Industrial Marketing Management xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Industrial Marketing Management

Brand and product attachment in an industrial context: The effects on brand loyalty

Giuseppe Pedeliento [a,*], Daniela Andreini [a], Mara Bergamaschi [a], Jari Salo [b]

[a] University of Bergamo, Department of Management, Economics and Quantitative Methods, Via dei Caniana 2, Box 24127 Bergamo, Italy
[b] University of Oulu, Oulu Business School, Erkki Koiso-Kanttilan katu, Box 4600-90014 Oulu, Finland

ARTICLE INFO

Article history:
Received 7 August 2014
Received in revised form 23 April 2015
Accepted 23 April 2015
Available online xxxx

Keywords:
Brand attachment
Product attachment
Brand loyalty
Owner-operators
Trucks

ABSTRACT

The role of attachment as a driver of industrial brand loyalty has largely been investigated at the inter-organizational level, while there is a notable lack of studies on industrial buyers' attachment to industrial brands and products. By researching an empirical setting in which buyers have first-person experience of product use, this study proposes the existence of brand attachment and product attachment in an industrial context and tests their influence on brand loyalty based on the results of a survey of 317 owner-operators of heavy trucks. Findings suggest that while brand attachment positively and directly influences brand loyalty, product attachment indirectly drives brand loyalty through the mediating effects of brand attachment. Product irreplaceability, however, was found to be a direct driver of brand loyalty. The current research also proposes tests to measure the relationship between the constructs of brand attachment and product attachment. This research has several managerial and theoretical implications indicating that paying attention to the emotional meanings of industrial brands and products is warranted, as are further studies on the application of attachment in industrial marketing.

1. Introduction

Brand loyalty has attracted attention in recent decades as brands are increasingly regarded as a vehicle to meet the challenge of building long-term relationships with customers in business-to-business markets (Mudambi, 2002; van Riel, de Mortanges, & Streukens, 2005).

Previous studies provided evidence that industrial brand loyalty is driven primarily by the sense of attachment linking industrial buyers to their supplier(s), and secondarily by rational and normative motives (Čater & Čater, 2010; Čater & Zabkar, 2009; Rauyruen & Miller, 2007). However, despite the growing acknowledgment of the role attachment plays in fostering loyalty in business relationships, there is a dearth of studies on another two forms of attachment that have been found to be strong precursors to brand loyalty in consumer contexts, and that previous scholars have suggested are also applicable in the business-to-business domain (Erevelles, 1998; Esch, Langner, Schmitt, & Geus, 2006; Gilliland & Johnston, 1997). The first deals with buyers' attachment to industrial brands, that is, brand attachment, and the second with buyers' attachment to industrial products, that is, product attachment. In brief, brand attachment and product attachment can be defined as the emotional feelings that link individuals with brands and products (Kleine & Baker, 2004; Park, MacInnis, & Priester, 2006; Park, MacInnis, Priester, Eisingerich, & Iacobucci, 2010).

Although similar, scholars suggest these constructs should be considered conceptually distinct (Kleine & Baker, 2004; Mugge, Schifferstein, & Schoormans, 2010; Nagy & Koles, 2014) as brands and products differ in terms of tangibility (Gardner & Levy, 1955; Kleine & Baker, 2004, Manning, 2010). The differences in the materiality of brands and products produces different subjective experiences (Brakus, Schmitt, & Zarantonello, 2009; McAlexander, Schouten, & Koenig, 2002) which, in turn, may prompt different affective responses and different behavioral outcomes (Nagy & Koles, 2014). From the marketers' viewpoint, to say that these forms of attachment are different, means that they have differentiated effects on the desired marketing outcomes intended to flow from customers' feelings of attachment. However, no research to date in either the business-to-business or the consumer context has empirically tested the differential impact of both forms of attachment on individuals purchasing choices and behavior, or combined brand attachment and product attachment in the same conceptual framework.

The lack of research on brand attachment and product attachment in the specific domain of industrial marketing, is largely due to the still prevailing idea among both scholars and marketers that industrial brands are not affected by emotional considerations (Bendixen, Bukasa, & Abratt, 2004; Veloutsou & Taylor, 2012), and to the belief that there is no attachment between the purchaser of an industrial product and the product itself (Gilliland & Johnston, 1997). However, since organizational buying behavior consists of individuals making decisions, and since individual decisions are also swayed by affective inputs, these are naturally bound to influence behavior also by the decision-making unit too (Erevelles, 1998). The extent of that influence varies according to the role of the individual, in other words whether he

* Corresponding author.
E-mail addresses: giuseppe.pedeliento@unibg.it (G. Pedeliento), daniela.andreini@unibg.it (D. Andreini), mara.bergamaschi@unibg.it (M. Bergamaschi), jari.salo@oulu.fi (J. Salo).

http://dx.doi.org/10.1016/j.indmarman.2015.06.007
0019-8501/

or she is a buyer, user, influencer, gatekeeper, etc. (Webster & Wind, 1972)—and the subsequent level of involvement in the purchase decision (Lynch & De Chernatony, 2004). Previous studies suggested that when the person who has a role in a buying center also acts as a user, purchasing choices are strongly affected by emotional considerations linked to their experience as a user, including attachment (Erevelles, 1998; Gilliland & Johnston, 1997; Wilson, 2000). Attachment in fact, requires a connection between the individual and the attachment figure to emerge, to develop, and to affect individuals' behavior (Bowlby, 1969, 1973, 1980; Mikulincer, Shaver, & Pereg, 2003): the tighter this connection, the stronger the attachment.

Investigating issues of attachment to brands and products in the business-to-business domain requires a researcher to consider the subjective relevance of industrial brands and products to the buyer (Gilliland & Johnston, 1997; Veloutsou & Taylor, 2012). Researchers must also assume the direct experience of buyers with industrial brands and products is an antecedent condition if they are to determine the role that attachment plays in buying decisions (Biedenbach & Marell, 2010; Lynch & De Chernatony, 2004). By adopting this theoretical position, this research aims to answer the following research question: how does the attachment to industrial brands and products affect brand loyalty? To do so, a theoretical framework is developed and tested by drawing on the theory of attachment (Ainsworth, 1973; Bowlby, 1969, 1973, 1980), on the theory of self-expansion (Aron & Aron, 1996), and on previous studies on attachment. The current research relies on brands and products differing in terms of tangibility, to provide strict conceptual properties of brand attachment and product attachment, to propose specific behavior outcomes, and to test the causal relationships between them. We use the heavy truck industry as a research setting, with a particular focus on owner-operators of heavy trucks. Truck owner-operators belong to the wide group of self-employed workers who start up their own business with no employees aside from the owner. In 2013, it is estimated that nearly three in ten workers worldwide are self-employed (Gallup, 2014). Self-employment is very common in professional service industries such as accounting, legal advices, consulting services, and construction (e.g., specialist plumbing, ventilation, or painting contractors) and in some non-professional services, such as the retail trade, real estate, and rental leasing (Rissman, 2003), and is a widely found organizational form in the transportation industry (Nickerson & Silverman, 2003).

Self-employed workers are a category of buyers who are also users, and as such they represent an archetype of a buying situation in which buying behavior is supposed to be strongly affected by emotional considerations, including attachment (Erevelles, 1998; Gilliland & Johnston, 1997; Wilson, 2000). Moreover, since the self-employed have both first-hand experience with products and the organizational legitimacy to make brand choices, a study sampling the group can investigate if and how their attachments affect brand loyalty.

A total of 317 owner-operators working in a European country participated in the research. The results of a structural equation model show that brand attachment and product attachment are indeed different constructs, and influence brand loyalty in different ways.

This study makes three incremental contributions to the industrial marketing research, and one contribution to the specific domain of studies on attachment.

With regard to industrial marketing research, first it contributes to the existing literature on organizational buying behavior (Bonoma & Zaltman, 2011; Webster & Wind, 1972) by showing the significant role that affective forces play when buyer and user roles overlap. Second, it contributes to expanding the domain of attachment studies in industrial relationships beyond the affective bond that may link industrial buyers and sellers (Paulssen, 2009) by shedding light on the role played by buyers' feelings of attachment to industrial brands and products. Third, it contributes to expanding the stream of studies in which business-to-business brands and products are scrutinized in a manner that goes beyond their functional/utilitarian features (Gilliland & Johnston, 1997; Herbst & Merz, 2011; Veloutsou & Taylor, 2012) to encompass ego-related and self-expressive meanings.

Besides contributing to industrial marketing research, this study offers a further contribution relating to the specific field of studies on attachment, as it is the first to combine brand attachment and product attachment within the same empirical design, and to test the causal relationships between the two.

The remainder of this paper proceeds as follows: It begins with a review of the literature on previous applications of the attachment construct in industrial marketing research, and by highlighting the opportunity to extend studies on brand and product attachment to the business-to-business domain. There follows a section on the theoretical differences between brand attachment and product attachment, which is at the foreground in the conceptual development of the entire research design. The third section presents the conceptual framework and research hypotheses and is followed by an explanation of the paper's methodology, including the data gathering process, the measure development, and the analytical procedures. The following section presents the results and a discussion of the study's theoretical contributions, its managerial implications, and potential directions for further research. Finally, a conclusion is presented to summarize the research.

2. Literature review

2.1. Attachment, brand attachment, and product attachment: background literature, present and future applications in industrial marketing studies

The construct of attachment was originally developed to understand the deep and enduring emotional bonds that connect one person to another or a person to an object across time and space (Ainsworth, 1973; Bowlby, 1969, 1973, 1980). Attachment theorists were hence principally concerned with the "psychological connectedness between human beings" (Bowlby, 1969: 194) and with the effects of such connectedness on individuals' behavior. As stated by Bowlby (1969), an individual who is attached to someone or to something is "strongly disposed to seek proximity to and contact with [that] specific figure" (p. 371).[1] The basic tenet of attachment theory is in fact that individuals are naturally motivated to seek proximity to specific (attachment) figures to secure protection from physical and psychological threats and to promote the regulation of affect.

As the main outcome of attachment is the individual's willingness to maintain proximity with the attachment figure, this construct has often been applied in marketing studies to explain the phenomenon of loyalty. Several works have shown that strong brand-customer bonds (brand attachment) and strong product-customer bonds (product attachment) increase individuals' willingness to make repeated purchases of the same brand (Kressmann et al., 2006; Matzler, Pichler, Füller, & Mooradian, 2011; Park et al., 2010; Thomson, MacInnis, & Park, 2005) allowing marketers to benefit from non-spurious loyalty (Grisaffe & Nguyen, 2011).

