

**“When my relationship partner fails me...”**

The role of consumer-product relationship in responses to functional failures

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## **Abstract**

This research examines consumers' responses to a functional failure with an ambiguous cause. Empirical evidence shows that following a functional failure which involves a product service bundle (PSB), the consumer's relationship with the product component tends to bias evaluations of the two PSB components. While evaluations of the product and service component are both adversely affected by the functional failure, the consumer-product relationship determines which component was more negatively affected by the event. The present research decomposes relationship into two related but independent facets, one of which is the affective component of relationship, namely emotional attachment, and another that is the cognitive element, which is relationship norms. We show that a high level of emotional attachment to the product component (versus service component) in fact leads to higher degree of 'decay' in product evaluations (versus service evaluations) following a functional failure. Moreover, the higher the emotional attachment to the product component, the more negative the responses towards the product component were. From the perspective of relationship norms, this research borrows the relationship framework from Clark et al. (1998) and examines three types of relationships with ensuing norms, including exchange, certain communal, and uncertain communal relationship. We found that among the three relationship types, regarding the product component as a partner in an uncertain communal relationship (e.g. a friendship) leads the consumer to reduce their evaluations of the product the most. We further examined the underlying processes of the effects, and showed that the emotion of disappointment causes people with high product attachment to evaluate it worse. A cognitive process, namely disconfirmation, could explain for the highest 'decay' of product evaluations when norms of an uncertain communal relationship follow. We test the conceptualization across three studies. Study 1 and 2 examine the role of emotional attachment, an affective facet of relationship in responses to product failure. Study 3 investigates the role of relationship norms, the cognitive component, and consumers' downstream behaviors including coping.

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# Chapter 1. Introduction

## 1.1 Background

Lisa was sending her boyfriend a text message. Five minutes later, she got a message from a friend that reads ‘wrong number!’. She tried again and again, and the message kept going to a different contact in her phone. Not being able to deliver the message to her boyfriend, Lisa was angry at her phone. But soon she began to wonder whether it is the fault of her phone or her network service. At the same time, John, Lisa’s boyfriend, was driving his car down the street. The Toyota suddenly broke down. John got mad at his car. However, after contemplating his situation, he remembered his recent visit to the mechanics, and started to wonder if it was the mechanics that did not do a good job.

The above examples illustrate the confusion one can get when facing a negative event occurring to a product-service bundle, thereafter referred to as PSB. PSBs are prevalent across different consumption contexts. We use a product and a service that are provided together and are not perceptually distinct. Some examples include a mobile phone and a network service, cars and car mechanics, computers and the Internet, or, in a retail context, products and a retailer. One characteristic that these PSBs have in common is that the consumer receives a product or service which is the outcome of several processes involving different actors. The question is how the consumer distinguishes emotionally and cognitively between the two actors. In the context of a product or service failure such as the vignette above, a PSB represents a challenge for the consumer to determine why the failure occurred, who to blame and what to do. As these factors subsequently affect their evaluations, the complicity of the PSB also presents challenges to firms. In this research, we examine consumers’ responses to a product/service failure that involves an ambiguous cause. The context of PSB is interesting to investigate reactions to product/service failure. This is because the intricacy of complementarity, the difficulty in unbundling and separating one element from the other leads to ambiguity which then opens up for biases in causal inferences.

Past research in product failure has investigated the issue in various directions. Mainly, researchers, using attribution theory as a guide, examine how people decide where fault lies for a product failure (Folkes 1984, 1988; Folkes, Koletsky and Graham 1987; Jolibert and Peterson 1976). Overall, people make causal inferences to either internal or external sources, including: the product/ service, the consumer himself, and the environment (Folkes 1984; Tsiros, Mittal, and Ross 2004; Van Raaj and Pruyn 1998). Interestingly, this

examination reveals a number of factors that bias the way one infers causes. For example, LeBoeuf and Norton (2012) show across experiments, participants' inferences about event causes were systematically affected by how similar, in both size and valence, those causes were to event consequences. Even when the consequences were objectively uninformative about the causes, individuals allow incidental consequences of the event to alter their beliefs about its cause. Pham et al. (2010) demonstrate that while holding the objective service delivery constant subtle contextual cues that increase customers' self-awareness can be used to influence their satisfaction with the service provider. Specifically, higher self-awareness increases customers' tendency to attribute outcomes to themselves rather than to the provider, subsequently increasing customers' satisfaction when the outcome of a service is unfavorable while decreasing satisfaction when the outcome of the interaction is favorable.

The present research examines another psychological factor that might lead to possible bias in causal inferences, namely consumer-product relationship. In doing so, this research shows that customers' responses to product failures are not only motivated by needs to solve technical or practical issues but also by psychological needs. Indeed, one important factor that might influence consumers' responses to product failure is what the product means to them. The present research demonstrates that the relationship one shares with an animated product could regulate their attitudes following a product failure and further influence downstream behaviors such as coping. Individuals could develop a relationship with a specific product almost in the same way that they form interpersonal and social relationships. Past research has looked at how relationships in a non-interpersonal context mirror those in a social context. For example, consumer-brand relationships exist under a variety of forms which are similar to interpersonal relationships, including committed partnership, best friendship, compartmentalized friendship, etc. (Fournier 1998). In a consumer setting a relationship is broadly defined as a psychological connection that a consumer has with a firm, a brand, or an employee of a selling entity (Anderson and Narus 1991; Gregoire and Fisher 2006).

One way that past research has looked into object relationship is by examining psychological and emotional attachment that people hold with their possessions (Csikszentmihalyi and Rochberg-Halton 1982; Schultz, Kleine, and Kernan 1989; Wallendorf and Arnould 1988). Individuals could become attached to their product as much as they become attached to other people. In consumer research, the notion of possession emotional attachment has been discussed since the 1980s (Csikszentmihalyi and Rochberg-Halton 1982; Schultz, Kleine, and Kernan 1989; Wallendorf and Arnould 1988). Notably, the emotional

attachment concept is closely implicated in the construct of extended self (Belk 1989). The rationale for this association is straightforward; we are more likely to be attached to things that are relevant and important to our identity. Specifically, we use attachments to define and maintain our identities (Belk 1988; Chatterjee, Irmak, and Rose 2013; Kleine, Kleine, and Allen 1995). For example, Belk's (1988) classic work in possessions and extended self discusses how individuals express their identities through their attachments. Similarly, Kleine, Kleine, and Allen (1995) explored the material possession attachment by examining how a possession is "me" and "not me". The endowment effect literature has explored how consumers become psychologically attached to their possessions and as a result increase the value of the possession when selling it because of the self-object association (Ariely, Huber, and Wertenbroch 2005; Ariely and Simonson 2003; Chatterjee, Irmak, and Rose 2013;). Not all objects, however, are integrated into the self and reflect one's identities (Belk 1989). Indeed, objects seen as important are not necessarily seen as a part of the self (Belk 1989). A possession might consist of self-relevant aspects and at the same time other non-self-relevant ones which are more functional (Belk 1989). For instance, in most cases an umbrella and its potential loss involve merely functional concerns, therefore the attachment to the umbrella is not likely to involve the extended self (Belk 1989). An exception is when the umbrella has special meanings to the self, e.g. an expensive and luxurious umbrella that carries social status, or one with one's favorite football club logo displayed on the side.

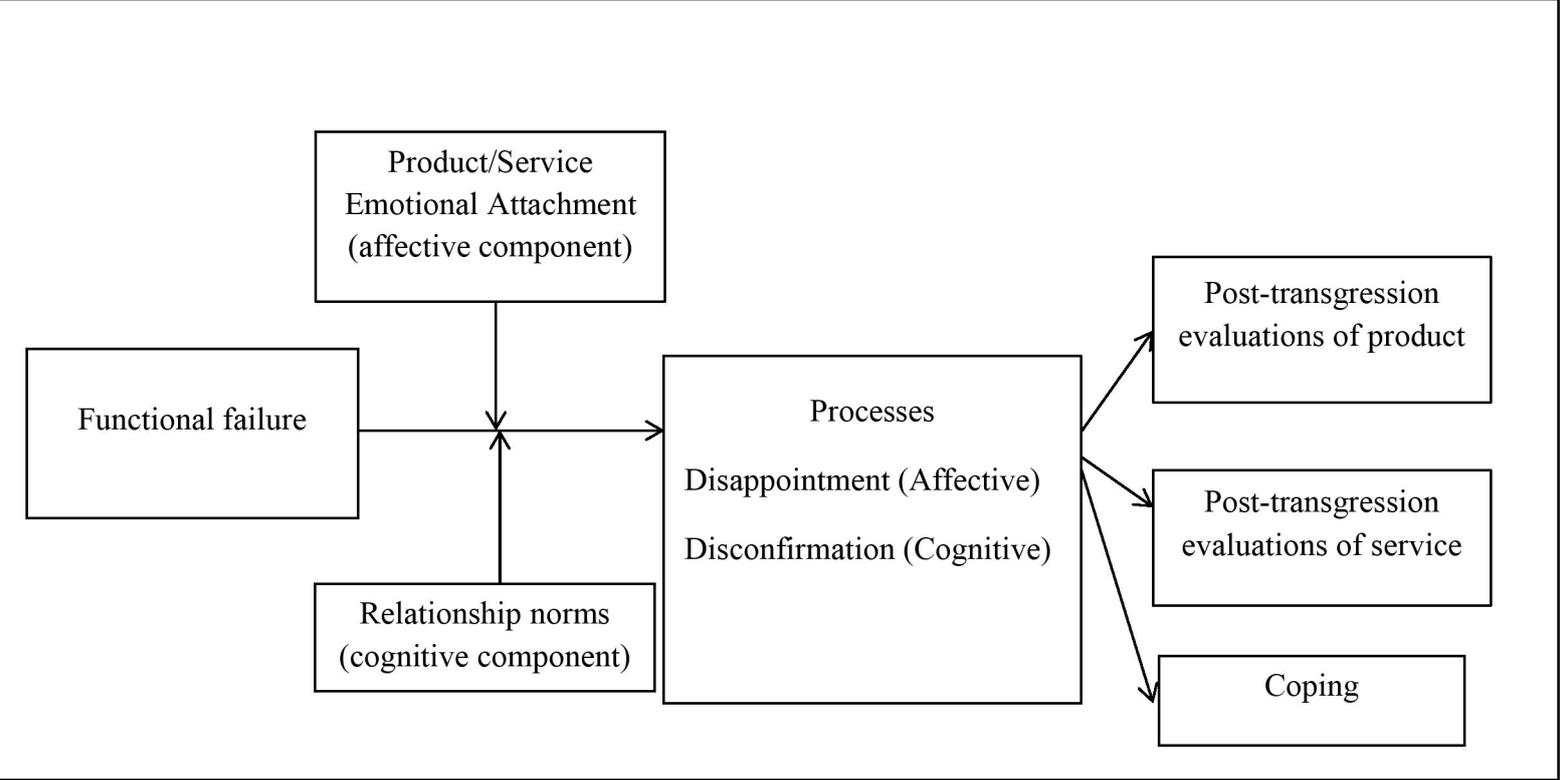
Another way past research investigate consumer-product or –brand relationship is by examining how interpersonal relationship norms are used as a guide for assessments of brands (Aggarwal 2004) and objects (Aggarwal and Zhang 2006). The current research draws from the interpersonal relationship literature and shows that interpersonal relationship rules also apply in relationships between a consumer and their products and subsequently guide attitudes and subsequent behaviors. In particular, we borrow Clark and Mills's (1979, 1982) concepts of exchange and communal relationships, which are distinguished based on the rules governing the giving and receiving of benefits. In exchange relationships, members act in order to maintain equity inputs and rewards; while in communal relationships, members are concerned about each other's welfare. Based on this theoretical ground, the current research examines the role of relationship norms in influencing responses to a product failure. In particular, we look at the consequences of having an exchange relationship with a product (i.e. an acquaintanceship) and a communal one (Clark and Mills 1979, 1982), and how the norms of each type of relationship affect customers' evaluations. Moreover, within communal

relationships, this research examines two types of communal relationship that vary on their certainty and strength. One type of communal relationships is certain, strong and already established (i.e. a best friendship) and another type is weaker and less certain (i.e. a friendship). In summary, the present research decomposes relationship into two related but independent facets, one of which is the affective component of relationship, namely emotional attachment, and another that is the cognitive element, relationship norms. This research investigates the role of relationship aspects, both affective and cognitive, in consumers' responses to a functional failure. From a relationship perspective, such a negative event can be referred to as an act of transgression, a violation of the implicit or explicit rules guiding relationship performance and evaluations (Aaker et al. 2004; Metts 1994). As this research focuses on relationship, 'product/service failure' and 'transgression' will be used interchangeably.

In the examination of consumers' responses to product/service failure, a theory that is extensively used is attribution theory. This theory suggests that individuals interpret an outcome or behavior in terms of its causes. This interpretation however is subject to attributional biases (Anderson, Krull, & Weiner, 1996; Bradley, 1978; Greenberg, Pyszczynski, & Solomon, 1982). By investigating the role of consumer-product relationship in consumers' evaluations following a product failure, this research focuses on a type of attributional bias, such that the individual makes causal attributions between elements in a PSB according to how they are related to the product. The research also looks into how relationship affects emotions which in turn influence evaluations and subsequent behaviors such as coping.

## **1.2 Research Questions**

The present research investigates the role of consumer-product relationship in responses to a product failure involving a PSB. In addition, we examine the underlying process and explores downstream consequences. Figure 1 presents a conceptual framework that underlines the current research.



**Figure 1. Conceptual Framework**

Before each path included in the framework is explained, a number of concepts need to be clarified. The definition of each concept is explained in the Table 1.

