger effects under high than low involvement with product class.

H_8: Consumer knowledge moderates the self-congruity effect, producing stronger effects under high and low knowledge conditions, much more so than under moderate knowledge conditions.

H_9: Direct and indirect measures of self-congruity moderates the self-congruity effect, producing stronger effects for direct measures than for indirect measures.

H_{10}: Self-congruity studies under conditions of low socialness motive (actual and ideal self-congruity studies) are likely to be more predictive of consumer behavior administered in countries in which the culture is more individualistic than collectivistic. Conversely, self-congruity studies under conditions of high socialness motive (social and ideal social self-congruity studies) are likely to be more predictive of consumer behavior administered in countries in which the culture is more collectivistic than individualistic.

H_{11}: Self-congruity studies under conditions of high socialness motive (social and ideal social self-congruity studies) are likely to be more predictive of consumer behavior administered for products consumed more (than less) conspicuously. Conversely, self-congruity studies under conditions of low socialness motive (actual and ideal self-congruity studies) are likely to be more predictive of consumer behavior administered for products consumed less (than more) conspicuously.

H_{12}: Self-congruity studies under conditions of high enhancement motive (ideal and ideal social self-congruity studies) are likely to be more predictive of consumer behavior in which the dependent measure is brand attitude more so than if the dependent measure is brand purchase (or purchase intention). Conversely, self-congruity studies under low enhancement conditions (actual and social self-congruity studies) are likely to be more predictive of consumer behavior in which the dependent measure is purchase intention or brand purchase than studies in which the dependent measure is purchase intention/brand choice.

4. Methods

4.1. Inclusion and exclusion criteria

A complete picture of the current state of research is drawn, by including all studies without any limiting time frame, hence studies up to 2019 are included. The studies should provide quantitative data reporting of bivariate statistical association of self-congruity and pre-purchase or post-purchase behavior outcomes and sample sizes to allow statistical processing. Neither the self-concept, nor the purchase behavior is limited to any specific facet. The studies should be written in English or German.