Brand attachment and product attachment are defined as follows: the former, as an emotion-laden bond between a person and a brand characterized by deep feelings of connection, affection, and passion involving thoughts and feelings about the brand and its relationship to the self (Thomson et al., 2005). The latter, as a multifaceted property of the relationship between a person and a specific material object that an individual has psychologically appropriated, decommodified, and singularized through person-object interaction (Kleine & Baker, 2004).

Despite the widespread use of these constructs in consumer research, there is no empirical evidence on the existence and the role of

[1] The term "figure" is commonly applied in attachment studies to indicate everything toward which an individual can feel attached including material objects, e.g. a product (Schifferstein & Zwartkruis-Pelgrim, 2008), special possessions (Ball & Tasaki, 1992), etc., immaterial entities, e.g. experiences (Arnould & Price, 1993), brands (Park et al., 2010), etc., human, e.g., celebrities (Thomson, 2006), and non-human entities, such as pets (Hirschman, 1994).

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

industrial buyers' attachment to industrial brands and products and on their effects on brand loyalty.

However, the literature to date indicates previous utilizations of the construct of attachment in industrial marketing research to explain the phenomenon of brand loyalty. Studies drawn on the principal tenets of relationship marketing (Dwyer, Schurr, & Oh, 1987; Morgan & Hunt, 1994), have highlighted that industrial buyers' brand loyalty is primarily explained by affective commitment (Čater & Čater, 2010; Rauyruen & Miller, 2007). Affective commitment, which is defined as the individual's emotional links to an organization (Allen & Meyer, 1996), is often labeled *affective attachment* or *attachment to the organization* because attachment and affective commitment share substantially the same nomological network. Studies have thus shown that when buyers and sellers feel attached to each other, they are more willing to maintain their relationship in the long run, and this emotional feeling has a stronger impact than rational motives. Paulssen (2009) moved beyond affective commitment by introducing the construct of attachment in business relationships and by demonstrating its role in predicting loyalty, satisfaction, and trust.

As the above mentioned studies took the (dyadic) relationship between individuals as the main unit of analysis, it is unsurprising that in industrial marketing research, the construct of attachment has been primarily formalized at the relationship level, and not extended to encompass attachment to industrial brands and industrial products. However, if we assume that individuals can nurture feelings of attachment toward every kind of brand and product regardless of its nature (Belk, 1988), and that emotions and affective inputs are naturally bounded even in organizational purchasing (Erevelles, 1998; Kramer, 2014; Wilson, 2000), there is no reason to exclude industrial brands and industrial products as possible targets of attachment.

Scholars have indeed often stated that the construct of brand attachment is appropriate to study in the context of industrial branding. Jensen and Klastrup (2008) and Biedenbach (2012), affirmed that brand attachment should be addressed in industrial branding because it can be considered the ultimate stage of industrial brand equity. Lynch and De Chernatony (2004) wrote that the strength of an industrial brand should be regarded as its ability to stimulate affective responses in industrial buyers, while Doyle (2000) stated that marketers should favor the formation of attachment to counter the influence of competitors, because the functional characteristics of the brand are more easily copied. However, those studies did not offer any empirical examination of the matter.

Turning to product attachment, the literature is silent both conceptually and empirically. This lack is largely due to researchers' keen interest in organizational buying in large organizations (Mudambi & Schründer, 1996; Silk & Kalwani, 1982) in which buying processes and decisions tend to be controlled by professional organizational buyers, and consequently the role played by end-users and the nature of their stakes in organizational purchasing choices are under researched (Celuch, Goodwin, & Taylor, 2007; Gilliland & Johnston, 1997; Michel, Brown, & Gallan, 2008). The fact that end-users are rarely considered in studies of organizational buying, and that product attachment requires product usage to emerge and develop, may explain why no research to date has focused on this construct in business-to-business studies.

This gap applies both to those cases in which the user and the buyer are distinct, and to those in which the buyer and the user are the same person (Gilliland & Johnston, 1997; Michel et al., 2008). In the latter case, there are two main foci that constitute the customers' experience and the same number of domains of affective considerations that can potentially arise (McAlexander et al., 2002): one relates to the subjective experience of the brand; the other, to the subjective experience of the product. Brand experience is not necessarily connected with product usage and deals with the set of brand-related stimuli that constitute the main source of subjective responses to brands (Brakus et al., 2009). As such, brand experience can potentially be important in any kind of buying situation (regardless of actual product usage), as long as the individual is influenced by brand-related stimuli, such as in the form of the benefits stemming from associating with a certain brand (Roper & Davies, 2010), and as long as these stimuli are capable of affecting the ultimate purchasing decision.

Product experience in contrast occurs when individuals interact with, use and consume products (Brakus et al., 2009; McAlexander et al., 2002). As Hoch (2002) stated, because product experience is personal and not necessarily reproduced in the same form for anyone else, it exerts a strong influence on individual purchasing choices because of the absence of a self-interested outside party.

Both forms of experience are important and occur when the individual, whether a consumer or a member of a buying center, acts as both buyer and user (McAlexander et al., 2002). As the next subsection illustrates, these forms of experience differ because of the different nature of brands and products. Accordingly, the affective responses each provokes are different because the brand and the product evoke different subjective experiences.

2.2. Distinguishing the brand from the product and brand attachment from product attachment

The difference between brands and products is often difficult to express (Gardner & Levy, 1955; Manning, 2010). Manning (2010) states in a critical account of the semiotic of brands that the unclear distinction between these entities often leads to the production of "Latourian hybrids" (Latour, 1993) that blur the burdens of what is the brand from what is the product. Scholars have suggested a solution to this problem would be to emphasize the different material value of brands and products. Specifically, brands are immaterial, while products are material phenomena (Gardner & Levy, 1955; Manning, 2010; Nagy & Koles, 2014). Manning's (2010) standpoint stands in opposition to the post-modern perspective of brands and branding, according to which, brands are regarded as more important than their products (Arvidsson, 2006). On the contrary, for Manning (2010) the product is the very means by which a person can have access to the brand. In the specific context of business-to-business markets, the difference between the brand and the product is even greater and more evident than in consumer contexts due to a greater emphasis on corporate rather than product branding (Keller, 2014; Mudambi, 2002).

The difference in the materiality of brands and products – besides making it possible to draw a clear distinction between the brand and the product – is the main element that previous scholars took into account to distinguish the conceptual properties of brand attachment and product attachment (Kleine & Baker, 2004; Nagy & Koles, 2014). Kleine and Baker (2004) stated that due to their differing materiality brands and products differ in their ability to generate feelings of irreplaceability and in their potential to carry indexical value. Products are more irreplaceable and more indexical, while brands are less irreplaceable and less indexical. Products, being tangible, are decommodified through usage: the product becomes irreplaceable, as the owner perceives it as "being contaminated via physical contact […] and layered with distinctive meanings" (Grayson & Shulman, 2000). Through this *contamination*, the product becomes a unique attachment, different even from an exact replica (Grayson & Shulman, 2000; Schifferstein & Zwartkruis-Pelgrim, 2008). Product attachment accordingly refers to a specific product instance and not to a generic good or to an entire product category appropriated through person–object interaction (Kleine & Baker, 2004).

Brand attachment instead focuses on immaterial phenomena, brands, rather than on a single given physical product (Grisaffe & Nguyen, 2011; Nagy & Koles, 2014; Thomson et al., 2005). Brand attachment, unlike product attachment, holds also for different product variants and/or various product categories of the same brand. Thus, an individual can feel emotionally attached to a brand, and this may affect his/her emotional responses to the whole range of products falling under the same brand, regardless of previous product experience.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

However, as attachment toward the product requires physical interaction and psychological appropriation, the attachment to the brand is not readily transferred to the product due to products and brands having differing potentials for carrying indexical value (Grayson & Shulman, 2000; Kleine & Baker, 2004).

In addition, despite both relating to the individuals' desire to maintain proximity with the attachment figure, brand attachment and product attachment are also different in terms of the behavior outcomes stemming from them. Despite both being attributed as being strong sources of loyalty, scholars have affirmed that only product attachment can foster irreplaceability (Kleine & Baker, 2004), that product attachment is more easily associated with memories than brand attachment (Grayson & Shulman, 2000), and that the emotional feelings individuals have toward the brand and toward the product have a different impact on desired marketing outcomes (McAlexander et al., 2002). In general, just as individuals may express a certain level of emotional attachment toward either a product or a brand, and as these attachments are different, so also the behaviors that reflect each of them will be different.

The acknowledgment of the differences between brands and products, and between brand attachment and product attachment is therefore relevant in both theoretical and practical terms. Doing so permits the clear separation of the subjective experience of the brand from the subjective experience of the product and the different individuals' considerations stemming from them. Acknowledging the differences also permits investigation of the different abilities of these forms of experiences to determine distinct forms of attachment and behavioral responses to brands and products. Nevertheless, despite scholars agree that individuals' emotional attachment to brands and products may vary, and that brand attachment and product attachment are different, no research to date has empirically validated this statement and included both constructs in the same conceptual framework.

The current research proceeds on the assumption that the features of tangibility and intangibility of brands and products are valid, and that their differing degrees of irreplaceability and indexicality are the basis of the development of the whole theoretical framework.

3. Development of the theoretical framework and research hypotheses

3.1. Antecedents of brand attachment and of product attachment

According to the British psychologist John Bowlby, widely considered the first attachment theorist, there are two main aspects that must be considered in an investigation of the motives that prompt individuals to feel emotionally attached to figures (Bowlby, 1969, 1973, 1980). The first of these is the identitarian relevance of the attachment figure. In line with Bowlby's theory, actual interactions with an attachment figure (e.g., a person, a brand, a product) are stored in human memory in the form of representations of the self. Attachment figures are thus used by individuals to express and maintain their self-concept. Park et al. (2006, 2010) suggested that because attachment implies the existence of a bond between an entity and an individual, a critical aspect of attachment involves the connection between the entity and the self. For this reason, attachment theory is generally complemented with self-expansion (or self-extension) theory (Aron & Aron, 1996; Park et al., 2010). This theory posits that people possess an innate motivation for self-expansion, which is reflected in the desire to incorporate others (e.g., other people, or brands and products) into their conception of self. Many of the works that theoretically and empirically examined the antecedents of brand and product attachment in fact, provided evidence that the connection between the object of attachment and the individual self is the main precondition for feelings of attachment developing (Ball & Tasaki, 1992; Belk, 1988; Mugge et al., 2010; Schifferstein & Zwartkruis-Pelgrim, 2008; Sirgy, 1982). The more an entity, such as a brand and/or a product, is part of the self, the closer is the tie connecting it with the individual's self, and the more it can be capable of generating feelings of attachment. Scholars generally refer to the relevance of brands and products to one's identity as *brand–self congruity* and *product–self congruity*, respectively. Specifically, brand–self congruity refers to the fit between an individual's self and a brand's image and personality (Sirgy, 1982). It enhances buyers' favorable attitudes toward a brand because individuals tend to buy brands that are consistent with their self-concept (Malhotra, 1988). Accordingly, brand–self congruity has been found to be a strong precursor of brand attachment in previous studies (Aaker, 1999; Malär, Krohmer, Hoyer, & Nyffenegger, 2011; Matzler et al., 2011). Similarly, people are assumed to develop strong attachments to products that express who they are as individuals (Ball & Tasaki, 1992; Belk, 1988). Products can thus help people to differentiate themselves from others by displaying some symbolic meanings of self-expression (Aaker, 1999; Belk, 1988; Sirgy, 1982). The more the product can serve as a vehicle for self-expression, the more likely the owner is to become attached to it. Thus, the first two research hypotheses can be put forward:

H1. Brand–self congruity positively influences brand attachment.