Concept	Definition	References
Emotional attachment	An emotional bond between an individual and a specific target object	Bowlby (1979)
Relationship norms	Guiding principles, rules that people use to decide the “right way to behave” in a relationship	Aggarwal and Zhang (2006)
Disappointment	A type of negative emotion which is experienced in response to outcomes that do not fulfill previously held expectations	Van Dijk, Zeelenberg, and Van der Pligt (1999); Wubben, Cremer, and Dijk 2009)
Disconfirmation	Positive disconfirmation produces when product performance exceeds	Oliver (1980, 1989); Oliver and DeSarbo (1988)

	expectations, negative disconfirmation when performance is lower than expected	
Transgressions	Violations of implicit and explicit rules guiding relationships	Aaker, Fournier, & Brasel (2004); Johnson, Metear and Thomson (2011); LeBoeuf and Norton (2012)
Post-transgression evaluations	Evaluations of a target after this target is perceived to have violated relationship rules; specifically, evaluations of the PSB actors following a failure	
Coping	Cognitive or behavioral efforts to reduce stress. For example, in response to relationship stressors, individuals can employ avoidance strategy as a way to cope (e.g. disengage and distance oneself from the relationship), or they cope by relationship-maintenance strategies to solve and learn from the problem (Knee 1998)	Duhacheck, 2008

**Table 1. Summary of main concepts**

In a product failure such as the one described in the opening vignette, the consumer might not be able to distinguish the elements in the PSB. Thus, it is important to understand how consumers infer causality and form judgments given the ambiguity. Moreover, it is essential to understand how evaluations of one component are affected by the other and how certain aspects of psychological makeup influence the way consumers react. As noted earlier,

consumers' responses to product failures are not only motivated by their needs to solve the practical issue (e.g. make the product work properly) but also by psychological needs. Therefore, it is important to look into how psychological aspects in an interaction between the consumer and the PSB such as emotional attachment and relationship norms might influence consumers' reactions. This is the focus of the research questions that this dissertation aims to answer.

The first goal of the present research is to examine whether emotional attachment, the affective component of relationship, affects the way consumers make attributions in the event of a functional failure. In particular, as the failure examined in this research involves a PSB, this research examines both product and service emotional attachment. Note that the service in this research is one that involves little interaction with the service personnel, for instance mobile network service or Internet service provider. Consumers using these services often contact the service providers only when problems arise. In comparison with a product, such a service is less tangible and less physically proximate to the consumer. As a result, emotional attachment to the service might not be comparable to emotional attachment to the product, hence service emotional attachment in that case might affect consumers' causal inferences decision making to a different, most likely lower extent compared to product emotional attachment. Thus, this research asks:

*RQ1: How does emotional attachment to a product, compared to a service, influence evaluations of components of a PSB following a functional failure?*

In addition to comparing the effects of emotional attachment to the product versus the service component of the PSBs, we investigate how the magnitude of emotional attachment influences how a functional failure affects evaluations. Due to the constraints of this research, we limit our focus to the product component. That is, we examine how high versus low level of emotional attachment towards the product component would affect how much a functional failure would deteriorate product evaluations.

*RQ2: How does the magnitude of product emotional attachment influence evaluations of the product component of a PSB following a functional failure?*

The third goal of the research is to investigate the role of relationship norms, the cognitive element of relationship, in responses to a product/service failure. The consumer might treat the product as a relationship partner, to whom he applies interpersonal relationship

rules and norms into his interaction with the product. As a consequence, these rules might influence how consumers evaluate the product and the service in the case of a functional failure. The third research question is formulated as follows:

*RQ3: How do relationship norms influence evaluations of PSB components following a functional failure?*

The present research also scrutinizes the underlying process for the effect of customer-product relationship on evaluations. We propose that two aspects of relationship, affective and cognitive, are both likely to influence evaluations following a product/service failure. Thus, the mechanism for each effect will be examined. As shown later, disappointment is shown to mediate the effect of emotional attachment on evaluations, while disconfirmation mediates the effect of relationship norms. These two underlying processes, on the other hand, relate to each other. This will be discussed in details in a later section. At this point, the fourth research question concerns the processes that underlie the effects.

*RQ4: What processes underlie the effect of emotional attachment and relationship norms on post-failure evaluations?*

Besides evaluations, the current research is also interested in other downstream behaviors following a transgression. Particularly, a functional failure is likely to produce certain negative emotions and feelings for an individual. Subsequently, the individual is likely to engage in behaviors to reduce these negative emotions. In consumer psychology these behaviors are referred to as coping. Coping involves cognitive or behavioral efforts to reduce stress (Duhacheck 2008), a mean of eliminating negative emotions (Mick and Fournier 1998). We are interested in coping strategies employed by people with different type of relationship to their product or service. The fifth research question of the present research raises this issue.

*RQ5: How do the consumers cope with the negative event? Does their coping mechanism depend on the relationship with the product?*

The conceptual framework (Figure 1) presents the predicted causal relationships between different constructs asked in each research question. Formal hypotheses in accordance with this conceptual model will be described in detail in the conceptual development section. In short, the present research investigates two main issues: (1) whether customer-product relationship, both affective and cognitive elements, influence the way people makes evaluations following a product failure with an ambiguous source caused by the

PSB; (2) how customer-product relationship affect downstream consequences of a product/service failure such as coping behaviors?

### **1.3 Intended contributions**

The present research contributes to the existing literature on product/service failure and the consumer-product relationship in several aspects. First of all, the current investigation shows how the consumer-product relationship influences consumers' reactions to a failure that involves two components of a PSB. Past research examining the role of relationship in product or service failure often focuses on one focal object. There is little evidence regarding how consumers respond to a PSB failure. The complicity of the PSB entails the ambiguity of the failure, which then opens up for biases in perceptions and interpretations. Psychological factors, such as relationship examined in this research, are likely to contribute to these biases in evaluations. Secondly, previous research studying the role of relationship in reactions to failures/transgression often focuses on two levels of relationship. For example, Aaker, Fournier and Brasel (2004) examine an intimate, friendship-like brand relationship versus a fling-like relationship. Wan, Hui and Wyer Jr. (2011) investigate how a friendship relationship versus a business relationship with the service failure influences responses to service failure. We here believe that relationships are so dynamic that it is necessary to scrutinize their different levels and types, whose norms and rules are likely to influence consumers' attitudes and other downstream consequences. Thus, the current research decomposes relationship into two aspects, affective and cognitive (i.e. emotional attachment and relationship norms respectively), allowing the investigation of the dynamics of the relationship construct. Similarly, relationship norms are investigated across different levels of relationship

In addition, much of the research on relationships beyond the interpersonal context has focused on the relationship between a consumer and brands (since Fournier's (1998) work on types of brand relationships; e.g. Aggarwal 2004; Aggarwal and Law 2005). Little attention has been given to the relationship with a specific, discrete product. Moreover, much research has examined products or possessions as an extended self (e.g. Levy 1981; McCracken 1986; Rook 1985; Mogilner and Aaker 2009). However, few have investigated the consumer-product relationship in absence of the product as part of one's self identity. The present research aims to fill this gap. In doing so, we rely on findings from brand relationship

research to form predictions. The brand literature distinguishes two types of consumer-brand relationships. One is a relationship in which consumers regard brands as friends or business partners (Aggarwal and Law 2005; Fournier 1998) and the other is a relationship in which consumers regard brands as part of their self (Cheng, White, and Chaplin 2012). It is reasonable to expect a similar distinction in the relationship between a consumer and a specific product. As aforementioned, past research looks at the role of possessions in forming and maintaining one's self identity, but not the relationship as one has with a friend or a partner. The present research attempts to augment existing research in consumer-product relationship by applying interpersonal relationships into the consumer-product relationship domain.

Furthermore, we aim to make a contribution to the attribution theory. A fraction of attribution theory posits that the individual attributes a cause to either external or internal factors. External factors in these cases are often uncontrollable by the individual (Dunn and Dahl 2012; Folkes 1984, 1988). For example, Dunn and Dahl (2012) as well as Folkes (1984, 1988), when examining complaining behavior, look at whether the blame is external (for example, due to the company or product) or internal (due to the consumer himself). In particular, internal attributions of product failure could be viewed as a self-threat which affects evaluations through a self-enhancement process (Dunn and Dahl 2012). In this research, both factors, product and service, are external factors. However, because one of them, i.e. the product, is related to the self, the individual could control it. It is self-serving bias even when the factor is not the self, but has a relationship to the self. That is, depending on relationship one has with the product, one tends to control the causal attributions which in turns influences evaluations and behaviors.

#### **1.4 Structure of the Dissertation**

The dissertation is organized into seven chapters. Chapter 1 introduces the topic, the research questions as well as the contributions this research strives to make. Chapter 2 presents a literature review to provide a theoretical background for the research. In this chapter, we discuss theories and concepts that are concerned in the conceptual model depicted previously.

In three chapters 3,4,5, we report the three experiments, two pretests and two posttests that provide empirical support for the research's predictions. All three chapters begin with a

conceptual development leading to the formation of formal hypotheses, followed by a detailed description of methodology and reporting of results.

Chapter 6 gives a general discussion of the findings while Chapter 7 provides theoretical and managerial implications. The dissertation concludes with limitations of the research as well as potential avenues for future research in Chapter 8.

## Chapter 2. Literature Review

### 2.1 Overview of theories and literature streams

By investigating the consumer-product relationship, this research aims to examine its role in consumers' responses to a functional failure. In doing so, the current research looks into a number of existing theories and literature streams which help to understand how consumers react to such an event. To illustrate how relevant each theory and literature is to the current research issue, the vignette at the beginning of the thesis will be used as an example.

Referring to the opening scenario, Lisa and John were confused whether the function failure was due to the product or service component in the bundle. Given the complementarity of the PSB, how would Lisa and John determine the source of the problem? The theory of relationship provides a useful theoretical lens to understand consumers' responses in such situations, and therefore is central to the present research. Consumers interact with components in the bundle and over time develop a relationship with each of them. In the present research, two facets of relationship were examined. The affective facet of relationship is operationalized by emotional attachment, whereas the cognitive facet was reflected by relationship norms. In the discussion of relationship with a product or service, we will discuss the concept of anthropomorphism, the act of attributing of humanlike characteristics, motivations, intentions, and emotions to non-human actors to imbue the real or imagined behavior of nonhuman agents (Epley et al. 2007; Aggarwal & McGill 2007, 2012). This concept helps to understand how products and services are regarded as unanimated partners in a relationship.

Relationship regulates other processes that occur following a functional failure. One of these processes involves the attribution of responsibilities to the PSB components. Returning to the opening vignette, John and Lisa face the challenge of determining to the source of the negative event Attribution theory (Bem 1972; Folkes 1984, 1988; Jones & Nisbett 1972; Kelly 1967) suggests that reactions to an outcome or behavior are determined by people's interpretation of its causes. For example, attribution theory is concerned about how people arrive at causal inferences, what sort of inferences they make, and what the consequences of these inferences are. In the context of a PSB, this theory suggests that the individual would assign the cause of the problem to either one of the two components (i.e. the product or the service), or both. However, people do not make attributions in the most rational way. Instead,

attributional inferences are influenced by psychological needs. Indeed, Heider (1958) noted that cognition is influenced not only by the objective evidence but also by the subjective needs, desires, and preferences of the individual. Heider's (1958) balance theory proposes that people tend to maintain their attitudes in harmony, such that if a balanced state does not exist, forces toward this state will arise. If not, the state of imbalance will produce tension. Thus, to maintain the balanced state the consumer might bias their attributions. They do so to protect their previously held attitudes and judgments. In the context of PSBs, the consumer might have favorable attitudes towards a certain component of the PSB. Subsequently, he or she might bias their attributions in favor of that component. Especially, when the offering consists of a tangible, physically proximate product, such as a car or a phone in the example vignette, and an intangible, less physically proximate service (again, a service with a little extent of ongoing customer-employee interaction; such as the mobile network service), the different consumption experience might somewhat cause the connection between the consumer and the product and service to differ to a certain extent. Holt's (1995) framework of consumption, consisting of four categories of consuming behavior – consuming as experience, consuming as integration, consuming as classification, and consuming as play, provides a ground for the understanding of consumption experience with a product and a service.

Other processes take place during a product and service failure. These processes, however, might be influenced by the extent and type of relationship between the consumer and the offering. These processes were shown later to be the mediating paths which bridge relationship aspects and post-failure evaluations. First, dissatisfaction with the relationship partner might entail negative emotions such as disappointment. Cognitively, the dissatisfaction is the result of a disconfirmation process (Oliver 1980, 1989; Oliver & DeSarbo, 1988). Disconfirmation and disappointment are the two possible processes, cognitively and affectively, that follow a product/service failure. Further, as discussed earlier consumers might engage in coping behaviors. The literature concerning these issues will also be discussed in the literature review section.

The following table (Table 2) summarizes the theories and literature streams which will be reviewed in this section. The main concept underlying each theory and literature will be highlighted and compared across similar theories. Moreover, the implications of each theory in understanding the issues investigated will be summarized.

<b>Stream</b>	<b>Theory/ Literature</b>	<b>Main concepts</b>	<b>Similar theories/ literatures</b>	<b>Implications for understanding PSBs &amp; responses to functional failures</b>
<b>Relationship Theory</b>	<b>Theory of attachment</b> (Bowlby 1979)	Emotional bond between an infant and a caregiver		Applied to understand the emotional bond between an individual and a consumption object
	<b>Anthropomorphism</b> (Epley et al. 2007; Aggarwal & McGill 2007, 2012)	See non-human as human , attributing of humanlike characteristics, motivations, intentions, and emotions to non-human actors to imbue the real or imagined behavior of nonhuman agents	Similar to the concept of animism (Guthrie 1993) – attributing life to the non-living	- How products are regarded as anthropomorphized relationship partner - How people anthropomorphize to make sense of the nonhuman agents’ behavior, to make causal attributions
	<b>Relationship norms</b> (Clark and Mills 1979; Mills and Clark 1982)	- Communal and exchange relationships, with distinctive relationship norms		How consumers apply these norms into their relationship with a consumption object and how this affects evaluations following a product failure, a transgression by a

				relationship partner.
<b>Product failures</b>	<b>Product failures</b>	<ul style="list-style-type: none"> <li>- Causal attributions</li> <li>- Attitudes and other downstream behaviors such as repurchase intention, complaining behavior etc...</li> <li>- Attributional biases in product failure</li> </ul>	<ul style="list-style-type: none"> <li>- Similar to research stream in service failures and brand transgressions, which examine consumers' responses to a negative incident caused by the product, service provider, or brands.</li> </ul>	Provide the background for understanding how consumer make attributions which influence their evaluations and other behaviors when facing a functional failure in the context of a PSB.
	<b>Attribution theory</b> (Bem 1972; Folkes 1984, 1988; Jones and Nisbett 1972; Kelly 1967; etc)	Causal attributions	<ul style="list-style-type: none"> <li>- Heider's (1958) analysis of types of causes.</li> <li>- Correspondent inference theory (Jones and Davis 1965; Jones and McGillis 1976) – emphasizes inferences made about</li> </ul>	How people attribute the cause of the functional failure to one or the other component in a PSB. In this case, the attribution of causes and responsibility is difficult due to the intricacy of the complementarity.