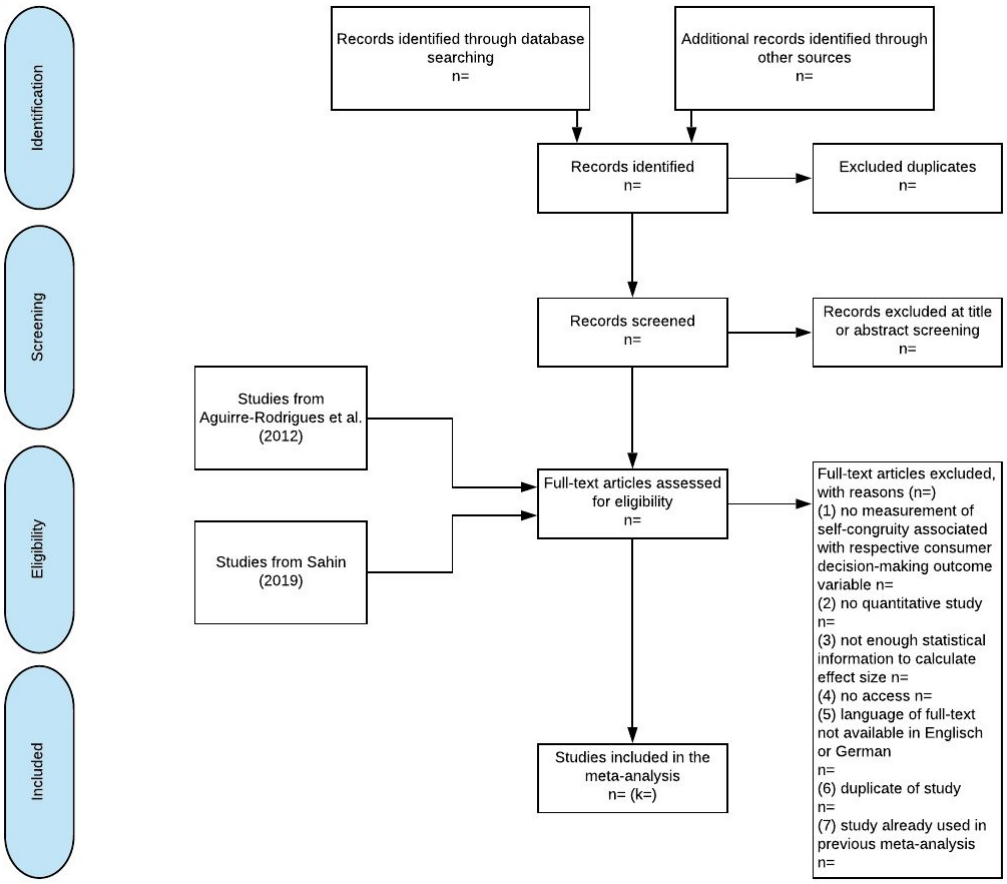

Figure 2. PRISMA flow diagram (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009), documenting the literature search and study selection process.

4.1. Literature search and study selection

During the identification of the studies, a literature research is conducted from 2018 to 2019 using electronic databases: Academic Search Ultimate, Business Source Premier, EconLit, Business Source Ultimate, Google Scholar, PsycARTICLES, PsycINFO, PsyJournals, PSYNDEX, Proquest and Web of Science. Search keywords for the abstract and the full text are “self-image congruity”, “self-image congruence”, “self-congruity”, “product image congruity”, “image congruence”, “self-congruence” combined with “product”, “” or “consumer”, “marketing”, “tourism”, “travel”. To limit operating expense, studies from the previous meta-analyses conducted by Aguirre-Rodriguez et al. (2012) and by Sahin (2019) are used to cover the past time period up to 2019, providing a complete database. Next the database is checked for duplicates, which will be removed in the subsequent step. During the screening process, the record’s titles and abstracts are screened, excluding the reports that do not suit the topic targeted by the meta-analysis. During the eligibility assessment, studies are checked for their availability. If unavailable, authors are addressed using a standardised form, asking for access to the

reports (Appendix A). Furthermore the full texts are screened for language, adequate effect sizes and redundancy of the data used in the studies (Figure 2). Studies not conforming to the criteria, were excluded. Finally a complete list of the database is compiled, which will be used during the data extraction process.

4.2. Coding procedures and data extraction

Coding is done using a coding sheet and coding manual established and tested beforehand. The coding sheet provides a standardised process to organize the studies and the included effect sizes, as well as a system to code the required variables (Appendix B). The coding manual provides additional information for the coding procedure and the use of the coding sheet. It informs the coder which numerical value to assign to the specific outcomes and to code missing variables using "NA". Both coding sheet and coding manual are subdivided into the sections "report", "study", sample, and "effect size" analog to the multilevel approach used for statistical analysis. On the report level general information about the coding process such as the date of coding, coder id, and information about the manuscript such as a unique manuscript id, the year, the bibliographic reference, the name of the first author, title and publication type are being extracted. On the study level, each study is given a unique study is given to each study of the manuscript, and the respective study design is being extracted. On the sample level, a sample id is being assigned to each sample. Information about the country and region of data collection, country and region of the sample and gender, age and standard deviation of the sample's age are being extracted. On the effect size level, each effect size is given a unique effect size id. The dependent and independent variable variables and their measures are coded. Next the correlation coefficient is extracted if available, elsewise any available effect size is coded to be converted into a correlation coefficient for the analyses. The moderators are then by assigning numerical values to categorical moderators and interaction effects. The moderator "cultural setting" will be converted to a numerical value during the coding process, using Hofstede's individualism index (EDC). After each coding section, a section for notes about any peculiarities during the extraction of the data and a section for comments about peculiarities regarding the content is provided. Reports are coded by two coders. Coders should already have experience in coding and knowledge about statistical measures. To get acquainted with the moderator variables, both coders, are given a conceptualization and operationalization sheet of the moderators (Appendix C). This sheet includes the moderators and their levels, as well as a short explanation of each modality and its measurement. During a pilot phase, both coders test the coding manual and coding sheet to enable them to identify any possible issues. In case of issues, the coding sheet and manual will be adapted to their needs to ensure a correct data extraction process. During the actual data coding, coders use the database list, which indicates the order of reports that have to be coded. As mentioned beforehand, coders extract

the needed values which are then inserted into the coding sheed, using the coding manual. After completion of the coding process, the coding sheets of both coders are compared asserting any discrepancies. In case of discrepancies, the concerned paper has to be checked again, to extract the right data.