H2. Product–self congruity positively influences product attachment.

Besides self-congruity, the second element that should be taken into account in the frame of attachment theory is the ability of the attachment figure to offer individuals a physical and emotional safe haven, as when they are a source of support and comfort (Bowlby, 1969). In doing so the attachment figure becomes a source of attachment security. Interactions with attachment figures that are available in times of need, available when necessary, and reliable (Paulssen, 2009) promote the formation of a sense of attachment. On the contrary, when figures are unavailable or unresponsive to one's needs, attachment is not formed (Mikulincer et al., 2003).

If we apply this reasoning in the specific context of brands and products, it is clear that the capability to offer a safe haven should be regarded in terms of their ability to perform their basic functions and to deliver the expected value to customers. Such ability in turn must be considered a necessary prerequisite for attachment to develop. Perceived superior performance pushes individuals to judge brands and products to be more valuable than others and that, in turn, can result in the development of emotional attachment. On the contrary, brands and products with poor performance are unlikely to evoke feelings of attachment (Mugge et al., 2010). Similarly, studies conducted in the field of industrial marketing research have shown that performance considerations are significant antecedents of affective commitment (Čater & Čater, 2010) which, as previously argued, has similar conceptual properties to attachment and, more generally has a persistent influence in prompting industrial buying decisions (Bendixen et al., 2004; Leek & Christodoulides, 2012; Michell, King, & Reast, 2001). The construct of *reliability* represents the ability of the brand and products to properly deliver their basic functions and to respond to an individual's needs (Delgado-Ballester, 2004; Matzler et al., 2011), that is, to offer a safe haven. Reliability is essential to cement trust in a brand and a product because the accomplishment of the promise that the brand represents to the market, and the ability of the product to properly perform its basic task, lead individuals to develop positive feelings toward them. The following hypotheses (H3 and H4) can thus be proposed:

H3. Brand reliability positively influences brand attachment.

H4. Product reliability positively influences product attachment.

3.2. Brand attachment, product attachment, and brand loyalty: interactions and outcomes

The development of the research framework and the whole research design involved distinguishing between brand attachment and product attachment, but also prompted hypotheses on a causal relationship

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

between those constructs, which has yet to be incontrovertibly established (Kleine & Baker, 2004). That causal relationship would be consistent with brands and products having differing characteristics in terms of the ability to hold materiality (Gardner & Levy, 1955; Kleine & Baker, 2004; Manning, 2010), which the differing potential to assume indexical value is dependent upon (Grayson & Shulman, 2000).

Brands function as token-level indexicals, that is each instance of a brand is existentially associated with one instance of a product (Manning, 2010) but the product is the very means by which a person can gain access to the brand. Similarly, the experience and the affective reactions stemming from the product, are the very means by which individuals develop an attachment to the brand. The positive (or negative) feelings that individuals nurture toward the product, can therefore be transferred and extended to the brand (McAlexander et al., 2002)

However, while Kleine and Baker (2004) strongly argued the differences between these forms of attachment, they did not advance any kind of causal relationship between them, and called for research on the matter. Researchers have foreseen the existence of a causal relationship between product attachment and brand attachment, but did not offer empirical tests of it. Mugge et al. (2010) wrote that "the attachment to a product may be transferred to the brand, resulting in brand attachment" (2010: 279) and Davis (2002), stated that experiencing a strong relationship with a product may affect consumers' feelings of attachment to the brand.

Thus, we propose the following research hypothesis:

H5. Product attachment positively influences brand attachment.

Creating emotional bonds between buyers and brands is an important marketing challenge for firms addressed because strong brand–customer bonds are assumed to generate brand loyalty (Kressmann et al., 2006; Park et al., 2010; Thomson et al., 2005). In industrial marketing, the company's ability to create emotional bonds between the industrial brand and its buyers has been suggested to be a key challenge that marketers have to face in maintaining long-term customer relationships (Han & Sung, 2008). In the same vein, marketers encourage close consumer–product relationships because such relationships are believed to positively affect brand loyalty (Kressmann et al., 2006; Matzler et al., 2011). Accordingly, we hypothesize that both brand attachment and product attachment influence brand loyalty.

H6. Brand attachment positively influences brand loyalty.

H7. Product attachment positively influences brand loyalty.

Finally among the characteristics of product attachment mentioned before, is included product irreplaceability as a relevant outcome of this construct. When a product is considered irreplaceable, individuals are reluctant to replace it even with an identical product (Grayson & Shulman, 2000) and are inclined to retain it as long as they can and to postpone its replacement (Schifferstein & Zwartkruis-Pelgrim, 2008). Mugge, Schifferstein, and Schoormans (2006) empirically validated the existence of a positive relationship between product attachment and product irreplaceability. However, although irreplaceability underpins individuals' willingness to retain a product for as long as possible, it does not prevent them from making repeated purchases of the same product when the product wears out. In fact, while special possessions can be retained for one's entire life (Ball & Tasaki, 1992), products that are designed to accomplish specific tasks, such as durable goods, equipments, and tools, need to be replaced at some point in their life cycle. The emotional value that a product has for the individual makes its replacement more difficult. At the same time, if the current product is no longer functional or is no longer performing at its best, replacement may be unavoidable. Okada (2001) provided a model to explain both the normative and psychological mechanisms that drive individuals' replacement purchase decisions and found that when people are personally responsible for their past decisions, they are more likely to continue with their course of action and replace the old product with an upgraded new version. This research therefore tests for the existence of a positive relationship between irreplaceability and brand loyalty.

In line with this reasoning, we propose the final two research hypotheses:

H8. Product attachment positively influences product irreplaceability.

H9. Product irreplaceability positively influences brand loyalty.

All of the research hypotheses presented above are presented in Fig. 1.

4. Research methodology

4.1. Research context

To test the proposed theoretical model and the underlying research hypotheses, we focus on owner-operators of trucks, that is, self-employed drivers who own, maintain and pay all operating costs for their vehicle and contract with road haulage firms (Nickerson & Silverman, 2003) that transport goods for customers. Owner-operators tend to offer a variety of different transport services and need basic general-purpose trucks (Bankvall, Dubois, & Lind, 2014).

From an organizational buying perspective, owner-operators are individuals who hold at least two (i.e., buyer and user) of the six buying roles (initiator, gatekeeper, decider, influencer, buyer, and user) involved in organizational purchase processes that are generally considered to be held by different actors (Webster & Wind, 1972). Thus, owner-operators represent an archetype of organizational buyers in which the axiomatic similarity and comparability between organizational and individual buying (necessary when emotions are involved) are particularly evident (Wilson, 2000). Owner-operators represent one of the prevailing organizational forms in the worldwide freight transport industry (Nickerson & Silverman, 2003) and, as such, merit taking center stage in an investigation of the purchasing processes for trucks. In the USA for example, the Owner Operators Independent Drivers Association estimates that truck owner-operators number around 400,000, about 9% of the total number of truckers in the country (OOIDA, 2014). In some European countries, the percentage of owner-operator contractors in the freight transport industry accounts for nearly 70% of the total number of drivers (Eurostat, 2006).

4.2. Development of the measurement model

The constructs and measurement items used in this study were drawn from previous research with minor modifications. Those modifications concerned the translation from English as the respondents were non-native English speakers. In line with the procedure suggested by Churchill (1979), the measures translated were refined in order to be sure that terms used actually captured the underlying meaning of the construct to be measured.

All of the observed variables composing each measurement scale were considered, except for reversed score items, as such items can confuse participants (Spector, Van Katwyk, Brannick, & Chen, 1997) and weaken the construct and factorial validity of the scale (Rodebaugh, Woods, & Heimberg, 2007). Appendix records the previous studies serving as sources of the observed measures used in this research.

Items measuring brand attachment were drawn from Swaminathan, Stilley, and Ahluwalia (2009), who, building on Thomson et al. (2005), assessed individuals' level of attachment to brands according to the extent to which they were *connected*, *bonded*, and *attached* to the brand. Items measuring product attachment were drawn from Schifferstein and Zwartkruis-Pelgrim (2008).

Brand loyalty is widely acknowledged to be a multifaceted construct composed of both a behavioral and an attitudinal component (Jacoby & Kyner, 1973), the first reflecting buyers' willingness to repurchase from the same supplying brand, and the second reflecting a strong internal

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

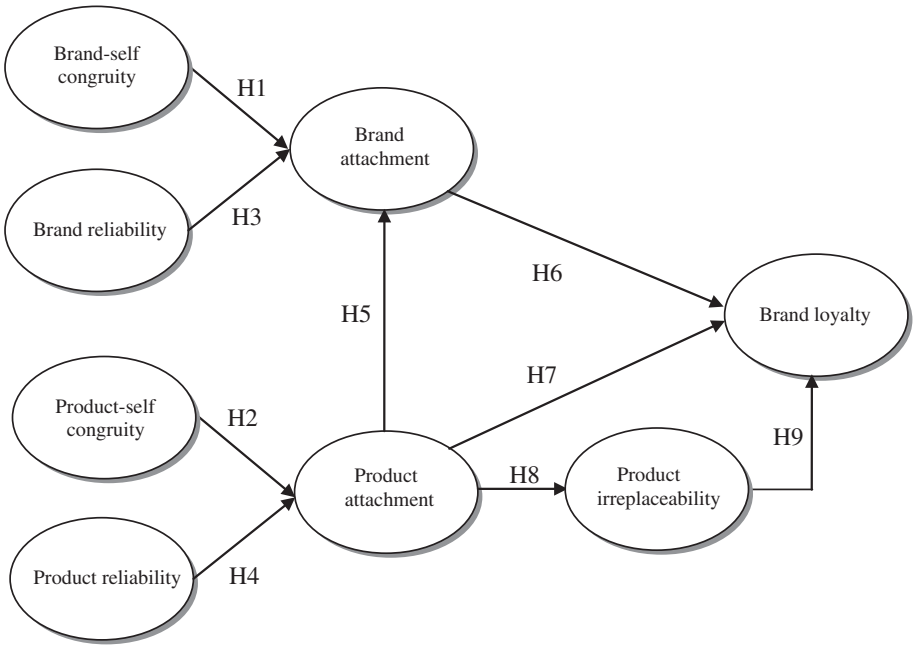

Fig. 1. Conceptual framework and research hypotheses.