<b>Causal inferences and biases</b>			another's intentions and dispositions from the other's actions	
	<b>Balance theory</b> (Heider 1958)	Adjusted judgment to resolve imbalanced state	Bias in attribution: "naïve analysis of action", the selection of an acceptable causal attribution which fits the wishes of the person. We tend to try to explain our behavior in terms that "flatter us" and "put us in a good light" (Miller & Ross 1975, p.213)	Do consumers bias their attributions when facing a functional failure to protect their previously held favorable attitudes towards one product between the two elements of a PSB, so as to maintain a balanced state in attitudes?
	<b>Consumption framework</b> (Holt 1995)	Purpose of consumption: - Consuming as experience - Consuming as integration - Consuming as classification - Consuming as play	- Experiential/hedonic consumption (Hirschman and Holbrook 1982; Unger and Kernan 1983)	The different experience of consuming a service and a product, which helps to understand why the present research observes effects when

			<ul style="list-style-type: none"> <li>- Self-object link (Belk 1988)</li> <li>- Signaling (Fisher and Price 1992; Kleine and Kernan 1991)</li> <li>- Flow Csikszentmihalyi 1985), flow, extraordinary experience (Abrahams 1986, Arnould and Price 1993)</li> </ul>	people are attached to the product component, but not when they are attached to the service component.
<b>Other processes regulated by relationship</b>	<ul style="list-style-type: none"> <li>- <b>Disappointment</b> (affective)</li> <li>- <b>Disconfirmation</b> (cognitive)</li> </ul>	<ul style="list-style-type: none"> <li>- The role of emotions</li> <li>- Appraisal theory (Frijda, Kuipers, and Schure 1989; Roseman 1991; Smith and Ellsworth 1985)</li> <li>- Results of the comparison between performance and expectations (Oliver 1980)</li> <li>- Disappointment and</li> </ul>		<ul style="list-style-type: none"> <li>- How disappointment might mediate the effect of emotional attachment, the affective part of relationship, on post-transgression evaluations</li> <li>- Similarly, how disconfirmation process mediate the effect of</li> </ul>

		disconfirmation are processes stemming from the comparison between expectations and performance		relationship norms, the cognitive part of relationship, on post-transgression evaluations
	<b>Behavioral response - Coping</b> (Duhacheck 2005; Han et al. 2015; Mick and Fournier 1998)	Cognitive or behavioral efforts to reduce stress and eliminate anxiety		How do people cope with the negative product failure? Does consumer-product relationship affect coping mechanism?

**Table 2. Summary of theories and literature streams**

In the following sections, we discuss each theory and literature stream and connects them into the current research issue, particularly, how existing theories and literature can be used to predict the role of consumer-product relationship, both affectively and cognitively, in consumers' responses to a product failure. We start with the discussion of relationship theory, the central theory in the present research, and subsequently discuss how relationship regulates other processes occurring within the PSB during a failure.

## **2.2 Relationship theory**

Relationship theory is useful for understanding whether and how consumers react to a product/service failure in the context of PSB. A relationship, in general, is defined by Merriam-Webster Dictionary, as “the way in which two or more people or things are connected, or the state of being connected”. Using this definition, a relationship in the context of a PSB might refer to several dyads. A relationship between two elements may regulate the dyad between others. These include: (a) the relationship between the consumer and the PSB, (b) the relationship between the consumer and each component of the PSB, (c) the relationship between the service and the product component, and (d) the relationship between the consumer and his/her “self”. The present research focuses on the relationship between the

consumer and each component. In doing so, we also look at how this relationship affect other relationship dyads.

### 2.2.1 Relationships in non-personal contexts

In an interpersonal context, the term “relationship” can be defined as “interactions and repeated episodes with another person characterized by emotional intimacy and interdependence that give rise to personal bonds” (Blocker, Houston & Flint, 2012, p. 887). The concept of relationships indicates personal bonds, mutual self-disclosure, and intimacy (Blocker, Houston, & Flint, 2012). Originally studied within social psychology, research on relationship has gained attention in the marketing literature. Scholars’ interests have evolved beyond interpersonal relationships to cover other non-social ones. These research interests reflect the phenomena in which consumers form relationships with unanimated objects. For example, as Martin Lindstrom put it in *The New York Times*, “*For many, the iPhone has become a best friend, partner, lifeline, companion and, yes, even a Valentine. The man or woman we love most may be seated across from us in a romantic Paris bistro, but his or her 8GB, 16 GB or 32 GB viral lies in wait inside our pockets and purses*” (Lindstrom, 2011).

Research examining the interactions between the consumer and a brand or product has increasingly used the relationship perspective as a theoretical lens for understanding these non-personal interactions (Aaker, Fournier, & Brasel, 2004; Escalas & Bettman, 2005; Fournier 1998). Provided that the concept is applied with appropriate contextual adaptations and adjustments (Swaminathan & Dommer, in press), the relationship metaphor has shown to be a powerful approach for understanding brands (Fournier & Alvarez, 2011). One reason is that consumers often form relationships with products or brands that mirror interpersonal relationships (Aaker, Fournier, & Brasel, 2004; Fournier, 1998). For example, Fournier (1998) provided evidence that individuals regard their connection with brands as relationships that typically reserved for people. Some examples of different types of consumer-brand relationships are: arranged marriages, casual friends/buddies, marriages of convenience, committed partner-ships, best friendships, compartmentalized friendships, kinships, flings, etc. The brand relationship literature was established based on the foundational assumption that brands are treated as people and that interpersonal models can be readily applied into the relationship between a consumer and a brand (Fournier & Alvarez, 2011; Kervyn, Fiske, & Malone, 2011).

Why, then, do people borrow interpersonal relationship models to apply into their interaction with products or brands? The first reason, as noted earlier, is that the relationships formed with a product or brand is similar to that in a social setting. Another reason is that relying on interpersonal relationships helps to facilitate the interaction between an individual and an object or a brand. By borrowing the rules and norms from a familiar domain, i.e. the norms and rules of social relationships, the individual can use these norms and rules as guiding principles in their interactions with a brand or a product (Schmitt, 2012). According to social relationship theory, these relationships carry with them specific rules and norms of behaviors that then are used as a guide for evaluations of the relationship partner, which can be a brand or an object (Aggarwal, 2004). As such, people use norms of these relationships as a lens to evaluate the brand or the object and its behaviors (Aggarwal, 2004). Interestingly, previous research has found that interpersonal relationship norms tend to guide the interactions with the object even when an actual relationship with the object is absent (Aggarwal & Law, 2005, Aggarwal & Zhang, 2006). As long as the relationship norms are salient at the time of evaluations, even if they are made salient in an unrelated context, these norms would have influence on evaluations and processing strategies (Aggarwal & Law, 2005).

### 2.2.2 Differentiating relationship between interpersonal and non-personal contexts

As much as interpersonal relationship norms are readily applied into the interaction with an unanimated product or brand, the relationship one has with a brand or object should not be considered completely the same as interpersonal relationships. As Aggarwal (2004) noted, it is important to bear in mind that consumer-brand relationships are not identical to interpersonal relationships in every aspect. The relationship metaphor may present inherent limitations since brands are significantly different from people in many ways. Brands cannot appropriately be conceived as “human-like” (Aggarwal, 2004). A consumer's relation with a brand is of a special kind (Schmitt, 2013). This argument should be applicable for other non-personal contexts besides brands. Moreover, while relationship plays a role both in brand/product and person judgments, these judgments may not be the same. That is, from the information used to the processes involved, people might judge the brand or product differently from how they judge a person (Yoon, Gutchess, Feinberg, & Polk, 2006). Interpersonal judgments are social, while brand or product judgments are not. People use their

self as a frame of reference when judging others (Fong & Markus, 1982) but not in judging nonsocial objects (Fiske & Taylor, 1991). Also, as we acquire products or brands with monetary means, relationships with products and brands often involve some degree of monetary exchange (Aggarwal, 2004). This is not always the case in social relationships. Taking into account these differences, social relationships and relationships to products or brands are not completely parallel. Thus, it is important for researchers to not overextend the relationship metaphor when examining relationships beyond the interpersonal realm (Aggarwal, 2004). Careful thought should be given to the implications of humanizing brands or objects as relationship partners. That is, what exactly it means by stating that people engage in a relationship with objects or brands (Schmitt, 2013).

Having stated that, however, it should be reasonable to expect the consumer to apply to a certain extent social rules or norms into their interaction with an object. First of all, the interactions between the consumer and brands or products can be characterized as relational. Relationship, in general, can be considered as a sequence of interactions between parties in which the course of future interactions is not the same as that of strangers (Hinde, 1976). Brand or product interactions fit into this definition of a relationship. Moreover, besides the brand or the product itself, there are social elements in brand/product interactions. Specifically, consumers might not distinguish between brands/products and the manufacturers of products/brands. As a result, interactions with the product or brand might be perceived as interactions with the company involving personal contacts. In addition, even in the absence of these social elements, the brand or product might be thought of as a living entity. This is reflected in the concepts of anthropomorphism or animism (Epley et al., 2007; Aggarwal & McGill, 2007, 2012), which, simply put, refers to the act of treating non-human agents as human. Anthropomorphism, or animism, has long been recognized in the domain of products (Gilmore, 1919) and brands (Aggarwal & McGill, 2007, 2012; Fournier & Alvarez, 2012). Anthropomorphism and animism allow the product or brand to assume the role as an active and personalized participant engaging in the relationship (Fournier, 1998). People think of products/brands as having human-like characteristics, and thus may interact with them in the ways that closely mirror social interactions (Aggarwal, 2004).

In summary, while one should not expect the relationships with brands or products to be as rich and deep as relationships among people, it is reasonable to suggest that people sometimes interact with products or brands as if they share a relationship with them (Aggarwal, 2004). It is important to note that, while the relationship shared with a brand and a

product have been referred to as one, the mere purpose of this grouping is to describe settings which are beyond the interpersonal and social context. The relationship with a brand is significantly different from that with a specific product. With a brand, the relationship is a mix of personal and impersonal. Personal relationship with the brand is developed through one's own experiences with the brand; however as the brand is shared by many users, this relationship is not always personal. On the other hand, for a specific product that a person owns, the relationship is more personal, since ownership is exclusive (Aggarwal, 2004). This distinguishing is crucial in the present research. In the literature, there are numerous investigations about brand relationships, however little attention has been paid to the relationship between a consumer and a specific product, the central concept of the present research. We thus adopt concepts from the brand relationship literature to use to understand the consumer-product relationship. The following section discusses the relationship with consumption objects.

### 2.2.3 Relationship with consumption objects/brands

The idea underlying the consumer-brand relationships or relationship with objects is that consumers interact with objects in ways that are similar, although not the same, to interpersonal and social relationships (Schmitt, 2012). In the brand literature, numerous investigations of brand consumption using relationships as a theoretical lens lend support for the argument that people relate to brands in a similar way to how they relate to other people (Fournier, 1998). Just as people become psychologically attached to their loved ones, they might become emotionally attached to brands they love (Albert et al., 2008; Batra et al., 2012; Shimp & Madden, 1988; Thomson et al., 2005). They might have flings with brands similar to flings with people which bring short-term excitement (Alvarez & Fournier, 2012), or be in a long-term committed relationship with the brand (shown by brand loyalties), like a marriages (Fournier & Yao, 1997; Oliver, 1999). Different attachment styles that govern personal interactions, i.e. avoidant, secure and anxious, tend to shape brand interactions as well (Paulssen & Fournier, 2011; Swaminathan et al., 2009). Similarly, norms that govern relationships between people, as we will discuss later, also shape expectations and behaviors in brand interactions (Aggarwal, 2004; Aggarwal & Law, 2005). Just as people are categorized into social groups with stereotypes, brands are perceived along two dimensions, warmth and competence (Aaker et al. 2010; Kervyn et al. 2012). Brands are assigned

personalities, either sincere or exciting; and these personalities in turn influence the type of relationships one forms with the brand. For instance, people often form friendship with sincere brands, while perceiving a fling with exciting brands (Aaker, Fournier, & Brasel, 2004). This is similar to how people with different personalities form different types of relationships. Moreover, just as interpersonal relationships might go through negative episodes, there might be a dark side in the relationship between a person and a brand as well. For example, consumers engage in anti-brand behaviors following a brand transgression even when the brand had been self-relevant to them, similar to marriages with full love ending in bitter divorce (Johnson et al., 2010).

Similar to brands, a relationship might be formed between an individual and a specific product. For example, consumers regard their product as loved objects (Ahuvia, 2005), favorite things (Wallendorf & Arnould, 1988), special possessions (Price, Arnould, & Curasi, 2000), and as part of their self and identity (Belk 1988; Shavitt, Torelli, & Wong, 2009). People form product attachment that might persist even after separating from the object (Brough & Isaac, 2012), just as how people are attached to one another even after separation (Bowlby, 1982; Weiss, 1976, 1991). Relationships have significant impact on our everyday interactions (Aggarwal & Law, 2005). Prior research has highlighted the role of relationships in making certain types of information (Aggarwal & Law, 2005). For example, Aggarwal and Law (2005) examine relationship type as an antecedent variable of information processing strategies. It is reasonable to expect relationship between a consumer and a product or service to play an important role in determining consumers' reactions to a product/product failure. The present research looks into two components of relationship, affective and cognitive. Empirically, in the present research, the relationship construct is operationalized by two constructs, emotional attachment (affective aspect of relationship) and relationship norms (cognitive part of relationship). The following section discusses the first component of relationship, namely emotional attachment.