4.3. Effect size

For initial analysis, effect sizes are coded as Pearson correlation coefficients (*r*), if available. Pearson correlation coefficients (*r*) provide a linear bivariate correlational effect between the self-congruity effect and purchase behavior (Sherry & Henson, 2005). A correlation coefficient (*r*) close to 0 implies no linear relationship between the independent variable and the outcome variable, however a correlation coefficient (*r*) tending to 1 or -1 indicates a positive or negative relationship respectively between the two variables. For studies reporting inverse correlations due to methodological differences, the effect sizes will be inverted for analysis. For the moderator analysis, the Pearson correlation coefficients (*r*) will be converted into Fisher's *Zr*, using Fisher's variance-stabilizing (Goth, Halla & Rosenthal, 2016).

For studies not reporting any correlation coefficients (*r*), the available effects sizes are coded and used to compute and estimate a Pearson correlation coefficient (*r*) using the statistical recommendation guide by Wilson (2018). Due to non-equivalence of metrics for predictors and outcomes of studies, estimation of diverse models across studies, and scareness of information in study reports in general, standardized regression type model path weights β are excluded from the analyses.

4.4. Data synthesis

Since one study can report multiple effect sizes, data is likely to be in shape of a nested data structure, due to correlational dependencies among effect sizes (Borenstein, Hedges, Higgings, & Rothstein, 2009). To consider dependencies among effect sizes, a three-level meta-analysis is fitted to the data (Konstantopoulus, 2011). A three-level meta-analysis will use original information while bolstering statistical power by using different types of sampling variances (Cheung, 2014; Van den Noortgate, López-López, Marín-Martínez, & Sánchez-Meca, 2012). To determine where the variation of the effect sizes is greatest, a three-level meta-analysis provides estimates for sampling variances at level 1, for within-study variances at level 2 and between-study variances at level 3 (Borenstein et al., 2009; Konstantopoulus, 2011). To consider disparate measurements of self-congruity and its respective outcome variable across studies, a random effects model is used (Hedges & Olkin, 1985; Hedges & Vevea, 1998).

For statistical analysis RStudio version 1.3.1056 (RStudio Team, 2020) and the R package metafor (Viechtbauer, 2010) are used. A 95% confidence interval is used for significance testing. To address

the probability of unreasonable significance, the adjustment by Knapp and Hartung (2003) is used. Missing values are being excluded.

4.5. Main effect analysis

To assess the main effect, a three-level random effects model is given to the data, allowing to assess the effect size of the correlation for self-congruity and consumer purchase behavior. Hence, the mean effect size was generated using an average of Fisher's *Zr* coefficients, weighted by an inverse variance component entailing sampling variance and between study variance.

4.6. Heterogeneity

To assess heterogeneity for the three-level structure I^2 is used according to the Cochrane Collaboration's Guide (Higgins & Green, 2011). Heterogeneity of effect size estimates from individual studies is assessed using Cochran's *Q*-test for the moderator analyses (Cochran, 1954).

Since *Q* is assumed to follow χ^2, it should grant inferential tests for heterogeneity. As the null hypothesis supports homogeneity of the effect size distribution , a significant *Q*-test supports the plausibility of investigating moderating variables for heterogeneous effect size distribution (Aguirre-Rodríguez et al. 2012; Hoaglin, 2016). To estimate the parameters that describe the variance of the estimated true scores for within studies (level 2) and between-studies (level 3), the restricted maximum likelihood estimation method (REML) is used (Viechtbauer, 2010). The total amount of heterogeneity (τ^2) in true effects consists of level 2 variance (σ^2_1) and level 3 variance (σ^2_2). Two one-sided log-likelihood ratio tests with a null hypothesis indicating zero variance test the significance of σ^2_1 and σ^2_2. A significant log-likelihood suggests consideration of within- and between- study variance in the model. Furthermore, the intraclass correlation coefficient (*ICC*), within a study indicates whether true effects are correlatively interlinked with each other, hence the need of a three-level structure (Assink & Wibbelink, 2016).