disposition toward the brand. Nevertheless, the construct has been measured in this research based on only its behavioral dimension, that is, as a repeated purchasing behavioral intention. Because attitudinal loyalty is often considered to be the level of a buyer's psychological attachment to a particular supplier (Chaudhuri & Holbrook, 2001), and because the attitudinal component of brand loyalty is captured by the construct of brand attachment in this study, it was considered best not to include any measure of attitudinal brand loyalty to avoid problems of construct dimensionality. In particular, we opted for the single-item measure of behavioral brand loyalty derived from Esch et al. (2006) indicating respondents' intention to repurchase the same brand as they had already purchased. In line with Diamantopoulos, Sarstedt, Fuchs, Wilczynski, and Kaiser (2012) single-item measures can be adopted when the construct is conceptualized as concrete and singular (Bergkvist & Rossiter, 2007) and when, given those characteristics, multiple item scales will be composed essentially of highly homogeneous and semantically redundant items that complicate the survey instrument. When the construct of brand loyalty is considered by focusing on just its behavioral dimension in fact, it is often measured by a single-item indicator (see, e.g., Mittal & Kamakura, 2001; Esch et al., 2006; Jensen & Hansen, 2006; Bennett, McColl-Kennedy, & Coote, 2007; Mende, Bolton, & Bitner, 2013).

The two-item scale of brand–self congruity was drawn from Matzler et al. (2011), while the items measuring brand reliability were drawn from Delgado-Ballester (2004).

The observed variables for product reliability and product–self congruity and the scale measuring product irreplaceability were drawn from Schifferstein and Zwartkruis-Pelgrim (2008).

4.3. The survey instrument

The questionnaire contains three sections: the first requests demographic information on the respondents (age, gender, and education); the second measures product attachment, its antecedents, and product irreplaceability; and the third section asks the respondents to indicate which brand of truck they currently use, to report the extent of their agreement with a series of statements aimed at measuring their level of attachment to the brand and its antecedents, and to provide a score for a single-item measure of brand loyalty.

For all of the scales, the respondents were asked to express their agreement with each statement by using a 5-point Likert scale anchored with *fully disagree* (1) and *fully agree* (5).

The questionnaire was pre-tested on ten members of the population during a focus group in which the researchers administered the questionnaires and elicited feedback on the clarity of its items. That feedback led to slight modifications to some wording owing to the language translation of the original items.

4.4. Data collection

The data were gathered from a sample of auto-selected heavy truck owner-operators working in one European country during the period from May to December 2013. Of the 330 collected questionnaires, 13 were unusable because of missing data. Of the 317 usable questionnaires, 192 (60.6%) were administered directly by the authors over two days of a truck fair in May 2013, while the remaining 125 questionnaires (39.4%) were collected online from September to December 2013 via two leading truck-related web portals that provided fixed web banners with direct links to the questionnaire.

Owing to the data being gathered from the same population of respondents, assessed on two different occasions and through different sources, researchers conducted a *t*-test as a parametric test to compare the measures of the target constructs. The results indicate non-

Table 1
T-test between data gathered through online and face-to-face questionnaires.

Constructs	Questionnaires gathered during a fair ($n = 192$)	Questionnaires gathered online ($n = 125$)	*t*-Values
Brand loyalty	3.65	3.56	.360[ns]
Brand attachment	3.54	3.44	.641[ns]
Product attachment	3.67	3.80	−.971[ns]
Product irreplaceability	3.61	3.65	−.308[ns]
Brand–self congruity	2.73	2.82	−.513[ns]
Brand reliability	4.28	4.20	.666[ns]
Product–self congruity	3.29	3.53	−1.497[ns]
Product reliability	4.45	4.43	.240[ns]

[ns] Not significant.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

significant differences for all the latent variables (see Table 1). In addition, early and late respondents were compared on the key variables in terms of means to estimate nonresponse bias, and similarly, no significant differences were detected (Armstrong & Overton, 1977).

5. Analysis and results

5.1. Composition of the sample

The sample of respondents (n = 317) is composed as follows: in terms of gender, the sample is almost entirely male (99.1%). Regarding age, 32.1% of the respondents are between 21 and 30 years old; 32.7%, between 31 and 40 years old; 24.2%, between 41 and 50 years old; 9.7%, between 51 and 60 years old; and the remaining 1.2%, between 61 and 70 years old. Regarding education, the majority of the respondents have a school (55.8%) or high school education (39.1%). Finally, examining the composition of the sample according to brand of truck is useful to ensure that the sample is sufficiently heterogeneous. All the brands sold in the European market are represented and are listed here in alphabetical order: Astra (1.3%), Daf (8.5%), Iveco (35.3%), MAN (4.1%), Mercedes Benz (11%), Renault Trucks (7.3%), Scania (23.7%), and Volvo Trucks (8.8%).

A structural equation model was implemented by using the maximum likelihood procedure. We started by estimating the measurement model and assessed the reliability and validity of the multi-item constructs by using a prior exploratory factor analysis (EFA) and a subsequent confirmatory factor analysis (CFA) for each of the constructs contributing to the model (Anderson & Gerbing, 1988; Fornell & Larcker, 1981). Once the measurement model was tested, we ran a structural model and analyzed the overall model fit and the path coefficients for the hypothesized relationships.

5.2. Measurement model

The measurement model was tested using LISREL 8.8 and included all of the items composing each of the eight investigated constructs: brand loyalty, brand attachment, product attachment, product irreplaceability, brand–self congruity, brand reliability, product–self congruity, and product reliability.

The complete measurement model resulted in an unsatisfactory statistical fit: the ratio between the chi-square ($\chi^2 = 811.051$; $p < .005$) and the degrees of freedom (df = 225) was higher than 2 (Tabachnick & Fidell, 2007), the root mean square error of approximation was significantly above the recommended thresholds (RMSEA = .0973), while the other indicators were below the suggested scores: goodness of fit index (GFI = .809), non-normed fit index (NNFI = .919), comparative fit index (CFI = .932). To identify the measurement items contributing to this poor fit, the largest negative and largest positive standardized residuals were considered, as well as the scores of the items' multiple squared correlations below 0.50 (Byrne, 1998). This procedure allowed us to discard five items: three from the *product attachment* scale and two from the *product–self congruity* scale. The retained measurement items and the corresponding constructs are reported in Table 2.

The measurement model recorded a statistically significant value on the chi-square test (Satorra–Bentler scaled chi-square = 184.214, df = 125, $p < 0.00$), but the proportion between the chi-square value and degrees of freedom was within an acceptable range ($\chi^2/df = 1.47$) and all the relevant measures showed a good fit (RMSEA = 0.0316; GFI = .941; AGFI = .911; NFI = .980; NNFI = .993; CFI = .995). The test results suggest that the goodness of fit of the measurement model is acceptable (Bollen, 1989; Hoyle, 1995).

Each measurement scale was assessed as reliable: Cronbach's alphas ranged from a minimum of .83 to a maximum of .92, which is higher than the .70 threshold suggested by Nunnally (1978). In addition, the composite reliability (CR) and average variance extracted (AVE) of each of the constructs were above the recommended thresholds of .6 and .5, respectively (Bagozzi & Yi, 1988; Fornell & Larcker, 1981) (see Table 2).

The goodness of fit statistics of the measurement model revealed an acceptable level of fit. The ratio between the chi-square ($\chi^2 = 183.34$; $p < .005$) and the degrees of freedom (df = 125) was below 2

Table 2
Overall CFA for the measurement model.

Constructs and items	Completely standardized loadings (*t*-value)	*M*	*SD*	CA	CR	AVE
Brand loyalty[a]				–	–	–
If I had to replace my truck, I would buy the same brand.	.89 (std.)	3.61	1.21		–	–
Brand attachment				.92	.92	.80
I feel emotionally connected to this brand.	.91 (std.)	3.76	1.48			
I have a personal bond with this brand.	.92 (25.54)	3.58	1.51			
I feel emotionally attached to this brand.	.85 (21.70)	3.19	1.40			
Product attachment				.84	.85	.66
I have a personal bond with my truck.	.68 (std.)	3.73	1.42			
My truck has a special role in my life.	.88 (13.23)	3.57	1.41			
My truck is very dear to me.	.88 (13.49)	3.88	1.30			
Brand–self congruity				.86	.86	.76
This brand mirrors who I am.	.82 (std.)	2.70	1.63			
This brand says something about me to others.	.91 (16.06)	2.83	1.66			
Brand reliability				.88	.89	.80
This brand is reliable.	.92 (std.)	4.34	1.01			
This brand is a guarantee of perfect performance.	.86 (17.79)	4.18	1.13			
Product–self congruity				.85	.86	.67
My truck symbolizes my way of thinking.	.81 (std.)	3.43	1.53			
My truck represents who I am.	.88 (16.39)	3.44	1.57			
My truck represents a specific lifestyle.	.75 (14.04)	3.30	1.54			
Product reliability				.83	.84	.72
My truck is reliable.	.89 (std.)	4.58	.80			
My truck always works perfectly.	.80 (11.93)	4.32	.90			
Product irreplaceability				.83	.83	.62
Even an identical truck cannot replace this one.	.78 (std.)	3.54	1.39			
If my truck becomes unusable, I will buy exactly the same type again.	.78 (13.15)	3.64	1.31			
My truck is different for me than other trucks of this type.	.79 (13.25)	3.35	1.38			

Summary of statistics: $\chi^2 = 183.34$; p = .000; df = 125; RMSEA = .0403; GFI = .941; AGFI = .910; NFI = .976; NNFI = .989; CFI = .992).
Note: SD = Standard deviation; CA = Cronbach's alpha; CR = Composite reliability; AVE = Average variance extracted.
[a] Because of the single-item operationalization, the coefficient alpha, composite reliability, and average variance extracted cannot be computed.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

(Tabachnick & Fidell, 2007), and all of the other relevant fit indexes exceeded their recommended lower limit: root mean square error of approximation (RMSEA = .0403), goodness of fit index (GFI = .941), adjusted goodness of fit index (AGFI = .910), normed fit index (NFI = .976), non-normed fit index (NNFI = .989), and comparative fit index (CFI = .992).