## 2.3 Theory of emotional attachment

### 2.3.1 What is emotional attachment?

Attachment is defined as an emotional bond between an individual and a specific target object (Bowlby, 1979), a “hot” stimulus-induced affect that describes certain emotion-

laden relationships between consumers and other entities (Ball & Tasaki, 1992; Mikulincer et al., 2001). The concept of attachment was first studied by Bowlby (1979, 1980) in developmental psychology, specifically in the domain of relationships between an infant and a caregiver (e.g. a parent). Since then, emotional attachment has been extensively investigated in psychology, mainly in the interpersonal and social context. For example, psychologists studied attachments to individuals such as infants, mothers or romantic mates (Bowlby, 1979, 1980; Mikulincer & Arad, 1999; Mikulincer et al., 2001; Weiss, 1988). Although the concept of attachment originally pertained to the bond between an infant and a parent (Bowlby, 1979), other work in consumer psychology suggests that people become attached to a variety of objects. These include pets (Hirschman, 1994; Sable, 1995), places (Hill & Stamey, 1990; Rubinstein & Parmelee, 1992), gifts (Mick & DeMoss, 1990), and collectibles (Sable 1995; Slater 2000). Further, the application of the attachment construct has spread to other relationship domains in the marketing literature such as those between consumers and brands (Ball & Tasaki, 1992; Schouten & McAlexander, 1995; Thomson, MacInnis, & Park, 2005), consumers and celebrities (Adams-Price & Greene, 1990; Alperstein, 1991; Thomson, 2006), or other types of special or favorite objects (Ball & Tasaki, 1992; Kleine, Kleine, & Allen, 1995; Price, Arnould, & Curasi, 2000; Richins, 1994a, 1994b; Wallendorf & Arnould, 1988).

Attachment is often discussed in parallel with the concept of emotions. That is, people express emotions towards the targets that they feel attached to. The notion that such emotions reflect an emotional bond is also suggested by research in consumer behavior (e.g., Shimp & Madden, 1988). For example, Slater (2000) documented that a variety of emotions (e.g., love, warm feelings) characterize collectors' attachments to products of Coke and Hallmark. Moreover, consumers' feelings toward special consumption objects are characterized by emotions like love (Kleine, Kleine, & Allen, 1995; Richins, 1994a, 1994b; Schultz, Kleine, & Kernan, 1989). Ball and Tasaki (1992) related the concept of emotional significance of an object to attachment, in which emotional significance of a possession is the total strength of associations with significant events or people in the person's life, with both good and bad emotions involved. Emotional significance of an object is strengthened over time as attachment and the time of ownership increase (Ball & Tasaki, 1992).

The attachment concept is particularly relevant to consumer behavior (Fedorikhin, Park, & Thomson, 2008). Forming attachments serves basic human needs (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1980) and can potentially improve an individual's well-being (Berman & Sperling, 1994). People's desire to establish strong emotional attachments to

others starts from childhood when the child is attached to his or her mother (Bowlby, 1979, 1980) and continues through the adult stage with romantic relationships (Hazan & Shaver, 1994), kin-ships, and friendships (Trinke & Bartholomew, 1997; Weiss, 1988). These interpersonal emotional attachments are then transferred to objects such as products and brands. Attachment seems to be the essential construct that expresses a consumer's connection with an object (Shu & Peck, 2011). For example, in a brand domain, brand attachment provides stronger connections than brand attitudes (Thomson et al., 2005). Unfortunately, while there are many products and brands that consumers interact with, they develop a strong emotional attachment to only a small subset of these objects (Fedorikhin et al. 2008; Schouten & McAlexander, 1995).

Emotional attachment is considered a single combined construct by some researchers (e.g., Ariely et al. 2005), while other researchers treat it as a multi-faceted construct concerning both the 'emotional' and the 'attachment' aspects. For example, Shu and Peck (2011) separate emotional attachment into two constructs, psychological ownership and affective reaction, which combine to produce a number of effects. In particular, psychological ownership corresponds to the attachment element while affective reaction corresponds to the emotion element. Psychological ownership refers to the feeling that something is "mine" (Pierce, Kostova, & Dirks, 2001). Affective reaction, on the other hand, reflects an individual's "gut feelings" toward an object (Shu & Peck, 2011). Affective reaction towards an object substantially influences how value of the object is determined (Shu & Peck, 2011).

### 2.3.2 Product emotional attachment

Attachment is primarily considered as the degree of emotional bond between consumers and their psychologically appropriated consumption objects (Lastovicka & Sirianni, 2011). One of these consumption objects are products, or in other words, possessions which focuses on the ownership perspective. Product attachment, subsequently, refers to the extent to which consumers feel emotionally attached to their possessions. Emotional attachment to a product is usually the result of a perceived connection or a sense of shared past history with the object (Schultz, Kleine, & Kernan, 1989) It is a property of the relationship between a specific person and a specific object of possession (Kleine et al., 1995), and often originates from dynamic long-term relationships of the two (Thomson, MacInnis, & Park, 2005). Possessions that create strong attachments are more closely held to

the proximal self and are more affectively charged than objects of lesser attachment (Ball and Tasaki 1992). Importantly, attachment formation is not deliberate but arises from the associations developed through the consumption experience (Kleine, Kleine, & Allen, 1995). There are a variety of products to which consumers grow attached to, ranging from cars, furniture, artworks to clothing, books, and childhood toys (Wallendorf & Arnould, 1988). Research on the endowment effect (Thaler 1980; Kahneman, & Tversky 1980; Dommer & Swaminathan, 2013) has shown that product emotional attachment is one of the factors that make people less willing to give up possessions. Emotional attachment to objects can be experienced and expressed in different ways. For example, an attachment can be developed with a favorite object (Wallendorf & Arnould, 1988) in the form of love, which fosters their relationships with beloved possessions (Lastovicka & Sirianni, 2011). Possession attachment, moreover, may reflect the extent of “me-ness” associated with that possession (Kleine et al., 1995), suggesting a link between emotional attachment and self-identity.

Consumer behavior scholars generally agree that individuals use attachments to define and maintain their identities (Kleine et al., 1995). Previous research in product emotional attachment suggests a link between a specific product and a consumer’s self-concept. For example, Brough and Isaac (2012) define product attachment as the psychological or emotional connection between a consumer’s self-concept and a tangible product. The notion of a psychological connection between a product and its owner dates back at least as far as William James (1890), who describes how possessions may be incorporated into one’s self-view. Subsequent research has found that the unintentional loss of a possession may result in a diminished sense of self (Ahuvia 2005; Belk, 1988), hence individuals perceive the difficulties to part with possessions (Frost & Gross, 1993; Frost et al., 1995; Samuels et al., 2008). This illustrates how strongly consumers may become attached to their products. Possession attachment is therefore useful in the self-definition (Ahuvia, 2005) and social affiliation (Kleine et al., 1995).

Prior research has documented a variety of situations and contexts that give rise to a consumer’s sense of attachment towards a product. For example, recent research has suggested that the propensity to become attached to products increases with the users’ age (Lambert-Pandraud & Laurent, 2010). Moreover, product attachment often develops over a long period of ownership (Kleine & Baker, 2004; Strahilevitz & Loewenstein, 1998). However, even brief interactions with a product can generate some level of attachment. For example, mere ownership of a product can increase the favorability of consumer evaluations

made soon after its acquisition (Beggan 1992, Sen & Johnson, 1997) and raise consumers' valuation of the item (Kahneman, Knetsch, & Thaler 1990). Product attachment might begin to develop even before acquisition. Consumers raise their preference towards an item after merely touching it (Peck & Shu, 2009), considering the possibility of owning it (Ariely & Simonson, 2003; Carmon, Wertenbroch, & Zeelenberg 2003), or assisting in its production (Fuchs, Prandelli, & Schreier, 2010; Norton, Mochon, & Ariely, 2011). In addition, emotional attachment with a product might entail when the product takes on symbolic meaning of a social relationship or an experience. For instance, research on gift-giving suggests that attachment to a product can arise when the gift signals the gift-giver's appreciation for the relationship (Caplow 1984), or, by reminding the recipient of shared experiences with the giver (Wallendorf & Arnould, 1988). Product attachment, moreover, does not vanish even after consumers dispose it (Brough & Isaac, 2012). Additionally, similar to how intimate interactions may provide the foundation for attachment bonds to be formed in interpersonal relationships (Collins, 2004; Hertenstein, Verkamp, Kerestes, & Holmes, 2006), physical proximity can lead to the development of emotional attachment towards an object as well.

### 2.3.3 Differentiating attachment from other constructs

The attachment construct might be related with several marketing constructs, such as attitudes, or attitude favorability, satisfaction, and involvement (Thomson et al., 2005). However, attachment is conceptually and empirically distinct from these constructs, therefore should be distinguished from them. These constructs have distinct conceptual properties, antecedents and formation processes, and thus, they also have different effects and behavioral implications (Park et al., 2010).

#### *Attitudes/ Attitude favorability*

It is reasonable to expect a consumer who is emotionally attached to a consumption object to also demonstrate a favorable attitude toward it (Thomson, MacInnis, & Park, 2005). However, while favorable attitudes are often reflected in strong attachments, the two constructs are conceptually, psychologically, and behaviorally distinctive (Park & MacInnis, 2006). This distinction is shown through a number of unique characteristics of attachment and attitude. The first is related to the concept of self and self-schema. While the concept of self is a relevant one for the attitude construct (Escalas & Luce, 2004), it is not inherently tied to

attitude as it is inherently tied to attachment (Kleine, Kleine, & Kernan, 1993; Mikulincer & Shaver, 2005; Reed & Bolton, 2005). Strong attachments are attended by a rich set of schemas and affectively laden memories that link the object to the self (Holmes, 2000; Mikulincer, Hirschberger, Nachmias, & Gillath, 2001). For example, in the brands domain, previous research found that self-brand connection, consumers' belief that the brand is relevant to their self, leads to strong attachment (Fedorikhin, Park, & Thomson, 2008). Self-aspects that are implied in the concept of attachment involve not only self or social identity, but also other hedonic dimensions such as sensory pleasure and nostalgia (Park & MacInnis, 2006). Although we will argue later that emotional attachment is not necessarily linked to the self in terms of self-identity, a connection between the self and an object is essential for the forming of emotional attachment. In contrast, favorable attitudes do not necessarily link the object to the self and imply self-relevance. That is, consumers often have very favorable attitudes to objects that have nothing to do with their concept of self or any relation to the self. As a result, consumers might have favorable attitudes to a great number of objects, but the objects to which they are emotionally attached are few in number and are largely regarded as significant (Ball & Tasaki, 1992; Richins, 1994a).

The second differentiating aspect lies in the affect associated with each construct. Both attitudes and emotional attachment involve a certain degree of affect; however the nature of affect in the two constructs is not the same. Emotional attachment is associated with 'hot affect' (Thomson et al., 2005), while attitudes are associated with colder, evaluation-based affect (Cohen & Areni, 1991). Compared to attitudes, the formation of attachments is less dependent on factors such as argument strength or source credibility (Park & MacInnis, 2006). Rather, the affect implicated in emotional attachment reflects the motivational and emotional properties associated with a relationship bond (Park & MacInnis, 2006).

Third, attachment manifests stronger motivations and behaviors toward the target object than attitudes. For instance, individuals desire to maintain proximity to the attached objects and experience distress if they are separated from them (Bowlby 1979). Further, people are willing to defend, invest and devote cognitive, emotional, and behavioral resources to the attached object (Feeney & Noller, 1996). Fedorikhin, Park, and Thomson (2008), in a brand context, show that brand attachment goes beyond attitude and fit in determining consumers' responses to brand extensions, including behavioral reactions such as purchase intentions, willingness to pay, word-of-mouth, and forgiveness. Compared to attitudes, attachment predicts better intentions of behaviors that use significant resources, such as time,

money, and reputation (Shu & Peck, 2011). Moreover, attachment is considered an antecedent of loyalty (Fournier & Yao, 1997). Individuals who have significant attachment to an object often commit to maintaining their relationship with it (Johnson & Rusbult, 1989; Miller, 1997). The attached object is irreplaceable. Favorable attitudes, on the other hand, do not have such strong motivational and behavioral implications. The impact of attitudes is often contingent on situations and contexts (Sheppard, Hartwick, & Warshaw, 1988). That is, the link between attitude and behavior is dependent on a number of situational and contextual factors (Eagly & Chaiken, 1993). While attachment is formed based on interactions between the individual and the object over time (Baldwin et al. 1996), a consumer might have a positive attitude toward an object without any experience or direct contact with it (Thomson et al. 2005). Moreover, unlike strong attachment, favorable attitudes alone might not be sufficient for predicting loyalty (Day 1969; Evanschitzky et al., 2006). A consumer with only a favorable attitude towards an object might not stay committed to it; instead, he might replace it with a more attractive alternative (Thomson et al., 2005).

### *Satisfaction*

Emotional attachment is most likely to be correlated with satisfaction, such that an individual who is emotionally attached to a brand is also satisfied with it (Thomson et al. 2005). In this sense, satisfaction might be the causal variable for strong emotional attachment. However, satisfaction and attachment are not the same. One can be satisfied with a product's performance without feeling emotionally attached to it. A few properties of satisfaction and attachment differentiate the two concepts. First, while satisfaction can occur as soon as the consumer consumes a product, the formation of emotional attachment tends to take time and require multiple interactions between the individual and the object (Baldwin et al., 1996). Second, satisfaction is an evaluative judgment while the attachment construct is more emotionally laden (Mano & Oliver, 1993). Third, similar to favorable attitudes, satisfaction does not indicate strong behavioral tendency such as proximity maintenance and separation distress (Thomson et al., 2005).

### *Involvement*

Emotional attachment should also be conceptually distinguished from involvement. Involvement is a state of mental readiness that partially determines how much of cognitive resources one allocates to a certain consumption object, action, or decision (Park & Mittal, 1985). Emotional attachment, on the other hand, goes beyond mental readiness and resource

allocation (Thomson et al. 2005). It is in fact often beyond one's volitional control (Thomson et al. 2005). Emotional attachment is relevant to the realm of emotions, whereas the involvement concept taps onto the realm of cognition (Thomson et al. 2005). Moreover, involvement is generally conceived as a property of the relationship between a person and a product category, rather than a specific possession (Ball & Tasaki 1992). The category of products does not acquire the meaning and significance of the particular possession. Emotional attachment, in contrast, is specific to an owned object.

#### 2.3.4 Consequences of emotional attachment

According to the theory of attachment (Bowlby 1979), strong emotional bonds towards a specific object affect how an individual interacts with that object and predicts the nature of an individual's behavior towards it (Ball & Tasaki, 1992; Bowlby, 1979; Wallendorf & Arnould, 1988). Attachments vary in strength, and stronger attachments are associated with stronger feelings of connection, affection, love, and passion (Bowlby 1979). These emotions induce a state of mental readiness that encourages the allocation of emotional, cognitive, and behavioral resources towards the object (Holmes, 2000). This is evidenced by a variety of outcomes and behaviors, some of which have been mentioned earlier when comparing emotional attachment and other constructs. First, the individual seeks to maintain to be close to the attached object. The stronger one's attachment to an object, the more likely is the proximity seeking and maintaining behavior. The attached object provides the individual a sense of security, a 'safe haven' that people seek when they experience in the external environment (Bowlby, 1980; Hazan & Zeifman, 1999; Thomson et al. 2005). Second, the individual experiences psychological distress when they have to part with the attached object, which is called separation distress. The individual experiences grief when losing the object (Berman & Sperling, 1994; Russell and Schau 2014).