To assess the proportion of total variability, ascribed to heterogeneity among true effects, I^2 was used (Viechtbauer, 2010). I^2 was adapted for a random effects model with three level structure according to Cheung (2011). According to this adaptation, heterogeneity can be estimated using three levels of proportions of total variation of true effects, resulting in $I^2 \geq 25\%$ for small, $I^2 \geq 50\%$ for medium and $I^2 \geq 75\%$ for high heterogeneity (Higgins, 2003).

4.7. Moderator analyses

Moderator variables influence the relationship between the self-congruity effect and consumer behavior, leading to effect size variability. Heterogeneous effect sizes manifest themselves in

significant *Q*-scores. As a consequence, significant *Q*-scores support the probability of influencing moderator variables.

To assess the significance of moderators and interaction effects, omnibus tests under random effects assumption are conducted (Aguirre-Rodriguez et al., 2012). A moderator analysis assesses the significance of a moderator and its influence. During the moderator analyses, categorical moderators are dummy coded and included into a three-level meta-regression model. The socialness motive is used to generate subgroups to evaluate the interaction for the socialness motive and cultural setting, using each one of the subgroups (Assink & Wibbelink, 2016; Viechtbauer, 2010).

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Appendix A: Request for Access to Manuscripts

Subject: Access to your manuscript [insert manuscript's name here]

Dear [insert author's name here],

I am a graduate student at the University of Trier working on my thesis. My thesis research involves a meta-analysis of self-congruity studies. Specifically, my research is an extension of a meta-analysis study conducted by Aguirre-Rodriguez, Bosnjak & Sirgy (2012).

The exact reference is:

• Aguirre-Rodriguez, A., Bosnjak, M., & Sirgy, M. J. (2012). Moderators of the self-congruity effect on consumer decision-making: A meta-analysis. Journal of Business Research, 65, 1179- 1188.

Unfortunately, I do not have access to your manuscript [insert manuscript's name here].

I would be grateful if you could provide access to the manuscript to me to be included in the analyses. Thank you very much for your kind support. If you have any questions about this, please do not hesitate to contact me.

Kind regards,

Luc Ulmerich

Appendix B: Coding manual

Code missing values as NA.

Variable	Coding system
1. Report	
General information	
Date form completed [date]	Register the date of completing the form (dd/mm/yyyy)
Coder ID [coderID]	Assigned name of the person extracting the data
Study characteristics	
Manuscript [manuscrID]	Assign unique identification number to manuscript (1, 2, 3, etc.)
Bibliographic reference [citat]	Complete citation in APA form
Author [author]	Name the first author of the manuscript
Year [year]	Year of publication of the manuscript
Title [title]	Title of the manuscript
Type of publication [pub.type]	Specify what type of publication the study is 1 = journal article 2 = doctoral dissertation 3 = thesis 4 = book or book chapter 5 = conference paper 6 = technical report 7 = pre-print 8 = other
Notes	
Notes [notes1]	If any peculiarities or ambiguities in the extraction of the data have occured, please specify.
Comments [comments1]	If any peculiarities or other interesting aspects have been explored or described in the study, especially regarding the content, please specify.
2. Study	
Manuscript ID [manuscrID]	Report identification number of the manuscript (see report section)

Study ID [studyID]	Assign a unique identification number to each study (1, 2, 3, etc.)
Study design [design]	Specify the research design of the study, in terms of the data that make up the effect size 1 = descriptive (e.g. mean and standard deviation, including case study 2 = correlational (relationship between variables, e.g. correlation coefficient r; including case-control study, observational study) 3 = semi-experimental (e.g. field experiment, quasi-experiment) 4 = experimental (experiment with random assignment) 5 = review (literature review, systematic review) 6 = meta-analytic (meta-analysis) 7 = other (e.g. combination of longitudinal and experiment, etc.)
Notes	
Notes [notes2]	If any peculiarities or ambiguities in the extraction of the data have occured, please specify.
Comments [comments2]	If any peculiarities or other interesting aspects have been explored or described in the study, especially regarding the content, please specify.