We also tested for convergent validity of the observed variables by verifying that each item significantly and substantially loaded onto the expected latent construct by checking that all of the *t*-values were larger than 5.23 and that all of the standardized parameters were larger than .5.

Then, to assess the discriminant validity of the constructs, we compared the AVEs with the squared correlations for all of the pairs of latent variables. Because the highest squared correlation was .51, the lowest AVE was .62, and all of the pairs of constructs met this condition, multicollinearity is unlikely to be an issue (Fornell & Larcker, 1981). Table 3 shows the correlations among the latent variables.

Finally, to mitigate the risk of common method bias affecting the data, we employed Harman's single-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We used CFA to compare our model with a constrained single-factor model, where in case of common method variance, the single latent factor would account for all of the variables. The single-factor fit showed no evidence of common method bias ($\chi^2 = 2605.5$; df = 152); thus, the measurement model demonstrated significantly improved fit ($p < .001$).

5.3. Structural model

The structural model revealed a good level of fit ($\chi^2 = 210.82$; df = 138; $p < .005$, RMSEA = .0409; GFI = .934; AGFI = .910; NFI = .973; NNFI = .989; CFI = .991).

The maximum likelihood method provides reliable results when there is a non-severe lack of univariate and multivariate normality in the data (Hu, Bentler, & Kano, 1992); however, we also estimated our model with the Satorra–Bentler scaling. As with the measurement model, in this case the model also had a statistically significant value on the chi-square test (Satorra–Bentler scaled chi-square = 206.354; df = 138; $p < .000$). However, the proportion between the chi-square value and degrees of freedom was within an acceptable range (χ^2/df = 1.49), as were all the relevant fit indexes (RMSEA = .0330; GFI = .934; AGFI = .909, NFI = .977; NNFI = .993; CFI = .994).

To test the reliability of the model, we checked the squared multiple correlation for the structural equations. The results showed that the model explains 45% of the variance in brand loyalty, 60% of the variance in brand attachment, 55% of the variance in product attachment, and 41% of the variance in product irreplaceability. Further, the structural model supports eight of our nine formulated hypotheses.

Brand attachment is positively and significantly explained by the proposed antecedents: brand–self congruity ($\gamma = .50$; $p < .001$) and brand reliability ($\gamma = .30$; $p < .001$). Thus, H1 and H3 are supported. Moreover, product–self congruity is positively and significantly related to both product attachment ($\gamma = .67$; $p < .001$) and product reliability ($\gamma = .22$; $p < .001$). Therefore, hypotheses H2 and H4 are also supported.

The structural path analysis also provides support for H5: product attachment is positively and significantly related to brand attachment ($\beta = .16$; $p < .001$).

Regarding the relationships among brand attachment, product attachment, and brand loyalty, the path analysis revealed that brand attachment is positively and significantly related to brand loyalty ($\beta = .56$; $p < .001$), supporting H6, but the hypothesized relationship between product attachment and brand loyalty is not supported (H7 rejected) ($\beta = .04$; $p > .05$).

Finally, H8 and H9 are supported because product irreplaceability is positively and significantly related to product attachment ($\beta = .64$; $p < .001$) and brand loyalty ($\beta = .19$; $p < .001$)

The results of the structural model and the statistical tests of the research hypotheses are reported in Table 4.

Finally, as was mentioned in the literature review, because a customer's experience begins with an interaction with the product, and then extends to the brand (McAlexander et al., 2002), so developing brand attachment (Davis, 2002; Mugge et al., 2010), we tested for the indirect effect of product attachment on brand loyalty through the mediating effects of brand attachment. The structural equation model made it possible to control for the covariance between the mediator and thus to obtain more reliable estimates for specific indirect effects.

To test for indirect effects, we applied MacKinnon's (2008) procedure instead of the Sobel test (Sobel, 1982) because the latter assumes a symmetric distribution of the indirect effect and would therefore lead to biased results. MacKinnon's procedure consists of computing the 95% asymmetric confidence interval for each specific indirect effect by using PRODCLIN software (MacKinnon, Fritz, Williams, & Lockwood, 2007) (see Table 5).

Table 5 reports the direct, indirect, and total effects of product attachment on brand loyalty via brand attachment. It confirms the direct effect of product attachment on brand loyalty is not significant ($\beta = 0.037$, $p > 0.1$), but the total effects and the indirect effect are positive and significant ($\beta = 0.253$, $p < 0.01$). Accordingly, the indirect-only mediation of the effect of product attachment on brand loyalty through brand attachment has been tested. The data in the fourth column of Table 5 demonstrate that brand attachment mediates the effect of product attachment on brand loyalty.

5.4. Rival models

The structural model described above provides evidence that product attachment is a significant driver of brand attachment. However, as stated previously, no previous empirical work has provided a sufficient explanation of the causal relationship between product attachment and brand attachment (Kleine & Baker, 2004). Previous scholars however foresaw that product attachment once established can drive brand attachment (Davis, 2002; Mugge et al., 2010) as, due to the different potential for carrying indexical value of brands and products, the attachment to the product is more easily transferred to the brand than vice versa (Grayson & Shulman, 2000; Kleine & Baker, 2004).

When faced with indefinite causal relationships between variables in structural equation modeling, researchers are advised to test rival models (Shook, Ketchen, Hult, & Kacmar, 2004). Thompson (1998) noted that to empirically confirm that that the model has been correctly specified, researchers need to challenge the fit of the baseline model against the fit of other defensible, diligently-formulated, rival, plausible models.

Accordingly, although the proposed causal relationship between product attachment and brand attachment had been demonstrated to

Table 3
Inter-construct correlations.

Constructs	Inter-construct correlations							
	1	2	3	4	5	6	7	8
1. Brand loyalty	1							
2. Brand attachment	.633	1						
3. Product attachment	.436	.479	1					
4. Brand–self congruity	.480	.716	.476	1				
5. Brand reliability	.495	.580	.262	.483	1			
6. Product–self congruity	.326	.435	.700	.525	.232	1		
7. Product reliability	.226	.284	.367	.231	.574	.214	1	
8. Product irreplaceability	.388	.306	.636	.312	.170	.466	.262	1

Note: all of the correlations are significant at $p < .001$.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

Table 4
Path estimates for the proposed structural model.

Relationships	Hypotheses	Std. estimates	*t*-Value	
Brand–self congruity → brand attachment	H1	.50	8.34	Supported
Product–self congruity → product attachment	H2	.68	9.48	Supported
Brand reliability → brand attachment	H3	.30	5.68	Supported
Product reliability → product attachment	H4	.22	4.08	Supported
Product attachment → brand attachment	H5	.16	3.30	Supported
Brand attachment → brand loyalty	H6	.56	8.99	Supported
Product attachment → brand loyalty	H7	.04	.43	Rejected
Product attachment → product irreplaceability	H8	.64	8.71	Supported
Product irreplaceability → brand loyalty	H9	.19	2.37	Supported

exhibit an acceptable model fit, we also developed two additional rival models.

In the first rival model, brand attachment is considered to be a driver of product attachment, while in the second model, brand attachment and product attachment are considered to be correlated and are not linked by any causal effect. We used a structural equation model framework that allows for comparisons between non-nested models (Byrne, 1998); the model with the lowest Akaike information criterion (AIC) and consistent Akaike information criterion (CAIC) would be considered the best.

For the baseline model, the AIC and CAIC are 314.146 and 561.608, respectively. Compared with the values for the baseline model, the AIC and CAIC were larger for both the first rival model in which product attachment is considered to be driven by brand attachment (AIC rival1 = 314.822, CAIC rival1 = 562.289) and the second model in which product attachment and brand attachment are free to correlate without imposing any causal relationship (AIC rival2 = 316.952, CAIC rival2 = 564.415). Therefore, we conclude that the advanced causal representation fits the data better than the proposed alternative models.

6. Discussion and implications

6.1. General discussion

This study aimed to answer a research question on how attachment to industrial brands and products affects brand loyalty. Answering this research question involved selecting a category of industrial buyers that besides having a first-person experience of product usage also had the organizational legitimacy to address brand choices: owner-operators of heavy trucks. Surveying this population of buyers gave us an opportunity to evaluate if brand attachment and product attachment are constructs that can be eligible for applications in the business-to-business domain; and to shed light on the relationship between these constructs and brand loyalty; we could also explore the existing relationship between the constructs of brand attachment and product attachment that was not empirically tested in the extant literature.

Although owner-operators are a specific category of business buyers acting in a very specific market, there are many other cases of business buyers also acting in the role of user. It is a common situation among self-employed professionals, a group that recent research suggested accounts for about 30% of the whole global working population (Gallup, 2014). There are also very many micro/small companies in which the user and the buyer roles overlap. Even in large companies, an individual buyer may be free to buy a product for his/her own use and pay for it personally, in the process making both product and brand choices (Michel et al., 2008).

Based on the development of the conceptual model, the analysis of the measurement model, the results of the linear and indirect effects of the proposed latent variables, and the results of additional rival models, we were able to answer the research question and elicit other effects of attachment.

First, the different meanings that the respondents attributed to the brands and products as indicated by the surveys, confirm that brand attachment and product attachment are distinct phenomena, supporting the view of Kleine and Baker (2004) regarding the differences between these types of attachment. The data confirmed that these constructs are statistically distinct, as the relatively low correlation between the constructs (which limited the risk of a serious issue of multicollinearity) and their differentiated role in predicting individuals' willingness to make repeated purchases of the same brand established. The findings in fact revealed that brand attachment positively influences brand loyalty, while the direct relationship between product attachment and brand loyalty was not confirmed. Specifically, product attachment was found to influence brand loyalty only indirectly through the mediating effects of brand attachment. Accordingly, in contrast to the results of previous research (Kressmann et al., 2006; Matzler et al., 2011), in the empirical context studied here, brand loyalty only seems to arise when buyers first develop feelings of attachment to the brand. This result is of particular importance because it offers empirical support to the idea expressed by previous scholars that brand attachment and product attachment are different constructs, not only because they refer to two different targets – immaterial brands and material products (Schifferstein & Zwartkruis-Pelgrim, 2008) – but primarily because they are capable of producing different behavioral outcomes (Nagy & Koles, 2014).