People are willing to commit to, invest in, and make sacrifices for the attached object, just like what people do for someone they are strongly attached to (Bowlby, 1980; Hazan & Shaver, 1994). Specifically, the individual is more likely to pay a premium price to obtain the object (i.e. financial sacrifices) and to stay committed to it (i.e. loyalty) (Thomson et al. 2005). They are also willing to forgo their immediate self-interest to promote a relationship to an attached object (van Lange et al., 1997). Attachment has been shown to precede attitudes

(Schultz et al., 1989) and has a well-documented impact on purchase intention, product usage, and product evaluations (Schultz et al. 1989; Thomson et al. 2005).

In developing emotional attachment to objects, some individuals might go beyond the attachment and treat their possessions as a human. This phenomenon is termed anthropomorphism and will be discussed in the following section.

## **2.4 Anthropomorphized possessions**

### **2.4.1 What is anthropomorphism?**

Scholars from a wide array of disciplines have long noted that people tend to see nonhuman agents as humanlike (Darwin, 1872/2002; Feuerbach, 1873/2004; Freud, 1930/1989; Hume, 1757/ 1956), a phenomenon labelled anthropomorphism. Anthropomorphism involves the attribution of humanlike characteristics, motivations, intentions, and emotions to non-human actors (Epley et al. 2007). Some examples of these nonhuman agencies include animals, natural forces, religious deities, and mechanical or electronic devices (Epley et al. 2007). A similar concept is animism, defined as humans ‘attributing life to the non-living’ (Guthrie 1993, 52). In the marketing literature, anthropomorphism has been found in both brands (Aggarwal and McGill 2012) and products (Aggarwal & McGill 2007; Nenkov & Scott 2014). For instance, consumers perceive a car similar to a human with a ‘smile’ or ‘frown’ (Aggarwal and McGill 2007), Coke bottles with different sizes as members of a family (Aggarwal and McGill 2007), and cute products as cute babies (Nenkov and Scott 2014). Anthropomorphism is reflected by expressions we use when talking about our products. For example, instead of saying ‘my phone runs out of battery’, we often say ‘my phone dies’. Previous research suggests that consumers willingly and readily assign human properties and tendencies to brands (Belk, 1988; Levy, 1985; Plummer, 1985; Solomon, 1983). For example, consumers tend to assign nicknames to brands, both at a shared cultural level, such as Coca-Cola is “Coke”, BMWs are “Beemers” and within individual experience, e.g., “Blueberry” the Blue Valiant and Vicki's Honda Acura, “Teggie” (Fournier 1994; Pribus 1987).

As people attribute qualities of animism to objects, this suggests that, like people, products also have souls and intent (McGill 1998). For example, one would assume the object to have feelings, to have “likes and dislikes, appetites and disinclinations, affections and antipathies” (Gilmore, 1919, p.14). Objects are thought to have goals, “desires and longing”,

“desire to help or injure, to act or refrain from acting” (Gilmore, 1919, p.14). An anthropomorphized object is perceived to be a living entity “having senses to be tickled, appetites to be gratified, mentality to be reckoned with, temper to be made or kept placid and amicable, and power to be turned to good account or, at least, to be prevented from acting against him”(Gilmore, 1919, p.204). Importantly, the strength of anthropomorphic beliefs can vary along a continuum, from those held very strongly to those held more weakly (Epley et al. 2007). Empirically, anthropomorphism is measured by the extent to which the product was seen as human, for instance, “had come alive” and “like a person” (Aggarwal and McGill 2007).

#### 2.4.2 Why do people anthropomorphize?

Anthropomorphism involves both cognitive and motivational determinants (Epley et al. 2007). Epley et al. (2007) suggests that two major motivational factors can influence the process of anthropomorphism, including effectance and sociality. Effectance motivation stimulates a variety of strategies for explanation, prediction, and sense making; one of which is anthropomorphism. Attributing human characteristics and motivations to nonhuman agents increases the ability to make sense of an agent’s actions, reduces the uncertainty associated with an agent, and increases confidence in predictions of the agent in the future (Epley et al. 2007). As such, anthropomorphism provides a rich source of testable hypotheses to guide a person’s behavior toward an unknown agent or stimulus. The anxiety associated with uncertainty and the importance of predicting an agent’s behavior should therefore influence people’s tendency to anthropomorphize a non-human agent. Sociality, on the other hand, represents the motivation, need and desire to establish social contact, social connection, affiliation and social approval from other agents, human or otherwise. Anthropomorphizing an unanimated object helps to fulfill this desire by enabling a perceived humanlike connection with nonhuman agents. In that sense, treating an unanimated object as human serves as a coping strategy for the lack of a human social connection.

Past research also suggests that anthropomorphism involves a cognitive aspect, in which anthropomorphism is a process of inductive inference (Epley et al. 2007;). Anthropomorphism is therefore, as any other processes of inductive inferences, guided by the basic properties of knowledge acquisition, activation and application (Higgins 1996). As a result, factors that influence the way humans acquire, activate and apply knowledge about the

self or other people can affect anthropomorphism (Epley et al. 2007). For instance, just as with human agents, situations that evoke the motivation for mastery should prompt attributions of internal properties toward nonhuman agents (Epley et al. 2007). For example, when one's computer crashes he/she experiences an immediate feeling of frustration followed by the sense that the computer has a mind of its own and needs to behave properly. Indeed, a majority of people verbally scold and curse their computer when it fails to comply with their intentions (Luczak, Roetting, & Schmidt, 2003).

In summary, people anthropomorphize to make sense of the nonhuman agents' behavior, to make causal attributions and to satisfy their social needs. The next question is, under what conditions are individuals more likely to anthropomorphize and when are they less likely to do so?

#### 2.4.3 When do people anthropomorphize?

Previous research in anthropomorphism has identified several mechanisms that facilitate the likelihood of anthropomorphizing a nonhuman agent. The first is a schema-driven mechanism, which highlights that products with physical features that trigger and activate the human schema are more likely to be anthropomorphized (Aggarwal and McGill 2007). In their experiment, Aggarwal and McGill (2007) found that respondents were more likely to perceive and treat a car as a person when the car resembles a smiling face than when the car resembles a frowning face. They explained this effect by arguing that the smiling face is more congruent with the activated human schema compared to a frowning face; this congruent schema in turn increases the likelihood of anthropomorphizing the object. In a similar vein, Kim and McGill (2011) examine the congruence with human schema beyond physical appearance; rather, they investigate the impact of a product's behavior toward the consumer on anthropomorphism. They found that people are more likely to anthropomorphize a slot machine if they are in a condition of high power and the machine won (versus lost) the game. The winning slot machine provided high power consumers with what they wanted; therefore, consumers were more likely to perceive the object as a person.

The extent of anthropomorphism also varies across product categories. For example, anthropomorphism is common among technological products (Mick & Fournier, 1998; Moon, 2000; Turkle, 1984). These products' implied artificial intelligence and overt actions elicit

inferences of power, motivation, feelings (Fournier and Alvarez 2012), and qualities typically associated with human beings (Fournier 1994). Similarly, tools, transportation devices, food and drink, clothing, and weapons are also readily accorded selective qualities of strength, power, and guardianship (Fournier 1994). These product categories are therefore susceptible to anthropomorphism. Cute products might contain anthropomorphized features, as some humanlike characteristics can potentially enhance perceived cuteness (Epley, Waytz, and Cacioppo 2007). Anthropomorphism, moreover, varies among individuals. The likelihood of anthropomorphizing depends on the individual's motivations to do so. Such motivations could be effectance and sociality, as noted earlier, which provide a psychological account of anthropomorphism. As such, individuals are more likely to anthropomorphize when the need for social affiliation is high, or when there are strong motives to understand the non-human agent's behavior (Epley et al. 2007).

One context for elevated anthropomorphism is technology malfunction. Epley et al. (2007) investigate whether people perceive computers that malfunction as humanlike. They found that participants were more likely to perceive their computers to have minds, beliefs, and desires when their computers frequently malfunctioned. The more individuals experienced their technological possessions operating unpredictably, the more they anthropomorphized them. This effect is due to the expectancy-violating behavior which elicits effectance motivation, which in turn increases anthropomorphism. This is because unpredictable and unexpected behavior activates the motivation to understand and explain the behavior (Weiner, 1985). Most people expect their computers to function properly, and thus, malfunctions are unexpected. Unpredictability can stimulate anthropomorphism.

#### 2.4.4 Consequences of anthropomorphism

Most studies to date suggest that anthropomorphism has a positive effect on judgments and behavior. According to those studies, anthropomorphism can enable a sense of efficacy with nonhuman entities. Moreover, anthropomorphism can increase emotional bonding with them, which can positively affect judgments of nonhuman entities. For example, people were more likely to cooperate and work with humanlike robots than with machinery robots (Kiesler and Goetz 2002). Also, participants showed more favorable attitudes toward a computerized desert survival task when more anthropomorphic faces and voices appeared in the interface (Burgoon et al. 2000). However, anthropomorphizing a product does not always lead to more

positive evaluations. Aggarwal and McGill (2007) showed a boundary condition of anthropomorphism's positive effects on product evaluations, which is only when the type of person brought to mind is associated with positive feelings (Aggarwal & McGill, 2007). If the anthropomorphized product is perceived to be congruent with and thereby is associated with the negative human schema, this might lead to negative product evaluations (Aggarwal & McGill, 2007).

The concept of anthropomorphism is important in understanding the relationship between a consumer and a product or service because it is a contributing reason why consumers create relationships with unanimated objects. Empirically, in the present research, anthropomorphism will be incorporated in the measurement of the affective component of relationship, which is emotional attachment. Anthropomorphizing a product causes consumers to apply social expectations and beliefs they would not normally apply to an inanimate entity (Aggarwal & McGill, 2007). In that sense, consumers apply relationship norms that they experience within the interpersonal context into their interactions with anthropomorphized objects. In the discussion that follows, we look into the cognitive element of relationship, relationship norms, and how they influence consumers' responses to a product failure.

## **2.5 Relationship norms & Norms of communal and exchange relationships**

Norms are guiding principles and rules that people use to decide the "right way to behave" in a given situation (Aggarwal and Zhang 2006). When the norms of a relationship are made salient, they serve as a lens through which individuals view the relationship partner's behaviors and guide their judgments. Moreover, relationship norms are likely to change consumers' cognitive perspectives and change the emotional attachment one has with a specific object (Aggarwal and Zhang 2006). In the examination of relationship, it is therefore important to consider relationship norms, the cognitive element of relationship, in addition to the emotional, affective aspect of relationship.

Just as relationship norms are used in interpersonal relationships, consumers use relationship norms as a guiding principle in their relationship with a product or brand. These norms consequently drive their evaluations. Within the brand literature, there is evidence showing that when a brand violates relationship norms, the violation leads to negative evaluations of the brand (Aggarwal, 2004), similar to how norm violations are likely to result

in unfavorable evaluations of an individual (Forsyth 1985). When the brand's actions conform to the norms of the relationship, in contrast, evaluations are positive (Aggarwal 2004). That consumers' assessments of the brand and its actions are driven by whether the actions conform to relationship norms indicates that brands are treated as a social member. Aggarwal (2004) considered the brand as a member of the culture and the society such that it needs to behave in conformity with the norms of social behaviors. Outside the brand context, when the relationship partner is a specific product, one should expect that interpersonal relationship norms are used to manage the relationship as well. While products are more specific, tangible and discrete compared to brands, similar concepts should be applied to a consumer-product relationship. The consumer-product relationship in this sense has not yet been explored, except by Aggarwal and Zhang (2006) who investigated two relationship norms, exchange and communal, and suggested that relationship norms are likely to result in differences in the emotional attachment to the endowed object. Aggarwal and Zhang (2006) however only used relationship norms primes, not the actual relationship norms between the consumer and a product.

In social psychology, different types of relationships governed by different norms have been explored (Berscheid, Mark, and Omoto 1989; Fitzsimons and Bargh 2003). Most notably is the program of research that focuses on a distinction between communal and exchange relationships (Clark and Mills 1979; Mills and Clark 1982).

### *Differentiating the basics of communal and exchange relationships*

Exchange and communal relationships are distinguished based on the rules governing the giving and receiving of benefits. In exchange relationships, members act in order to maintain equity inputs and rewards. That is, people in this type of relationship are concerned with what they receive for what they give when interacting with others. People prefer to get comparable benefits in return for benefits given; as such, the relationship is quid pro quo. If the reward is not comparable, a person in an exchange relationship is less likely to be responsive to a request for help. Exchange relationship members also expect to receive the return benefit promptly to avoid any delay in benefit exchanges. Typical examples of exchange relationships are interactions between strangers, acquaintances, and people with whom they do business (Clark and Mills 1979; Mills and Clark 1982).

Communal relationship members, on the other hand, act in response to each other's needs. They often feel a special obligation to be concerned about the other's welfare. In communal relationships, people have a genuine concern for others' needs and well-being. Members of this type of relationship act in ways that go beyond their own self-interest (Aggarwal 2004). Contrary to exchange relationship, people in a communal relationship prefer to get benefits that are non-comparable rather than comparable to what they give. In fact, they may actively avoid giving back benefits exactly comparable to the benefits received. This is because giving comparable benefits might imply a hesitation to engage in a communal relationship and a preference for a different, less valued, more economic relationship type (Batson et al. 1978; O'Malley and Andrews 1983). A non-comparable reciprocal action on the other hand expresses gratitude, care and concern and subsequently signals reinforcement of the value of the relationship. Additionally, people prefer to receive the reward if it is delayed rather than immediately after they have given benefits. This is because this delay breaks the *quid pro quo* nature (Aggarwal 2004), which is not the nature of a communal relationship. People in communal relationships have known one another long enough to work out complicated exchanges. Communal relationships tend to be especially valued because people can feel relatively secure in them. Communal relationships are typically exemplified by relationships with family members, friends, and romantic partners.