3. Sample

Study ID [studyID]	Report identification number of the study (see study section)
Sample ID [sampleID]	Assign a unique identification number to each (sub-)sample. Of one study examines multiple (sub-)samples, each gets its own identification number and its own line in the the coding scheme with its own sample ID
Sample size [n]	Number of subjects

Country of data collection [countryD]	Name the country in which the date collection took place. Code the best information available.
Country of sample [countryS]	Name the country most of the sample is coming from. Code the best information available.
Region of data collection [regionD]	Name the region in which data collection took place. Code the best information available. Based on the "standard country or area codes for statistical use (M49)" by the United Nations (1 = North America; 2 = Central America; 3 = Caribbean; 4 = South America; 5 = Western Europe; 6 = Northern Europe; 7 = Southern Europe; 8 = Eastern Europe; 9 = Northern Africa; 10 = Western Africa; 11 = Middle Africa; 12 = Eastern Africa; 13 = Southern Africa; 14 = Western Asia; 15 = Central Asia; 16 = Southern Asia; 17 = Southeastern; 18 = Eastern Asia; 19 = Micronesia; 20 = Polynesia; 21 = Melanesia; 22 = Australia and New Zealand)
Region of sample [regionS]	Name the region most of the sample is coming From place. Code the best information Available. Based on the "standard country or area codes for statistical use (M49)" by the United Nations (1 = North America; 2 = Central America; 3 = Caribbean; 4 = South America; 5 = Western Europe; 6 = Northern Europe; 7 = Southern Europe; 8 = Eastern Europe; 9 = Northern Africa; 10 = Western Africa; 11 = Middle Africa; 12 = Eastern Africa; 13 = Southern Africa; 14 = Western Asia; 15 = Central Asia; 16 = Southern Asia; 17 = Southeastern; 18 = Eastern Asia; 19 = Micronesia; 20 = Polynesia; 21 = Melanesia;

	22 = Australia and New Zealand)
Sex of sample [sex.male]	Write the % of the proportion the male subjects in the sample.
Age of sample [age]	Write the average age of subjects in the sample. Code the best information available; estimate mean age from grad levels if necessary.
Standard deviation of age sample [ageSD]	Write the standard deviation of average age of subjects in the sample. Code the best information available.
Notes	
Notes [notes3]	If any peculiarities or ambiguities in the extraction of the data have occured, please specify.
Comments [comments3]	If any peculiarities or other interesting aspects have been explored or described in the study, especially regarding the content, please specify.

4. Effect size

Sample ID [sampleID]	Report identification number of the (sub-)sample (see sample section).
Sample size [n]	Number of subjects
Effect size ID [esID]	Assign each effect size within a study a unique number. Number multiple effects sizes within a study sequentially, e.g. 1, 2, 3, 4, etc., each gets its own line in the coding scheme with its own es.id.
Page of effect size [es.page]	Page number where the data for this effect size can be found.
Independent variable [ind.var.]	Name the specific independent variable
Independent variable measure [ind.var.meas]	Describe the method (e.g. scale by which the authors) on how the independent variable was measured.
Outcome variable [out.var]	Name the specific outcome variable
Numeric outcome variable [out.num]	Name the outcome variable using a numeric Value. 1 = attachment

	2 = attitude 3 = behavior 4 = brand involvement 5 = brand passion 6 = brand response 7 = commitment 8 = familiarity 9 = intention 10 = intimacy 11 = loyalty 12 = motivation 13 = passion 14 = perception 15 = preference 16 = recommendation 17 = satisfaction 18 = trust 19 = value 20 = word-of-mouth 21 = other
Outcome category [out.cat]	1 = pre-purchase 2 = post-purchase
Outcome variable measure [out.var.meas]	Describe the method (e.g. scale by which authors) on how the outcome variable was measured
Correlation coefficient [r]	Correlation coefficient r of self-congruity and the respective consumer decision-making outcomes. If there is no correlation coefficient reported, specify the information in the next items and type NA in this item.
Other effect size type [es.type]	If there is a correlation coefficient reported in the last item, type NA, if the bivariate relationship between the variables is not specified with the correlation coefficient in the previous item, specify which information can