Product attachment was found to be positively related to product irreplaceability, which, in turn, is significantly related to buyers' willingness to repurchase the brand that they actually use. These effects arise because product attachment, when present and strong, consists of the psychological appropriation of a product that becomes unique through the person–product interaction (Kleine & Baker, 2004). Thus, because of this interaction, the product becomes irreplaceable (Schifferstein & Zwartkruis-Pelgrim, 2008) and assumes a meaning for the possessor that differentiates the product from every other product, including an exact replica (Grayson & Shulman, 2000). However, as the results suggest, although a product may be considered irreplaceable, this feeling does not prevent the buyer/user repeatedly choosing the same brand, when he or she is forced to replace the product that is no longer functional/performing. Product replacement is in fact highly dependent on previous choices, as individuals' tend to replace the old product with

Table 5
Standardized direct, indirect, and total effects of product attachment on brand loyalty.

Specific indirect effect	Direct effect	Total effect	Indirect effect	95% Asymmetric confidence interval		Sig. ($p < .05$)
				Lower bound	Upper bound	
Product attachment → brand attachment → brand loyalty	.037	.253**	.216**	.004	.172	Significant

** $p < .01$.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

an upgraded new version of the one they already have (Okada, 2001). This is especially true in those cases in which the buyer perceives a high level of risk due to the significant cost of the product to be purchased (Noordewier, John, & Nevin, 1990) (as is the case with the purchase of a new truck for an owner-operator).

The results also shed light on the causal relationship between brand attachment and product attachment that remained unclear in the extant literature. Based on previous literature (Davis, 2002; Mugge et al., 2010), we first tested a model in which brand attachment results from product attachment. Then, we challenged the baseline model by testing two additional rival models: one in which product attachment was considered to be driven by brand attachment, and a second in which these constructs were let free to correlate without imposing any causal relationship. The testing of rival models is good practice in research using structural equation models, especially when other models are plausible and when the theory cannot exclude other possible causal relationships (Thompson, 1998). To assess the correct specification of the baseline model tested, we compared non-nested models and evaluated the predictive validity of the model by comparing both Akaike information criteria (AIC and CAIC).

The baseline model resulted in a better statistical fit than rival ones. This indicates that, at least in the context of our study, the subjective experience of product usage is the very means by which individuals access the brand and through which the affective relationship is (potentially) established with it. We thus gave support to previous scholars who, although not managing to produce empirical confirmation of the causal relationship between brand attachment and product attachment, affirmed that as these constructs differ in terms of indexicality, it is more likely that once established it is product attachment that can drive brand attachment (Davis, 2002; Grayson & Shulman, 2000; Kleine & Baker, 2004; Mugge et al., 2010), rather than vice versa.

With regard to the antecedents of brand and product attachment, brand–self congruity and product–self congruity were found to be the most influential drivers of brand attachment and product attachment, respectively. Those findings indicate that buyers generate feelings of attachment to brands and products principally because those brands have features that fit with the individuals' sense of self. This result is consistent with the extant theoretical and empirical literature, which supports the idea that attachment emerges when brands and products are used by individuals to display their self-concept to others (Ball & Tasaki, 1992; Belk, 1988, 1990; Park et al., 2010). It does however to an extent conflict with the prevailing view that buying decisions in organizational settings are made on a rational basis (Bendixen et al., 2004) and that emotions play at most only a marginal role in industrial buying choices and behavior.

Brand and product reliability describing the ability of the brand and of the product to properly fulfill their basic functions and to respond to an individual's needs were here used to measure the ability of the brand and of the product to provide individuals with a safe haven (Bowlby, 1969), were found to be of secondary importance in the development of attachment.

6.2. Theoretical implications

The results of this study contribute to the industrial marketing literature in three ways. First, they complement the existing literature on industrial purchasing and organizational buying behavior (Bonoma & Zaltman, 2011; Webster & Wind, 1972). The focus on owner-operators permitted the investigation of how the use and possession of industrial products affect individuals' emotional feelings toward industrial brands and products, and the willingness to repurchase products of the same brand. That investigation revealed additional nuances characterizing the buying processes of particular buyers who hold at least two (i.e., buyer and user) of the six buying roles that characterize industrial purchasing processes (Webster & Wind, 1972). The particular focus of this research means it also complements the domain of studies on organizational buying behavior by providing support to scholars who claim that industrial buying decisions are not necessarily made on the basis of rational calculations, but may instead be highly influenced by personal emotions and cognitions (Erevelles, 1998; Gilliland & Johnston, 1997; Kramer, 2014; Wilson, 2000).

Second, the current research contributes to the ongoing debate regarding functional/utilitarian versus emotional brand attributes in an industrial context (Leek & Christodoulides, 2012; Veloutsou & Taylor, 2012). It does so by emphasizing the importance of feelings of attachment to industrial brands and products to the creation of long-lasting relationships between buyers and suppliers. In particular, this study challenges the idea that industrial brand loyalty is primarily based on a product's tangible features (Bendixen et al., 2004; Michell et al., 2001) by elucidating the relevance of affective features in determining industrial buyers' willingness to make repeated purchases of the same brand. The results also highlight the comparatively weaker influence of functional/utilitarian brand and product attributes (here expressed through the construct of reliability) in generating positive feelings toward both brands and products. The results therefore expand the domain of attachment in studies on industrial relationships by focusing on the relationships between buyers and industrial brands and products rather than the affective bonds that may link industrial buyers and sellers (Čater & Čater, 2010; Paulssen, 2009; Rauyruen & Miller, 2007).

Third, by adopting a different theoretical stance to look at industrial brands and products, this study enhances the stream of studies in which industrial brands and products are analyzed in a different and perhaps unorthodox fashion. Similar to recent contributions aiming to establish that industrial brands have personalities (Veloutsou & Taylor, 2012), we demonstrate that industrial brands are also used for self-expressive purposes. In addition, we show that industrial products can extend beyond their functional/utilitarian features (Michell et al., 2001) and encompass the personal meanings attributed by buyers (Kleine & Baker, 2004). Consequently, this research establishes that industrial brands and products can be investigated in light of their ontological significance for their buyers and users.

In addition to the three contributions to the industrial marketing discipline noted above, the empirical results of this research have implications for the marketing literature in general and studies on attachment in particular. By distinguishing between brands and products (Gardner & Levy, 1955; Kleine & Baker, 2004; Manning, 2010) and by adopting the theoretical perspective of Kleine and Baker (2004), it empirically shows that although brand attachment and product attachment are similar, they are actually distinct phenomena. Because of the lack of research on these issues in the extant literature, the present study can be considered a first attempt to explain the existing relationship between brand attachment and product attachment, a relationship that merits further investigation.

6.3. Managerial implications

In addition to the theoretical contributions, the findings of this study have at least three managerial implications. If developed they could facilitate the development of commercial and communication strategies among marketing managers, especially when addressed to buyers who have direct experience with a product and the necessary organizational legitimacy to choose the supplying brands. First, industrial marketing managers should be aware of the role of emotions in general, and attachment in particular, in industrial markets, as well as the role of attachment to brands and products in determining higher/lower levels of brand loyalty. We recommend marketing managers exercise caution when establishing specific marketing programs aimed at increasing buyer–users' affection for a product (such as the customization and/or personalization of offerings) to increase brand loyalty. The results of this study show that product attachment alone does not lead to brand loyalty. When product attachment is established, the emotions

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

that an individual develops regarding the object make the product unique, in that feelings of irreplaceability are generated. Product irreplaceability poses a challenge in marketing because its natural consequence is the postponement of product replacement, which affects companies' sales volumes and ability to achieve sales targets. Accordingly, marketers should develop specific marketing programs and actions to exploit the commercial opportunities stemming from a product usage that lasts longer than expected. For example, providing additional services, maintenance programs and other services that can allow the company to gain profits in the period between product replacement (for capital assets like trucks that corresponds to the moment when the capital asset comes to the end of its economic life) and the moment when the product is actually replaced.

At the same time, marketers should strategize the transfer of such attachment to the brand to influence future purchasing choices, and lobby to avoid delaying product replacement more than is necessary.

A second managerial implication concerns the antecedents of both brand and product attachment, which can guide marketers in the development of their communication and advertising strategies. If marketers wish to increase customers' attachment to their brands and products, they must emphasize the identitarian aspects of their offerings by ensuring that their brands and products fit the self-conceptions of buyers and users. Marketing communication strategies with the aim of mirroring brand and product characteristics should thus be established, particularly by emphasizing the attributes that help individuals express their personalities as professionals and/or individuals. Although our results show that brand and product reliability also have the power to generate positive emotions to brands and products, we found these factors to be of secondary importance. Performance based brand and product attributes should be issues taken-for-granted if marketers wish to leverage the ability of their brands and products to stimulate the formation of attachment, because the safe-haven quality must be safeguarded.

The third managerial implication of our study concerns the possibility of using the relative level of buyers' attachment (toward both the brand and the product) as a segmentation variable. Groups of actual and prospective industrial buyers can be grouped according to their level of brand and/or product attachment to differentiate direct marketing efforts, communication strategies, loyalty programs, and involvement actions. In particular, recognizing buyers characterized by high levels of product attachment is highly important from a marketing perspective because of the mediated relationship between product attachment, brand attachment, and intentions to repurchase a specific brand.

7. Limitations and further research

The results, the theoretical contributions, and the managerial implications of this study must be viewed in light of the study's limitations. First, trucks may constitute a particularly distinct business-to-business product because of the high degree of product-subject interaction, as trucks are both a working tool and the workplace for the owner-operators. The particular nature of the industry probably affects the users' attachment to the products and the impact of product attachment on both brand attachment and brand loyalty. Similar investigations focusing on other industrial products and on different industries would therefore be necessary to establish the existence and salience of product attachment and brand attachment and their effects on brand loyalty on a wider scale.

Second, in our model the debated relationship between brand attachment and product attachment had a causal connection with product attachment explaining brand attachment. Although the two tests of rival models (one in which brand attachment explained product attachment and another in which these constructs were let free to correlate and not linked by any causal effect) showed a worse statistical fit than the original model, further analysis would be required to understand the nature of this relationship in multiple industrial contexts. Future research might test the relationship between brand attachment and product attachment using different populations of business buyers operating in different business contexts. Other limitations to this study relate to the research methodology. The first such limitation concerns the operationalization of the self-concept, which is used as a unidimensional construct. The self is nevertheless a multidimensional concept that is generally considered to have three dimensions: the ideal, the actual, and the social self (Sirgy, 1982). However, this study applied constructs of self-congruity that do not distinguish between the different facets of the self and their relationships with individuals' relative level of attachment. A second limitation concerns the single-country focus. Similar studies conducted in other markets may find different levels of brand and product attachment because of cultural differences (Steenkamp & Baumgartner, 1998), which may affect individuals' attitudes toward brands and products and their impact on brand loyalty.