Although maintaining equal benefits is not the norm in a communal relationship, members in this type of relationship do have expectations about the partner's concerns for one's own needs. People tend to assume that their own feelings for a partner are reciprocated by that partner (Lemay Jr. and Clark 2008). When one cares for and desires a communal relationship with a partner, he or she expects their partner to be responsive in return (Clark and Mills 1993; Holmes and Rempel 1989). Perceiving that a partner responds supportively to one's needs is indeed a critical determinant of the development of intimate relationships (Reis, Clark and Holmes 2004). Most communal relationships are mutual, except for one-sided communal relationships such as one between a parent and a child (Clark and Mills 1993). Thus in most friendships, for example, while one feels obligated to consider the other's welfare, at the same time one also feels that the other should take into consideration one's own needs. Although the people involved in a communal relationship often reciprocate the benefits that they receive, their reciprocation is normally motivated by feelings of appreciation, rather than by feelings of obligation.

Moreover, communal relationships can vary in strength (Mills & Clark, 1982). The greater the motivation to be responsive to the other person's needs is, the stronger the communal relationship (Clark & Mills, 1993). For instance, the communal relationship with one's best friends is typically stronger than that with one's other friends (Clark & Mills, 1993). Communal relationships are pervasive, however, strong communal relationships are rare except in the case of family members, romantic partners, and close friends (Clark & Mills, 1993). Some communal relationships might be certain and established while others might be uncertain. When there is high uncertainty about the communal relationship, people look for clues suggesting that the other wishes to follow communal norms, that is, to know whether the other desires to maintain or to form a mutual communal relationship (Clark, Dubash and Mills 1998). Clark et al. (1998) found that interest in consideration given to one's needs was not only greater for the certain communal relationship than for the exchange relationship but was greater for the uncertain communal relationship than the certain communal relationship. The less certain one is about the communal nature of the relationship with the other, the greater the monitoring of the other's consideration of one's own needs should be (Clark et al. 1998). In their study, Clark et al. (1998) had participants select someone with whom he or she would like to have a close relationship with (assumed to be an uncertain communal relationship) and someone with whom he or she had had a close relationship for a long time (assumed to be a certain communal relationship). People want communal relationships with friends and romantic partners to be mutual. When this mutuality is not guaranteed, one will be interested to know the other's intentions to follow norms in the communal relationship. Consideration given to one's needs gives an indication of the other's motivation to follow communal norms. Furthermore, people might not share a communal or exchange relationship with another person yet but desire to do so. In Clark et al.'s (1998) studies, the desire for communal versus exchange relationship manipulation were compared with behaviors toward friends versus strangers (Clark et al. 1998). Subjects induced to desire a communal relationship behaved like ongoing friends, whereas subjects induced to desire an exchange relationship behaved like strangers. Moreover, subjects who wanted to create a favorable impression in order to further the development of a mutual communal relationship were more likely to follow the rules of communal relationships (Clark et al. 1998).

In examining the impact of cognitive element of relationship on evaluations following a product/service failure, the present research looks at how consumers might use relationship norms and rules as a guide for their assessments. The discussion is based on the distinction

between exchange and communal as well as between certain and uncertain communal relationships. Specifically, if these relationship norms are activated and made salient at the time of evaluations, how would they affect consumers' attitudes and behaviors? Aggarwal and Zhang (2006) suggested that the effect of relationship norms is likely to be stronger if the consumers had formed a real relationship with the product. This approach was used empirically in the present research. We directly gauge the type of relationship the consumer believes to have with the product. This relationship is then used as a proxy for relationship norms.

The introduction section of this dissertation raises the question of whether the relationship between a consumer and a specific consumption object always implicates a self-object link. Is it always the case that the loved consumption object is integrated as part of the self and identity?. The section below discusses whether a high level of product emotional attachment and a close relationship such as a communal one always mean self-identity integration.

## **2.6 Do a high level of emotional attachment and a close relationship always mean self-identity integration?**

Past research has provided evidence with regards to the role of product in maintaining people's identities. Objects are the mean which convey and express one's self-concept to others (Belk 1987; Levy 1981; McCracken 1986; Rook 1985). People seek, express, confirm, and ascertain a sense of being through what they have (Sarte 1943). Loved objects have been shown to contribute to the construction and maintaining our self-concepts and identities (Belk 1986). People derive their self-concepts from possessions (Wallendorf & Arnould, 1988). They incorporate objects as part of their extended selves, a process which Belk (1986) refers to as 'contamination'. As a result, the loss of products can lead to diminishment of the self, which has been associated with perceptions of threat (Delorme, Zinkhan, & Hagen 2004). Consequently, coping strategies are employed to overcome the identity threat. For example, individuals increase the value of a self-attached object as means to enhance their self (Aggarwal 2004; Aggarwal & Law 2005; Belk 1988; Gawronski, Bodenhausen, & Becker 2007; Kleine, Kleine, & Kernan 1993). The associations between an object and the self also lead to positive bias towards the related object. Troye and Supphellen (2012) show the 'I made it myself' effects, in which self-producing consumers positively bias their evaluations of

an outcome and an input product through associative self-anchoring (Gawronski and Bodenhausen 2006).

In general, identity issues are central to consumers' experiences with loved objects (Ahuvia 2005). Regarding emotional attachment specifically, the concept of self and self-schema is inherently tied to attachment (Kleine, Kleine, and Kernan 1993; Mikulincer and Shaver 2005; Reed and Bolton 2005). Strong attachment is developed over time and is a collection of schemas and memories that link the object to the self (Holmes, 2000; Mikulincer, Hirschberger, Nachmias, & Gillath, 2001). As such, a connection between the self and an object is essential for the forming of emotional attachment. Identity and the self-concept are rooted in the way several researchers define emotional attachment. For instance, Brough and Isaac (2012) define product attachment as the psychological or emotional connection between a consumer's self-concept and a tangible product. Ball and Tasaki (1992) also refer to attachment as the consumer's use of owned possessions to develop and maintain self-concept. In the brands domain, previous research found that self-brand connection, consumers' belief that the brand is relevant to their self, leads to strong attachment (Fedorikhin, Park, and Thomson 2008).

Self and identity are essential in relationships. Within interpersonal relationships, identity-related issues are an important aspect of many relationship types such as marriages, best friendships, or even flings (Luedicke et al., 2010; Rosenberg 1981). Beyond the interpersonal context, identity has been shown to be an important part of consumers' relationships with brands. Self-concept connection is regarded as a dimension of the consumer-brand relationship (Swaminathan, Page, and Gurhan-Canli 2007). Self-concept connection indicates the amount that the brand contributes to one's identity, values, and goals (Fournier 1998). An extensive stream of research has highlighted the identity relevance in consumer-brand relationships (Belk, 1988; Escalas & Bettman, 2005; Fournier, 1998; Kirmani, 2009; Sirgy, 1982). Consumers are known to form strong relationships with those brands that have values and personality associations that are congruent with their self-concept (Sirgy 1982). As such, brand relationships can be viewed as expressions of consumers' identities (Escalas and Bettman 2005; Reed 2004). Further, brand relationships can furnish individuals with a social identity (Weiss 1974; Wright 1974) and can be used to communicate and reinforce national identity (Johansson 1989; Shimp and Sharma 1987).

However, do emotional attachments and close relationships always imply the integration into self-identity? Past research provides evidence that it is not always the case. First, it is important to note that self-implications in emotional attachment involve not only social identity but also hedonic dimensions, such as sensory pleasure, nostalgia, aesthetics, or sexual desire that result in “hot affect” (Park and MacInnis 2006). Second, certain situations do not facilitate the integration of the product into one’s identity. Bardhi, Eckhardt, and Arnould (2012) identified alternative relationships to objects that go beyond the notion of the extended self in the context of global nomadism. The authors developed the construct of a liquid relationship to possessions which characterizes the detached and flexible way consumers relate to objects in contemporary global nomadism (Bardhi, Eckhardt, and Arnould 2012). This type of relationship is temporary and situational, in that possessions are appreciated for their instrumental use-value and their immateriality (Bardhi, Eckhardt, and Arnould 2012). Third, attachment and its inherent self-identity implication tend to vary across the type of consumption objects (Ball and Tasaki 1992). For example, a house or car might play a role in self-concept building and maintaining more than a television (Ball and Tasaki 1992). In general, objects that are more likely to reflect the self include those that have high values, are socially visible, reflective of one’s achievements, and often personalized by the owner (Ball and Tasaki 1992). The present research empirically examines whether strong emotional attachment indicates self-object integration.

As noted earlier, relationship, the central construct of the present research, might regulate other processes that take place when the consumer faces a product failure. The following sections discuss these processes and how relationship influences them.

## **2.7 Product failures**

The literature in product failures provides insight on consumers’ responses to product and service failures. Importantly, how reactions to the failure might be biased by psychological factors. This review provides insights on the issue and support for the prediction that relationship might be one of the psychological factors that regulates responses to product failures.

### 2.7.1 Overview of product failure literature

A large body of literature discusses product failures, service failures, and brand transgressions (i.e. violations of implicit and explicit rules guiding customer-brand relationships, as defined earlier) (e.g. Aaker, Fournier, & Brasel 2004; Johnson, Metear & Thomson 2011; LeBoeuf & Norton 2012). Besides several pieces of research examining factors that influence estimates of product failures (Dickson 1982; Folkes 1988), past research in product failures is mainly concerned with consumers' responses to a product failure. Different types of responses have been examined. These include attitudinal responses such as product evaluations (Dunn and Dahl 2012), product satisfaction (Kramer & Vlock 2008) and consumer trust (Darke, Ashworth & Main 2009); and affective responses such as anger or disappointment (Folkes, Koletsky and Graham 1987). Moreover, past research explores behavioral responses such as the likelihood of word of mouth recommendations (Maxham III & Netemeyer 2002), desire to repurchase and likelihood to complain, both to the company and the public (Dunn & Dahl 2012; Gregoire, Tripp, & Legoux 2009), or desire for vengeance, i.e. to get even with the firm in response to a perceived wrongdoing (Bechwati & Morrin 2003). Within the realm of product failures, the attributional approach is commonly used to explain how people make causal inferences when dealing with a product failure (Folkes, 1984). This approach proposes that facing a product failure, consumers search for attributions, and that the type of attribution inferred influences actions taken (Folkes, 1984).

### 2.7.2 Biases in responses to product failures

In determining the cause of the product failure, consumers might bias their attributions (e.g. Folkes & Kotsos 1986; Kramer & Block, 2008; LeBoeuf & Norton 2012). For example, Kramer and Block (2008) showed that superstitious associations with product attributes increased expected product performance and in turn reduced satisfaction following a product failure. LeBoeuf and Norton (2012) found that people tend to match the causes to the consequences, both in size and valence, even though the consequences are not informative about the causes at all. Specifically, individuals tend to assign larger (versus smaller) causes to events with larger (versus smaller) consequences and more likely to assign positive causes for events with positive (versus negative) consequences (LeBoeuf and Norton 2012). To illustrate, a large cause such as a widespread computer virus is more likely to be inferred for a large computer crash such as one that causes permanent damage, compared to a smaller, less

severe crash from which recovery is possible. People bias causal inferences based on the assumption that the cause and the consequences are similar in size or valence (LeBoeuf & Norton 2012).

In a similar vein, people might bias causal attributions following a product failure by selecting certain types of information to make attributions. Folkes and Kotsos (1986) found that the discrepancies between buyers and sellers' attribution after a product failure were due to the different information each party used. In particular, when sellers explained failures of products they themselves offered, they tended to find fault with the product itself less often than did consumers. Other researchers might refer to this phenomenon as a self-serving attributional bias, with which people are more likely to attribute positive events to themselves but dismiss negative events as attributable to other causes (Mezulis et al., 2004; Weiner 1985). When being primed with self-awareness, however, customers tend to attribute outcomes to themselves, leading them to decrease the blame they put on the service provider when the outcome is unfavorable (Pham, Goukens, Lehmann & Stuart 2010). The self-awareness also decreases the credit given to the provider when the outcome is favorable (Pham, Goukens, Lehmann & Stuart 2010). Consequently, subtle contextual cues that increase customers' self-awareness tend to increase customers' satisfaction when the outcome of the service interaction is unfavorable, but tend to decrease customers' satisfaction when the outcome of the interaction is favorable (Pham et al., 2010).

Even when the consumer is aware of the cause of the product failure, the resulting reactions might be subject to biases, either consciously or subconsciously. For example, due to shared similarities and associations, negative consequences of a product failure can also generalize to other products from the same company (Ahluwalia & Gurhan-Canli 2000) or to closely related competitors (e.g., Roehm & Tybout 2006). Darke et al. (2010) found that following a product failure, consumer distrust produces negative effects across a much broader range of product categories which are unrelated to the focal product. Dunn and Dahl (2012) showed that when consumers perceive that they are to blame for the product failure, this is perceived as a self-threat and this in turn motivates a defensive processing which influence complaining behaviors.

### 2.7.3 Factors attenuating/ escalating negative responses to product failures

Previous research suggested a number of factors that can mitigate unfavorable reactions to a product failure, service failure, and brand transgression. The concept of recovery is more common in the service failures literature than in the product failure research. Most research on service failure has considered it simultaneously with service recovery (Harris, Mohr, & Bernhardt 2006; Tax, Brown, & Chandrashekar 1998) rather than studying service failure by itself (Sivakumar, Li, & Dong 2014). Within service failure literature, researchers often discuss the impact of the service provider's effort in providing service recovery. For example, Smith, Bolton and Wagner (1999) proposed that there should be a proper fit between a service failure and the recovery effort, as customers prefer to receive service recovery resources that match the type and magnitude of the failure they incur. Moreover, customer's satisfaction following a failure in a service setting is often influenced by the interpersonal interaction with service employees (Bitner, Booms & Mohr 1994; Bitner, Booms, & Tetreault 1990). The role of employees in handling complaints following a service failure is an important aspect in the service recovery process (Maxham III & Netemeyer, 2003). Similarly, the relationship one has with the service provider might influence one's post-failure attitudes and behaviors. In their examination of relationship norms in responses to service failure, Wan, Hui and Wyer Jr. (2011) found that friendship with a service provider compared to a business relationship is not always beneficial. However, perspective taking tends to decrease the intensity of negative reactions to a service failure. That is, when consumers have a friendship (versus a business relationship) with the provider, they would increase their negative responses when they viewed the situation from the perspective of their own needs and the provider's obligation to satisfy them. When their attention is drawn to their own obligation in the relationship, however, the reverse is true.