	be used to calculate r. Try to use the following list for your description: 1 = mean and standard deviation 2 = F-value 3 = t-test value 4 = beta regression coefficient 5 = other
Other effect size [other.es]	If there is a correlation coefficient reported in the last item, type NA, if the bivariate relationship between the variables is not specified with the correlation coefficient in the previous item, report the effect size.
Moderators	
Product stimulus abstraction [m1.stim.abs]	1 = brand name 2 = product class name 3 = other
Involvement in the decision making process [m2.involv.dec]	1 = low involvement in the decision-making process 2 = high involvement in the decision-making process
Impression formation process [m3.impr.for]	1 = piecemeal 2 = holistic 3 = other
Involvement with product class [m4.involv.pr]	1 = low involvement with product class 2 = high involvement with product class
Consumer knowledge [m5.knowledge]	1 = low knowledge 2 = high knowledge 3 = moderate knowledge 4 = other
Direct versus indirect measure [m6.measure]	1 = direct measure 2 = indirect measure
Cultural setting [m7.culture]	0-100 IDV score (Hofstede insights)
Self-motive socialness [m8.msocial]	1 = private-type facets 2 = public-type facets 3 = misc (both)

Degree of self-enhancement sought [m9.mselfenh]	1 = actual-type facets 2 = ideal-type facets 3 = misc (both)
Interactions	
Impression formation process x involvement in the decision-making process interaction [m10.interac1]	1 = holistic & low involvement in the decision making-process 2 = holistic & high involvement in the decision making-process 3 = piecemeal & low involvement in the decision-making process 4 = piecemeal & high involvement in the decision-making process 5 = other groups
Product stimulus abstraction x impression formation process interaction [m11.interac2]	1 = product class & piecemeal 2 = product class & holistic 3 = brand name & piecemeal 4 = brand name & holistic 5 = other groups
Product stimulus abstraction x involvement in the decision-making process interaction [m12.interac3]	1 = product class & low involvement in the decision-making process 2 = product class & high involvement in the decision-making process 3 = brand name & & low involvement in the decision-making process 4 = brand name & high involvement in the decision-making process 5 = other groups
Product conspicuousness x self-motive socialness interaction [m13.interac4]	1 = conspicuous & private-type facets 2 = conspicuous & public-type facets 3 = inconspicuous & private-type facets 4 = inconspicuous & public-type facets 5 = other groups
Response mode x enhancement motive interaction [m14.interac5]	1 = judgement-type decisions & actual-type facets 2 = judgement - type decisions & ideal-type

	facets 3 = choice-type decisions & actual-type facets 4 = choice-type decisions & ideal-type facets 5 = other groups
Notes	
Notes [notes4]	If any peculiarities or ambiguities in the extraction of the data have occured, please specify.
Comments [comments4]	If any peculiarities or other interesting aspects have been explored or described in the study, especially regarding the content, please specify.

Appendix C: Moderators, Conceptualizations and Operationalizations

Moderator variable name	Moderator Levels	Conceptualization	Operationalization
Self-motive socialness	Private self-motives	The motivation to seek brands congruent with private self-concept facets (actual and ideal facets) to maintain or enhance the private facets for intra-personal acceptance purposes	Measuring self-congruity as correspondence between brand personality and actual/ideal self- concept.
	Public self-motives	The motivation to seek brands congruent with public self-concept facets (social and ideal social facets) to maintain or enhance the public facets for social acknowledgement/acceptance purposes	Measuring self-congruity as correspondence between brand personality and social/ideal social self-concept.
Degree of self-enhancement sought	Consistency type self-motives	The motivation to seek brands congruent with actual self-concept facets (actual and social facets) to maintain consistency with one's actual or social self-view.	Measuring self-congruity as correspondence between brand personality and actual/social self-concept