8. Conclusion

This study is the first efforts in the industrial marketing literature to attempt to shed light on if and how brand attachment and product attachment are applicable in the business-to-business domain and to reveal their effects on brand loyalty. The increasing attention paid to brand loyalty in industrial marketing research has led to challenges to researchers to expand on the potential drivers of brand loyalty, and to suggest strategies marketers could exploit to secure loyalty. As business markets become ever more competitive, companies target long-term customer retention by a variety of means including leveraging their brands. Feelings of attachment are of course a potent means through which companies can increase their customers' level of brand loyalty, and benefit from the positive effects generally associated with it.

Diverging from the prevailing view established in the current literature, this study has shown that in the specific context investigated brand attachment and product attachment are applicable in the business-to-business domain, although they will have a different impact on desired marketing outcomes such as repeated purchasing choices in this case, and as such they pose different marketing challenges.

The findings and implications of the current research are particularly relevant to those organizational buying situations in which the buyer and the user roles overlap, but there is a need for further applications of these constructs in the business-to-business domain. As a first attempt to establish brand and product attachment in business-to-business studies, the authors call for further research on these constructs, whether considered jointly or separately, as well as on other similar constructs that will help scholars and managers enhance explanations of brand loyalty. Constructs like love, hate, arousal, for example, which are widely used in consumer research and that are still under-researched in industrial marketing, can provide industrial marketing scholars new and fruitful avenues to investigate, especially in the specific stream of industrial branding studies.

Acknowledgments

The authors wish to thank the three anonymous reviewers for their comments on previous draft of the paper. They also wish to thank (in alphabetical order) Bernard Cova, Daniele Dalli, Simone Guercini, Diego Rinallo and M. Joseph Sirgy for their highly valuable comments, ideas, suggestions, and constructive critics throughout the development of this research. Finally, a special thank goes to Giampaolo Dal Lago for giving help and inspiration.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

Appendix A. Constructs, scale items and sources of measurement scales.*

Constructs	Scale items	Sources of measurements scales
Brand loyalty	If I had to replace my truck, I would buy the same brand.	Esch et al. (2006)
Brand attachment	I feel emotionally connected to this brand. I have a personal bond with this brand. I feel attached to this brand.	Swaminathan et al. (2009)
Product attachment	I have a personal bond with my truck. My truck has a special role in my life. My truck is very dear to me. My truck means a lot to me. I am very attached to my truck. I feel emotionally connected to my truck.	Schifferstein and Zwartkruis-Pelgrim (2008)
Product irreplaceability	Even an identical truck cannot replace this one. If my truck becomes unusable, I will buy exactly the same type again. My truck is different for me than other trucks of this type.	Schifferstein and Zwartkruis-Pelgrim (2008)
Brand–self congruity	This brand mirrors who I am. This brand says something about me to others.	Matzler et al. (2011)
Brand reliability	This brand is reliable. This brand is a guarantee of perfect performance.	Delgado-Ballester (2004)
Product–self congruity	My truck symbolizes my way of thinking. My truck represents who I am. My truck represents a specific lifestyle. I demonstrate what I stand for with my truck. I distinguish myself from others with my truck.	Schifferstein and Zwartkruis-Pelgrim (2008)
Product reliability	My truck is reliable. My truck always works perfectly.	Schifferstein and Zwartkruis-Pelgrim (2008)

*In the questionnaire administered to the respondents, the specification of the latent variable was not included. All of the observed variables were presented to the respondents in a mixed order. Measurement items related to the product and those related to the brand were separated into different sections of the survey instrument.

References

Aaker, J. L. (1999). The malleable self: The role of self-expression in persuasion. *Journal of Marketing Research*, *36*(1), 45–57.
Ainsworth, M. D. S. (1973). The development of infant–mother attachment. In B. Cardwell, & H. Ricciuti (Eds.), *Review of child development research*, *Vol. 3*. (pp. 1–94). Chicago: University of Chicago Press.
Allen, N. J., & Meyer, J. P. (1996). Affective, continuance, and normative commitment to the organization: an examination of construct validity. *Journal of Vocational Behavior*, *49*(3), 252–276.
Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modelling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *193*(3), 411–423.
Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, *14*(3), 396–402.
Arnould, E. J., & Price, L. L. (1993). River magic: Extraordinary experience and the extended service encounter. *Journal of Consumer Research*, *20*(1), 24–45.
Aron, A., & Aron, E. N. (1996). Self and self-expansion in relationships. In G. O. Fletcher, & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 325–344). New York: Lawrence Erlbaum Associate Publishers.
Arvidsson, A. (2006). *Brands: Meaning and value in media culture*. Oxford: Routledge.
Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, *16*(1), 74–94.
Ball, D. A., & Tasaki, L. H. (1992). The role and measurement of attachment in consumer behavior. *Journal of Consumer Psychology*, *1*(2), 155–172.
Bankvall, L., Dubois, A., & Lind, F. (2014). Towards a network-based business model concept and the case of a truck OEM considering its business model in India. *The IMP Journal*, *8*(2), 44–50.
Belk, R. W. (1988). Possessions and the extended self. *Journal of Consumer Research*, *15*(2), 139–168.
Belk, R. W. (1990). The role of possessions in constructing and maintaining a sense of past. *Advances in Consumer Research*, *17*(1), 669–676.
Bendixen, M., Bukasa, K. A., & Abratt, R. (2004). Brand equity in the business-to-business market. *Industrial Marketing Management*, *33*(5), 371–380.
Bennett, R., McColl-Kennedy, J. R., & Coote, L. V. (2007). Involvement, satisfaction, and brand loyalty in a small business services setting. *Journal of Business Research*, *60*(12), 1253–1260.
Bergkvist, L., & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research*, *44*(2), 175–184.
Biedenbach, G. (2012). Brand equity in the business-to-business context: Examining the structural composition. *Journal of Brand Management*, *19*(8), 688–701.
Biedenbach, G., & Marell, A. (2010). The impact of customer experience on brand equity in a business-to-business services setting. *Journal of Brand Management*, *17*(6), 446–458.
Bollen, K. A. (1989). *Structural equations with latent variables*. New York: John Wiley & Sons.
Bonoma, T. V., & Zaltman, G. (2011). *Organizational buying behavior*. Marketing Classics Press.
Bowlby, J. (1969). *Attachment and loss*, *Vol. 1*, New York: Basic Books.
Bowlby, J. (1973). *Attachment and loss*, *Vol. 1*, New York: Basic Books.
Bowlby, J. (1980). *Attachment and loss*, *Vol. 3*, New York: Basic Books.
Brakus, J. J., Schmitt, B. H., & Zarantonello, L. (2009). Brand experience: What is it? How is it measured? Does it affect loyalty? *Journal of Marketing*, *73*(3), 52–68.
Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS and SIMPLIS: Basic concepts, applications and programming*. Psychology Press: Taylor & Francis.
Čater, T., & Čater, B. (2010). Product and relationship quality influence on customer commitment and loyalty in B2B manufacturing relationships. *Industrial Marketing Management*, *39*(8), 1321–1333.
Čater, B., & Zabkar, V. (2009). Antecedents and consequences of commitment in marketing research services: The client's perspective. *Industrial Marketing Management*, *38*(7), 785–797.
Celuch, K., Goodwin, S., & Taylor, S. A. (2007). Understanding small scale industrial user internet purchase and information management intentions: A test of two attitude models. *Industrial Marketing Management*, *36*(1), 109–120.
Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing*, *65*(2), 81–93.
Churchill, G. (1979). A paradigm for developing better measures of marketing constructs. *Journal of Marketing Research*, *16*(1), 64–73.
Davis, G. (2002). Prolonging the pleasure. In W. S. Green, & P. W. Jordan (Eds.), *Pleasure with products: Beyond usability* (pp. 315–319). London: Taylor & Francis.
Delgado-Ballester, E. (2004). Applicability of a brand trust scale across product categories: A multigroup invariance analysis. *European Journal of Marketing*, *38*(5/6), 573–592.
Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilczynski, P., & Kaiser, S. (2012). Guidelines for choosing between multi-item and single-item scales for construct measurement: A predictive validity perspective. *Journal of the Academy of Marketing Science*, *40*(3), 434–449.
Doyle, P. (2000). *Value based marketing: Marketing strategies for corporate growth and shareholder value*. Chichester: Wiley.
Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer–seller relationships. *Journal of Marketing*, *51*(2), 11–27.
Erevelles, S. (1998). The role of affect in marketing. *Journal of Business Research*, *42*(3), 199–215.
Esch, F. R., Langner, T., Schmitt, B. H., & Geus, P. (2006). Are brands forever? How brand knowledge and relationships affect current and future purchases. *Journal of Product & Brand Management*, *15*(2), 98–105.
Eurostat (2006). *Competitiveness in EU Road Freight Transport*.
Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*(1), 39–50.
Gallup (2014). Nearly three in 10 workers worldwide are self-employed. accessible on lne http://www.gallup.com (Accessed on March 2nd 2015)
Gardner, B. B., & Levy, S. J. (1955). The product and the brand. *Harvard Business Review*, *33*(2), 33–39.
Gilliland, D. I., & Johnston, W. J. (1997). Toward a model of business-to-business marketing communications effects. *Industrial Marketing Management*, *26*(1), 15–29.
Grayson, K., & Shulman, D. (2000). Indexicality and the verification function of irreplaceable possessions: A semiotic analysis. *Journal of Consumer Research*, *27*(1), 17–30.
Grisaffe, D. B., & Nguyen, H. P. (2011). Antecedents of emotional attachment to brands. *Journal of Business Research*, *64*(10), 1052–1059.
Han, S. L., & Sung, H. S. (2008). Industrial brand value and relationship performance in business markets—A general structural equation model. *Industrial Marketing Management*, *37*(7), 807–818.
Herbst, U., & Merz, M. A. (2011). The industrial brand personality scale: Building strong business-to-business brands. *Industrial Marketing Management*, *40*(7), 1072–1081.
Hirschman, E. C. (1994). Consumers and their animal companions. *Journal of Consumer Research*, *20*(4), 616–632.
Hoch, S. J. (2002). Product experience is seductive. *Journal of Consumer Research*, *29*(3), 448–454.
Hoyle, R. H. (1995). *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks: Sage Publications.
Hu, L. T., Bentler, P. M., & Kano, Y. (1992). Can test statistics in covariance structure analysis be trusted? *Psychological Bulletin*, *112*(2), 351–362.
Jacoby, J., & Kyner, D. B. (1973). Brand loyalty vs. repeat purchasing behavior. *Journal of Marketing Research*, *10*(1), 1–9.
Jensen, M. J., & Hansen, T. (2006). An empirical examination of brand loyalty. *Journal of Product & Brand Management.*, *15*(7), 442–449.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007