In the brand transgression literature, there is research showing that the timing of responses to a performance failure is likely to mitigate negative customer reactions to the brand failure, for example for high-equity brands (Roehm & Brady, 2007). Specifically, unfavorable high-brands failures can be mitigated when responses are timed immediately after the failure or when there is substantial distraction present in the environment (Roehm & Brady, 2007). Importantly, another factor that has been shown to influence consumers' reactions towards a brand failure is consumer-brand relationship. However, the influence of relationship is not always in favor of the brands, that is, it does not always mitigate unfavorable responses to a transgression. Evidence regarding the role of relationship in

responses to a product failure has shown divergent directions. For instance, Johnson, Matear and Thomson (2011) found that the more self-relevant a consumer-brand relationship, the more likely they are to employ anti-brand retaliatory behaviors after the relationship ends. Cheng, White and Chaplin (2011) found the opposite. Their studies showed that consumers with high self-brand connection maintained favorable brand evaluations despite negative brand information. This is a protection mechanism because high self-brand connection consumers respond to negative brand information as they do to personal failures. As the negative information about the brand poses a threat to their positive self-view, they evaluate the brand positively as a way to protect and defend their self-view. Moreover, Sinha and Lu (2015) found that together with consumer-brand relationship and controllability of the transgression (an aspect of causal attributions), an individual's self-construal can affect his or her reaction to a brand transgression. Consumers who have independent self-construals are more forgiving when the brand has no control over the transgression, regardless of brand-relationship strength. However, consumers who have interdependent self-construals are more forgiving when they have strong relationships with the transgressing brand, even if the brand is at fault (Sinha & Lu, 2015).

Similar to how customer-brand relationships influence responses to brand transgressions, a relationship between a consumer and her product might influence how she reacts to the product failure. In influencing responses to a product/service failure, relationship regulates several processes that occur during the evaluation formation. One of these processes concerns how individuals infer causal attributions; that is, how they attribute responsibilities to the PSB component. It is important to understand causal attribution making especially when the cause of the problem is unclear. Recall the opening story. In such a situation how would Lisa and John search for attributions of responsibility? And how would their attributions influence their evaluations of each agent? Would they attribute the blame in a rational way, or would their attributions be biased by their psychological needs, such as a relationship-related one? If so, would they hold a bias in the way that mitigates or heightens their negative responses to the PSB components? This can be predicted by theories of causal inferences and biases, including attribution theory, Heider's (1958) balance theory and Holt's (1995) consumption framework. The following section discusses causal inferences and biases in causal inferencing.

## 2.8 Causal inferences & biases

### 2.8.1 Attribution theory

#### 2.8.1.1 Overview

Attribution theory is useful for understanding how consumers assign the responsibility of the product and service failure to components of a PSB. Attribution theory (Jones and Nisbett 1972, Kelly (1967), and Bem 1972) suggests that people explain behaviors and outcomes based on their causes; these interpretations then in turn influence responses and judgments towards the behavior. Under the lens of attribution theory, people are rational information processors who make decisions based on their causal inferences (Folkes 1984). Attributional research is concerned with all aspects of causal inferences, such as how people arrive at causal inferences, what type of inferences they make, and what are the consequences of these inferences (Folkes 1988). Since its inception, attribution theory has remained a popular approach in social psychology and consumer behavior research, as understanding perceptions of cause and effect relationships is central to the understanding of behaviors (Folkes 1988). Attribution theorists and researchers have predicted behaviors from attributions across domains such as achievement, affiliation, product failures and moral judgments (Weiner 1980s). From a consumer's perspective, causal attributions have been examined across different types of outcomes. Consumers make inferences about their own behaviors, such as product purchase and selection (Scott and Yalch 1980; Tybout and Scott 1983), about a product's success or failure – whether the cause is internal or external (Dunn and Dahl 2005; Curren and Folkes 1987), or about a communicator's endorsement of a product (Wiener and Mowen 1986). A general model of the attribution field includes the following elements: antecedents (information, beliefs, motivation) → Attributions (perceived causes) → Consequences (Behavior, affect, expectancy). In the following each of these elements will be discussed and further applied into the specific context of a PSB failure.

#### 2.8.1.2 Antecedents of attributions

Three classes of antecedents affect causal attributions, including information, beliefs, and motivations (Jones and Davis 1965).

## *Information*

Kelley's (1967) covariation theory provides a basic theoretical approach to understand the role of information in the way people make causal attribution. The theory posits that aspects of information that influence causal inferences include consensus, consistency over time and modality, and distinctiveness of the event. Consensus refers to whether other consumers experience the event in the same way. Consistency refers to that of the individual consumer's response to similar events over time and across situations. Distinctiveness of the event refers to whether the event experienced is particular to a certain brand/product compared to other products/brands. For instance, in the opening vignette, if Lisa knows that none of her friends who use the same phone brand experience the same situation (low consensus), she has experienced this before (high consistency), and it only happens to her current phone but not her previous phone (high distinctiveness), she would be likely to attribute the failure to the specific phone rather than the brand.

## *Beliefs*

Beliefs are pre-existing hypotheses, suppositions and expectations held by the individual. Kelley's (1973) discounting principle describes one type of beliefs regarding how causes are related. This principle suggests that people discount or minimize the effect of an attribution for an action when an alternative attribution could account for the behavior (Folkes 1988, Kelley 1973). Two lines of research examine this principle. The first is the research in product endorsement, and the second is the research revolving Bem's (1972) self-perception theory. The discounting principle has been shown to be relevant for the communicator's credibility in product endorsement; specifically, liking for the product decreases when the endorser has incentives for endorsing the product. This is because when an alternative reason for endorsement is presented, internal reasons for liking the product are discounted (Sparkman 1982, Wiener and Mowen 1986). People discount internal reasons for another's behavior if external constraints are present, and also apply the discounting principle to their own behavior (Folkes 1988). This is the focal argument of Bem's (1972) self-perception theory. This theory posits that an extrinsic reward leads a consumer to infer external attributions for his or her own behavior, consequently discounting internal attributions. For example, Scott and Yalch (1980) asked their subjects to taste a soft drink, with an extrinsic reward (a coupon) in one condition, and no extrinsic reward in the other condition. They found that when the extrinsic reward was present, subjects made fewer internal attributions

for their own behaviors (e.g. taste or curiosity) compared to when the reward was not present. Applying to the context of a PSB, discounting principle is useful to understand how attributing the responsibility of the product/service failure to one component of the PSB might discount the attribution to the other component.

### *Motivation*

Attributional research has paid extensive attention to motivational biases, which stem from the individual's tendency to protect their esteem (Folkes 1988). The individual's motivations are elicited by the consequences of the action in terms of his own welfare, thus affecting the processing of information about the action (Kelly and Michela 1980). Motivational needs of the individual, e.g. protecting one's self-esteem, lead to attributional biases (Folkes 1988). An individual's interests and welfare determine whether he is motivated to make attributions at all, and, if motivated, whether he prefers to explain the event in a certain direction rather than others (Kelly and Michela 1980). Motives for making attributional biases include self-protection, self-enhancement, and positive presentation of the self to others. A well-documented type of bias is the self-serving attributional bias, in which people make more internal, stable, and global attributions for positive events than for negative events (Mezulis, Abramson, Hyde, and Hankin 2004). Such an attributional bias has been shown to be a robust phenomenon in human cognition (Anderson, Krull, & Weiner, 1996; Bradley, 1978; Greenberg, Pyszczynski, & Solomon, 1982). The consumer himself often has incentives for maintaining biased attributions (Folkes 1988). For example, in a product failure, the consumer can benefit from believing that the product is defective rather than accepting her responsibility for the failure (Folkes, 1984).

The three antecedents of attributions discussed in the literature (information, beliefs and motivations) mainly focus on the cognitive side of causal inferences. As this research will show, affective elements also contribute to how one makes causal attributions. This is in line with the causal dimension categorization, discussed in the below section, which extends to include emotions such as satisfaction (Weiner, Russell, & Lerman 1978, 1979). Emotions such as disappointment stemming from one's emotional attachment to a product or service lead to biased attributions in a product/service failure. This research will show disconfirmation of certain beliefs influences individuals' attributions as well.

### 2.8.1.3. Causal dimensions (perceived causes)

In order to understand how people arrive at certain causal attributions and how attributions predict behaviors, attribution theorists (e.g. Weiner et al. 1971; Weiner 1980; Weiner 1985) classify perceived causes in terms of their underlying causal properties or dimensions. These researchers have identified three causal dimensions, including: stability, locus of causality, and controllability. The stability dimension refers to the variability of the cause, whether the cause is temporary, fluctuating over time or fairly permanent, remaining stable over time. In particular, stable causes lead to certainty, which determines attributions made. The second dimension, locus of causality, concerns whether the source of the problem is internal or external. In the context of a product failure, the consumer might ask whether the cause lie in himself or the seller/ manufacturer. The third dimension of causes, controllability, refers to whether the cause, either internal or external, is controllable by the actor. Take a flight delay as an example. If the delay is due to the airport's technical problem, the cause is controllable by the airport. However, if the delay is caused by the weather, this cause is not controllable by the airport. In the context of a functional failure involving a PSB, the consumer might contemplate several issues. First, whether or not the event has happened to the product or service over time (stability). Second, between the product or service component, which causes the event (locus of causality)? Here, the product and service components both represent the external source of the problem, however are related to the individual through a relationship. Third, the consumer might wonder whether the event is controllable by the service provider and the product manufacturer.

### 2.8.1.4 Consequences of attributions

Consumers tend to search for the causes of the behaviors, outcomes or events they encounter (Heider 1958; Kelley 1967); and the interpretations of the causes influence their attitudes, judgments and behaviors. In the study of product failures, attributional approaches predict that the cause inferred for product failure influences how the consumer will respond. Attributions can influence behavior through a process of thinking leading to feelings and feelings leading to acting (Weiner 1995). For instance, Janakiraman et al (2006) in an examination of unexpected change in prices found that these changes trigger specific

affective responses (such as gratitude or anger) that consumers attribute directly to the retailer. The current research examines whether people make attributions of responsibilities to the product or the service component in a PSB, or both, following a functional failure. Empirically, we measure evaluations of the components in the PSB before and after the functional failure scenario, and examine which component is more negatively affected by the event. This approach allows us to understand which component the consumer attributes the failure to. Specifically, if the product component is blamed, evaluations of the product will be more negatively affected than the service. Adversely, if the service is perceived to be a fault, it will be more negatively affected by the functional failure than the product.

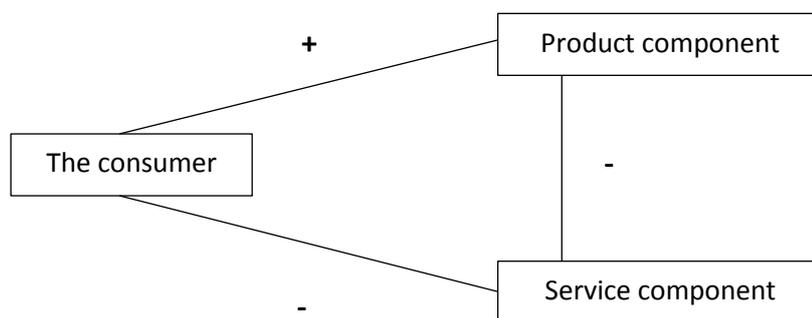
In making causal attributions, individuals are influenced and sometimes biased by their psychological needs (as suggested by, for instance, the self-serving bias in attributions, Bradley 1978). At the basis, people process information in the way that their existing and newly incorporated information are in a balanced state. This need to maintain the harmony among attitudes toward different targets might affect how one attributes a cause. Heider's (1958) balanced theory discusses this issue, noting that cognition is influenced not only by the objective evidence but also by the subjective needs, desires, and preferences of the individual. Heider's (1958) balance theory outlines how people seek to maintain a balanced state among different attitudes, implicating the motivation to bias attributions to protect previously held attitudes and judgments. The theory is discussed below.

## **2.8.2 Heider's (1958) balance theory**

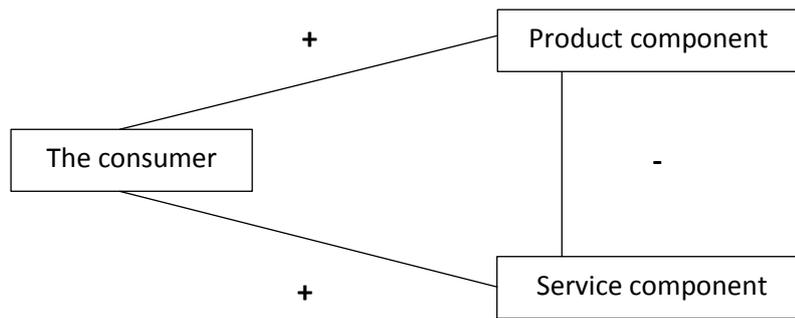
Heider's (1958) balance theory provides insights of how individuals coordinate their attitudes towards various objects. The theory is relevant to the context of the current research in two ways. First of all, the context of product failure involves attitudes change and adjustments. Heider's (1958) balance theory discusses how new information is incorporated into existing attitudes. The theory addresses issues relating to whether the new information will change the current attitudes, and if yes, in which direction. Secondly, the context of a PSB concerns attitudes towards various elements. How one balances one's attitudes towards different targets is the focal issue of balance theory. Having chosen Heider's (1958) balance theory to support the current research, it should however be noted that other cognitive consistency theories such as incongruity theory (Osgood & Tannenbaum, 1955), and cognitive dissonance theory (Festinger 1957) also reviewed the

processes of incorporating new information into existing beliefs and integrating varying information of multiple objects. These theories suggest that attitudes and beliefs tend to exist in harmony, which Heider (1958) refers to as balanced state. Heider (1985) suggests that if a balanced state does not exist, forces toward this state will arise. If a change is not possible, the state of imbalance will produce tension (Heider, 1958p.201). Thus, when people encounter aspects of their evaluations or judgments that are incompatible with each other, they are motivated to restore consistency by transforming some of the incompatible elements (Nagpal & Krishnamurthy, 2008).

Figure 2 (a) and (b) below illustrate a balanced and an imbalanced state in attitudes towards the product and service components in a PSB. These illustrations are merely examples of a balanced and unbalanced state. There are various situations that present balanced or unbalanced states in the context of a PSB. In these examples, an assumption is that the consumer has to determine whether the product component *or* service component is at fault. In that sense, the minus sign (-) between the product and service component denotes that one component is ‘exempted’ from the responsibility of the failure if the other component is deemed at fault. To maintain the balanced states, the consumer would evaluate one component better (+) compared to the other (-). If the consumer evaluates both components equally while having to make attribution to one, the imbalanced state will occur (example b). Note that if the causal attributions are made to both components, these examples do not apply.