	Enhancement type self-motives	The motivation to seek brands congruent with ideal self- concept facets (ideal and ideal social facets) to enhance one's self-view by aspiring to achieve one's ideal or ideal social self-view.	Measuring self-congruity as correspondence between brand personality and ideal/ideal social self-concept.
Brand personality facet	Brand-as-person personality	Personality traits associated with the anthropomorphic perception of the brand as a person with human personality traits.	Measuring self-congruity as correspondence between self-concept and brand-as-person personality.
	Brand-user image	Personal traits associated with the stereotypical brand user perceived to represent the brand personality.	Measuring self-congruity as correspondence between self-concept and stereotypical brand-user personality.
Product stimulus abstraction level	Product-class stimuli	A more abstract stimulus because of the abstract mental category (product class schema) the consumer must retrieve from memory to evaluate product class stimuli	Measuring self-congruity as correspondence between participant self-concept and a named product class's personality.
	Brand stimuli	A less abstract stimulus because of the more concrete mental category (brand schema) the consumer must retrieve from memory to evaluate brand stimuli.	Measuring self-congruity as correspondence between self-concept and a named brand's personality.

Involvement in the decision-making process	Low cognitive elaboration	The consumer expends less cognitive effort while evaluating stimulus personality.	The measure asks participants to rate self-congruity without asking them to elaborate about any product usage context. (e.g., “Do you consider Brand XYZ: cool? sophisticated?”)
	High cognitive elaboration	The consumer expends greater cognitive effort while evaluating stimulus personality.	The measure asks participants to rate self-congruity by first asking them to elaborate about the product usage context by instructing participants to visualize the product usage situation prior to evaluating the brand/product (e.g., “Imagine yourself driving a Brand XYZ sports car. Is Brand XYZ: cool? sophisticated?”)
Involvement with product class	Low involvement	The consumer does not consider a product as belonging to his self-concept.	A relative lack of active information seeking about brands, little comparison among product attributes, no special preference among different brands
	High involvement	The consumer considers a product as belonging to his self-concept.	Active information seeking about brand, comparison among product attributes and preference among different brands

Impression formation process type	Holistic processing	The consumer forms a self-congruity evaluation based on the perception of brand personality as a composite rather than as the sum of individual personality traits.	Measuring self-congruity with global measurement items (e.g., “To what extent do you see that most people who use Brand XYZ are very much like you?”)
	Piecemeal processing	The consumer forms a self-congruity evaluation based on the perception of brand personality as the sum of individual personality traits.	Measuring self-congruity with pre-established personality trait lists. (e.g., Is Brand XYZ/Are you: cool? sophisticated?”)
Consumer knowledge	Low knowledge	The consumer uses a holistic decision heuristic to rate a brand or product, since he has no other information at disposal.	The consumer has never heard about a product or brand before
	Moderate knowledge	The consumer considers functional aspects for product evaluation using the product information he has.	The consumer knows a product or brand.
	High knowledge	The consumer has formed an abstract image, to rate a product, based on a vast amount of product information.	The product is very well known to the consumer.
Cultural setting	Individualistic Culture	The consumer has an independent self-construal and maintains a consistent self-concept.	Hofstede’s individualism index (IDV) on sample level with a score from 0 – 100

	Collectivistic culture	The consumer shapes the self-concept in terms of group membership or important relationships.	Hofstede's individualism index (IDV) on sample level with a score from 0 – 100
Product conspicuousness	Low product conspicuousness	Products congruent with the actual and ideal self-congruity, by having a low public profile.	The product is being consumed in a more private context.
	High product conspicuousness	Products congruent with the social and ideal social self-congruity, by having a high public profile.	The product is being consumed in a public context.
Direct vs indirect measure	Direct measure	Self-congruity is being measured in its entirety.	Self-congruity is being measured as a construct.
	Indirect measure	Self-congruity is being measured convergently.	Self-congruity is being derived from other constructs.
Response mode	Judgement-type decision	The consumer's liking towards a brand is expressed by preference judgement type ratings.	The measure is being taken by an explicit rating (e.g. questionnaires).
	Choice-type decision	The consumer's liking towards a brand is expressed by brand choice type ratings.	The measure is being taken by observing purchasing behaviors.