Jensen, M. B., & Klastrup, K. (2008). Towards a B2B customer-based brand equity model. *Journal of Targeting, Measurement and Analysis for Marketing, 16*, 122–128.
Keller, K. L. (2014). Designing and implementing brand architecture strategies. *Journal of Brand Management, 21*(9), 702–715.
Kleine, S. S., & Baker, S. M. (2004). An integrative review of material possession attachment. *Academy of Marketing Science Review, 1*, 1–35.
Kramer, B. (2014). *There is No B2B or B2C: It's human to human.* Pure Matter.
Kressmann, F., Sirgy, M. J., Herrmann, A., Huber, F., Huber, S., & Lee, D. J. (2006). Direct and indirect effects of self-image congruence on brand loyalty. *Journal of Business Research, 59*(9), 955–964.
Latour, B. (1993). *We have never been modern.* Cambridge, MA: Harvard University Press.
Leek, S., & Christodoulides, G. (2012). A framework of brand value in B2B markets: The contributing role of functional and emotional components. *Industrial Marketing Management, 41*(1), 106–114.
Lynch, J., & De Chernatony, L. (2004). The power of emotion: Brand communication in business-to-business markets. *The Journal of Brand Management, 11*(5), 403–419.
MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis.* Mahwah, NJ: Erlbaum.
MacKinnon, D. P., Fritz, M. S., Williams, J., & Lockwood, C. M. (2007). Distribution of the product confidence limits for the indirect effect: Program PRODCLIN. *Behavior Research Methods, 39*(3), 384–389.
Malär, L., Krohmer, H., Hoyer, W. D., & Nyffenegger, B. (2011). Emotional brand attachment and brand personality: The relative importance of the actual and the ideal self. *Journal of Marketing, 75*(4), 35–52.
Malhotra, N. K. (1988). Self concept and product choice: An integrated perspective. *Journal of Economic Psychology, 19*(1), 1–28.
Manning, P. (2010). The semiotics of brand. *Annual Review of Anthropology, 39*, 33–49.
Matzler, K., Pichler, E., Füller, J., & Mooradian, T. A. (2011). Personality, person–brand fit, and brand community: An investigation of individuals, brands, and brand communities. *Journal of Marketing Management, 27*(9–10), 874–890.
McAlexander, J. H., Schouten, J. W., & Koenig, H. F. (2002). Building brand community. *Journal of Marketing, 66*(1), 38–54.
Mende, M., Bolton, R. N., & Bitner, M. J. (2013). Decoding customer–firm relationships: How attachment styles help explain customers' preferences for closeness, repurchase intentions, and changes in relationship breadth. *Journal of Marketing Research, 50*(1), 125–142.
Michel, S., Brown, S. W., & Gallan, A. S. (2008). Service-logic innovations: How to innovate customers, not products. *California Management Review, 50*(3), 54–66.
Michell, P., King, J., & Reast, J. (2001). Brand values related to industrial products. *Industrial Marketing Management, 30*(5), 415–425.
Mikulincer, M., Shaver, P. R., & Pereg, D. (2003). Attachment theory and affect regulation: The dynamics, development, and cognitive consequences of attachment-related strategies. *Motivation and Emotion, 27*(2), 77–102.
Mittal, V., & Kamakura, W. A. (2001). Satisfaction, repurchase intent, and repurchase behavior: Investigating the moderating effect of customer characteristics. *Journal of Marketing Research, 38*(1), 131–142.
Morgan, R. M., & Hunt, S. D. (1994). The commitment–trust theory of relationship marketing. *Journal of Marketing, 58*(3), 20–38.
Mudambi, S. (2002). Branding importance in business-to-business markets: Three buyer clusters. *Industrial Marketing Management, 31*(6), 525–533.
Mudambi, R., & Schründer, C. P. (1996). Progress towards buyer–supplier partnerships: evidence from small and medium-sized manufacturing firms. *European Journal of Purchasing & Supply Management, 2*(2), 119–127.
Mugge, R., Schifferstein, H. N., & Schoormans, J. P. (2006). A longitudinal study on product attachment and its determinants. *European Advances in Consumer Research, 7*, 641–647.
Mugge, R., Schifferstein, H. N., & Schoormans, J. P. (2010). Product attachment and satisfaction: understanding consumers' post-purchase behavior. *Journal of Consumer Marketing, 27*(3), 271–282.
Nagy, P., & Koles, B. (2014). My avatar and her beloved possession: Characteristics of attachment to virtual objects. *Psychology & Marketing, 31*(12), 1122–1135.
Nickerson, J. A., & Silverman, B. S. (2003). Why aren't all truck drivers owner-operators? Asset ownership and the employment relation in interstate for-hire trucking. *Journal of Economics & Management Strategy, 12*(1), 91–118.
Noordewier, T. G., John, G., & Nevin, J. R. (1990). Performance outcomes of purchasing arrangements in industrial buyer–vendor relationships. *Journal of Marketing, 54*(4), 80–93.
Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
Okada, E. M. (2001). Trade-ins, mental accounting, and product replacement decisions. *Journal of Consumer Research, 27*(4), 433–446.
OOIDA (2014). Trucking stats. accessible online through www.ooida.com (Accessed on March 2nd 2015)
Park, C. W., MacInnis, D. J., & Priester, J. R. (2006). Brand attachment: Constructs, consequences and causes. *Foundations and Trends in Marketing, 1*(3), 191–230.
Park, C. W., MacInnis, D. J., Priester, J. R., Eisingerich, A. B., & Iacobucci, D. (2010). Brand attachment and brand attitude strength: conceptual and empirical differentiation of two critical brand equity drivers. *Journal of Marketing, 74*(6), 1–17.
Paulssen, M. (2009). Attachment orientations in business-to-business relationships. *Psychology & Marketing, 26*(6), 507–533.
Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879.
Rauyruen, P., & Miller, K. E. (2007). Relationship quality as a predictor of B2B customer loyalty. *Journal of Business Research, 60*(1), 21–31.
Rissman, E. (2003). Self-employment as an alternative to unemployment. *Working paper of the Federal Reserve Bank of Chicago, n. 34.*
Rodebaugh, T. L., Woods, C. M., & Heimberg, R. G. (2007). The reverse of social anxiety is not always the opposite: The reverse-scored items of the social interaction anxiety scale do not belong. *Behavior Therapy, 38*(2), 192–206.
Roper, S., & Davies, G. (2010). Business to business branding: External and internal satisfiers and the role of training quality. *European Journal of Marketing, 44*(5), 567–590.
Schifferstein, H. N. J., & Zwartkruis-Pelgrim, E. P. H. (2008). Consumer-product attachment: Measurement and design implications. *International Journal of Design, 2*(3), 1–13.
Shook, C. L., Ketchen, D. J., Hult, G. T. M., & Kacmar, K. M. (2004). An assessment of the use of structural equation modeling in strategic management research. *Strategic Management Journal, 25*(4), 397–404.
Silk, A. J., & Kalwani, M. U. (1982). Measuring influence in organizational purchase decisions. *Journal of Marketing Research, 19*(2), 165–181.
Sirgy, J. M. (1982). Self-concept in consumer behavior: A critical review. *Journal of Consumer Research, 9*(3), 287–300.
Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological methodology* (pp. 290–312). San Francisco: Jossey-Bass.
Spector, P. E., Van Katwyk, P. T., Brannick, M. T., & Chen, P. Y. (1997). When two factors don't reflect two constructs: How item characteristics can produce artifactual factors. *Journal of Management, 23*(5), 659–677.
Steenkamp, J. B. E., & Baumgartner, H. (1998). Assessing measurement invariance in cross-national consumer research. *Journal of Consumer Research, 25*(1), 78–107.
Swaminathan, V., Stilley, K. M., & Ahluwalia, R. (2009). When brand personality matters: The moderating role of attachment styles. *Journal of Consumer Research, 35*(6), 985–1002.
Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). New York: Allyn and Bacon.
Thompson, B. (1998). The ten commandments of good structural equation modeling behavior: A user-friendly, introductory primer on SEM. *Paper presented at the Annual Meeting of the U.S. Department of Education, Office of Special Education Programs, Washington, DC.*
Thomson, M. (2006). Human brands: Investigating antecedents to consumers' strong attachments to celebrities. *Journal of Marketing, 70*(3), 104–119.
Thomson, M., MacInnis, D. J., & Park, C. W. (2005). The ties that bind: Measuring the strength of consumers' emotional attachments to brands. *Journal of Consumer Psychology, 15*(1), 77–91.
van Riel, A. C. R., de Mortanges, C. P., & Streukens, S. (2005). Marketing antecedents of industrial brand equity: An empirical investigation in specialty chemicals. *Industrial Marketing Management, 34*(8), 841–847.
Veloutsou, C., & Taylor, C. S. (2012). The role of the brand as a person in business to business brands. *Industrial Marketing Management, 41*(6), 898–907.
Webster, F. E., & Wind, Y. (1972). A general model for understanding organizational buying behavior. *Journal of Marketing, 36*(2), 12–19.
Wilson, D. F. (2000). Why divide consumer and organizational buyer behaviour? *European Journal of Marketing, 34*(7), 780–796.

Giuseppe Pedeliento, Ph.D is Research Fellow at the Department of Management, Economics and Quantitative Methods of the University of Bergamo (Italy) and Adjunct Professor of Marketing and Management in the same university. Former visiting researcher and lecturer at the Department of Marketing of the School of Business of the Aalto University (Helsinki), his research focuses on industrial marketing and branding, consumer behavior, project marketing and multi-channel retail.

Daniela Andreini, Ph.D is Associate Professor of Marketing at the Department of Management, Economics and Quantitative Methods of the University of Bergamo (Italy) and long term visiting professor at the Department of Marketing of the University of Washington Bothell (Seattle, USA). Her research focuses on industrial marketing and branding, consumer behavior, online sponsorship and communities, e-commerce and multi-channel retail.

Mara Bergamaschi, is Associate Professor of Management and dean of the master program in Management, Finance and International Business at the University of Bergamo. She is also senior professor and faculty member of SDA (Scuola di Direzione Aziendale) at Bocconi University. Her research interests include marketing and branding in business and consumer markets, as well as the management of service industries with a particular focus on professional services.

Jari Salo, Ph.D is Professor of Marketing at the University of Oulu and Adjunct Professor of Marketing at the School of Business of the Aalto University. From September 2015 onwards he will also work as Full professor of Marketing and John Garlick chair of Business Science in the School of Management Studies at the University of Cape Town. His research interests include management of innovation, mobile marketing, business relationships and networks as well as digital marketing.

Please cite this article as: Pedeliento, G., et al., Brand and product attachment in an industrial context: The effects on brand loyalty, *Industrial Marketing Management* (2015), http://dx.doi.org/10.1016/j.indmarman.2015.06.007