(a) A balanced state



(b) An imbalanced state

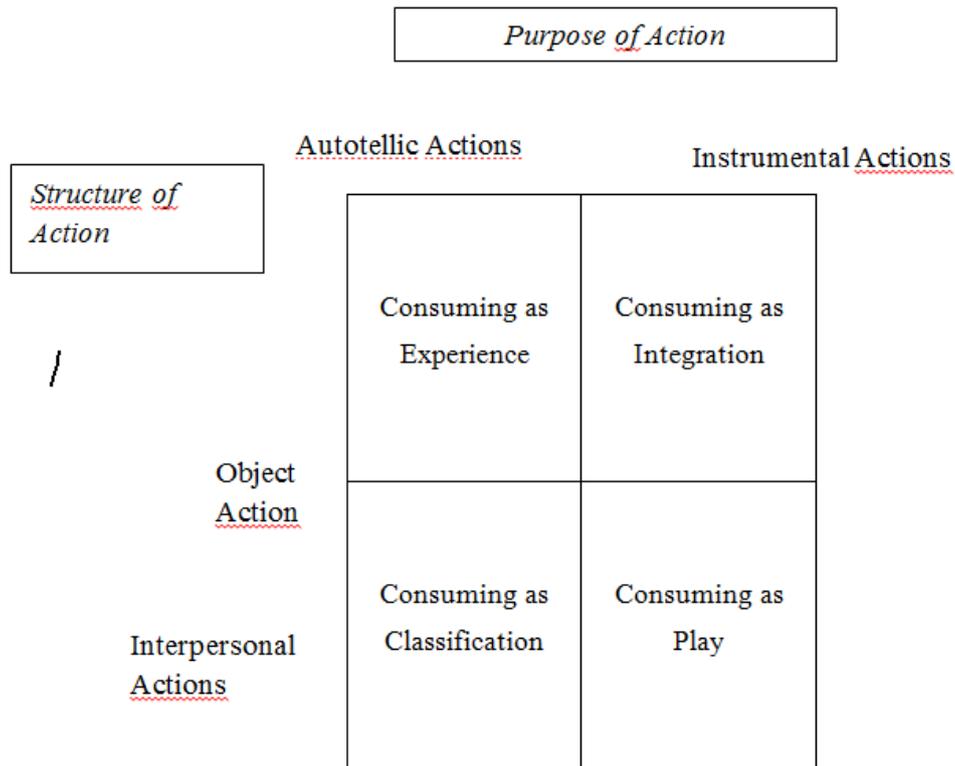
**Figure 2. Example of (a) a balanced state and (b) an imbalanced state in the context of a PSB.**

The question will be which direction attitudes will change. Facing a product failure with an ambiguous source, how will customers adjust their existing beliefs or attitudes in order to maintain the balanced state or to restore the imbalanced state? In the opening vignette, will Lisa change her attitudes towards her phone or her service provider, and similarly, will John change his attitudes towards the car or the mechanics. Moreover, will the functional failure affect their attitudes towards the two components similarly or to different extents? This will be tested empirically in the experiments discussed later. However, Heider's (1958) balanced theory itself does not suggest how and in which direction the individual would adjust their attitudes or beliefs. Other theories might come into play. Especially, when the offering consists of a physically proximate product and an intangible, less physically proximate and interactive service, the different consumption experience might cause the connection between the consumer and the product and service to differ to a certain extent. It should be emphasized again that the service component in the present research context is one that involves a small amount of interaction between the consumer and the service provider. Applying Holt's (1995) framework of consumption, consisting of four categories of consuming behavior, these consumption experiences might differ between a product and a service component in a PSB in this sense.

### **2.8.3 How consumers consume – Holt’s (1995) framework**

Holt’s (1995) framework provides a big picture on consumers’ consumption. In particular, this framework helps to understand the potentially differentiated relationship one shares with the product and the service component in the PSB. The framework concerns ‘how consumers consume’ and provides insights with regards to how the individual regards a consumption object. An overview of the interaction between an individual and a target is necessary for the discussion of the relationship between the consumer and PSB components. Moreover, the theory provides the foundation for, as we will elaborate later, the hypothesized different relationship towards the product and service component in the bundle. In the following, Holt’s (1995) framework will be summarized, followed by the application of this framework into the telecommunication context, the focal context of the current research.

Previous research has organized and categorized different aspects of consuming based on two basic conceptual distinctions; first, the structure of consumption and second, the purpose of consumption (Holbrook 1994). In terms of structure, consuming consists both of actions in which consumers directly engage consumption objects (object actions) and interactions with other people in the consumption practices (interpersonal actions). For example, products consumed in private settings could involve object actions while products used in public could include interpersonal actions. In terms of purpose, consumers’ actions can be both ends in themselves (autotelic actions) and means to some further ends (instrumental actions). For instance, we can use a product’s functionality, but also to signal social status to others (e.g. products of luxury brands). Based on these two dimensions, four metaphors are used to describe the act of consuming, including: consuming as experience, consuming as integration, consuming as classification, and consuming as play (Holt 1995). Figure 3 illustrates Holt’s (1995) framework.



**Figure 3. Holt’s (1995) Consumption Framework**

*Consuming as experience* underlies consumers’ subjective, emotional reactions to consumption objects (Holbrook and Hirschman 1982; Belk, Wallendorf, and Sherry 1989; Celsi, Rose, and Leigh 1993). This metaphor views consuming as a psychological phenomenon in which emotional states arise during consumption. The ‘experience’ cell in Holt’s (1995) framework deals with the direct experience with an object. This experience is non-social (i.e. not concerned about other people), and non-instrumental (i.e. we experience with the product not because we want to obtain something in an instrumental way). The *consuming as integration* metaphor, being non-social but instrumental, describes how consumers manipulate the meanings of the object after acquiring it. Consumers manipulate object meanings through different consumption practices; for instance, consumption rituals (Rook 1985), self-extension processes (Belk 1988), personalizing rituals (McCracken 1986), and sacralizing processes (Belk et al. 1989). In doing so, consumers are able to integrate the self and object, thereby allowing themselves access to the object’s symbolic properties (Holt 1995). As we will discuss later, there is a large body of research in the self-object link (Levy 1981; Delorme, Zinkhan, and Hagen 2004; Wallendorf and Arnould 1988). The other two

types of consuming, consuming as classification and consuming as play, concern the interpersonal action aspect of consumption. Specifically, *consuming as classification* is accomplished through possession and social display of the consumption object.

‘Classification’ cell concerns both the social and instrumental aspect of consumption. This is the case of luxury brands consumption as a signal of social status. Finally, *consuming as play* describes how other people are involved directly in the consumption practice. As opposed to the ‘classification’ cell, this aspect of consumption is non-instrumental.

In a telecommunication context, we can apply the four metaphors into the use of a mobile phone. First, consumers could consume a cellphone as experience, in which the individual consumes non-social and non-instrumental aspects of the telephone, such as the games, calculator, calendar etc. Some people might consume the phone as integration. They might consider the phone as part of the self (e.g. found in Kleine, Kleine, and Allen 1995). Through the experience and, for some people, integration, individuals might develop emotional attachment to it. It is not uncommon for people to express thoughts such as ‘I love my phone!’, ‘My phone is like my best friend’, or ‘I cannot live without my phone’. To various extents, we all develop some sort of attachment to our consumption objects over time. People might also consume a phone to signal their social status; e.g. using an iPhone to signal a cool, innovative image. It should be noted that this aspect of consuming as classification might be more related to a brand rather than a specific product for the phone category. Consumers could also consume a phone to play. The communication functions of the phone facilitates this aspect of consumption; that is, other people are directly involved in the consumption practice through communication.

In the present research, Holt’s (1995) framework provides a theoretical background to expect that people relate to the product and service component of a PSB differently. That is because consumers might consume a product or a service as ‘experience, integration, classification and play’ to different extents. The framework provides a guide in answering questions such as: to what extent the consuming of the product or service leads to the development of emotions? Is emotional attachment to the product component higher or lower than emotional attachment to the service component, and to what extent will that influence consumers’ judgments and evaluations? Moreover, to what extent will the consumer integrate the product or service as part of the self? Some of these questions will be answered in this research through empirical investigations, which we will discuss in the later sections.

## **2.9. Processes produced during a functional failure**

The discussion so far has focused on how relationship elements influence evaluations of components of a PSB following a functional failure. The next question one may ask is *how* this effect might occur. We examine two processes, affective and cognitive, that we predict to underlie the proposed effect of emotional attachment and relationship norms on post-failure evaluations, respectively. The affective process we look into is the emotion of disappointment. In the event of a functional failure, one might experience different types of emotions, such as anger, irritation, disappointment etc. However, we speculate that the emotional attachment aspect in the interaction specifically brings about the specific emotion of disappointment which in turn affects evaluations. The cognitive part of relationship, relationship norms, might influence evaluations through a more cognitive process namely disconfirmation. A functional failure might be considered as a transgression, an act of breaching the norms. Disconfirmation might ensue and affect how consumers evaluate the product.

### **2.9.1 Disappointment processes**

Disappointment, a type of negative emotion, is experienced in response to outcomes that do not fulfill previously held expectations (Van Dijk, Zeelenberg, and Van der Pligt 1999; Wubben, Cremer, and Dijk 2009). It is commonly experienced by dissatisfied consumers (Chan and Cui 2011; Westbrook and Oliver, 1991) and is felt in situations where others are responsible for the bad experience (Zeelenberg et al. 1998). As a type of emotion, disappointment is affect-laden by itself. Appraisal theory (Frijda, Kuipers, and Schure 1989; Roseman 1991; Smith and Ellsworth 1985) posits that emotions are elicited by evaluations of events and situations on various appraisal dimensions (Lazarus 1991). That is, individuals experience emotions in response to their perception of a given situation. Appraisal theory emphasizes the importance of the emotion-eliciting situation for predicting the experienced emotion. As such, the individual has to first process the appraisal information before experiencing the emotions.

Past research has studied emotions in customers' responses to service failures, in which they found that the two emotions that often occur as a consequence of service failures are anger and frustration (Laros and Steenkamp 2005; Nyer 2000; Richins 1997). The type of

emotion experienced depends on causal attributions, such that blaming external sources such as the service providers tends to trigger anger while blaming situational sources such as unfavorable weather conditions tends to trigger frustration (Roseman 1991; Smith and Ellsworth 1985). In this research, we predict that when the product is treated as a relationship partner, the product failure may elicit another type of emotion, disappointment. Moreover, the extent of disappointment felt, or the likelihood of being disappointed might depend on the level of emotional attachment one shares with the product. This feeling of disappointment might in turn influence product evaluations. Disappointment is the result of expectations not being met. Indeed, in a relationship context, partners who hold high expectations for their relationships risk being disappointed, given that partners' outcomes might not meet their standards (McNulty and Karney 2004).

In the present research, disappointment will be examined empirically as a mediator for the effect of emotional attachment on evaluations. Another process that we look into is disconfirmation, which we predict to underlie the effect of relationship norms on evaluations following a functional failure.

### **2.9.2 Disconfirmation process**

Disconfirmation, or expectancy disconfirmation, is used widely in the satisfaction literature (Oliver 1977, 1980; Westbrook and Reilly 1983). Disconfirmation refers to the degree to which perceived performance confirms or disconfirms performance expectations. Positive disconfirmation occurs when performance exceeds expectations; negative disconfirmation on the other hand occurs when expectations exceed performance. Disconfirmation is evaluative in nature (Tsiros et al. 2004) and is considered as a cognitive route (Patrick et al. 2007). The concept of disconfirmation and disappointment are related. Disappointment is considered the amount of negative disconfirmation (Zeelenberg and Pieters 2004). Appraisal theory (Frijda, Kuipers, and Schure 1989; Roseman 1991; Smith and Ellsworth 1985) posits that emotions are elicited by evaluations of events and situations on various appraisal dimensions (Lazarus 1991). That is, individuals experience emotions in response to their perceptions of a given situation. Appraisal theory emphasizes the importance of the emotion-eliciting situation for predicting the experienced emotion. As such, the individual has to first process the appraisal information, a cognitive process, before experiencing the emotions. Zeelenberg and Pieters (2004) when measuring the specific

emotion used two items. One item taps the core feeling component, and the other taps the appraisal of the main antecedent condition (Zeelenberg and Pieters 2004). For example, the items they used were: (1) “After this experience, how much disappointment did you feel about the delivery of the service?” (1- none and 7 - very much), and (2) “To what extent was the delivery of the service worse than you expected beforehand?” (1 - not at all worse and 7- much more worse) (Zeelenberg and Pieters 2004). We adapted this measure in our studies, however separated them in such a way that we measured the core feeling of disappointment in study 2 (i.e. disappointment mediates the effect of emotional attachment on evaluations) and the appraisal of the antecedent, i.e. disconfirmation, in study 3 (i.e. disconfirmation occurs when relationship norms were violated). Together, examining disappointment and disconfirmation allows us to understand the process underlying the effect of the affective and cognitive aspect of relationship.

In the present research, we examine disconfirmation process as the result of a functional failure when relationship norms are made salient. From a relationship perspective, past research has shown that customer responses to salespeople’s efforts depend on whether those efforts meet or disconfirm the relationship expectations (Mullins et al. 2014). When salespeople provide more or less relationship effort than expected, customers’ expectations are disconfirmed (Oliver 1980). Relationship norms set expectations. Therefore, in the present research, we predict that the consumer might consider a product failure as a transgression, in which the product as a relationship partner violates the norms. As a result, the individual is likely to go through a disconfirmation process, which influences their evaluations. Disconfirmation can result in disappointment, and hence the two processes can be related. However, we examined the two processes separately to investigate the affective and cognitive process induced by the affective and cognitive element of relationship.

Another process that might take place following a functional failure involves how the consumer might cope with the situation. Will this coping behavior depend on the relationship between the individual and the product? The following section discusses this issue. Note that we limit our examination to how coping behaviors might vary depending on relationship norms.

### **2.9.3 Coping behaviors following a product failure**

Coping refers to cognitive or behavioral efforts to reduce stress (Duhachek, 2008) and is defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). In other words, coping is "the set of cognitive and behavioral processes initiated by consumers in response to emotionally arousing, stress inducing interactions with the environment aimed at bringing forth more desirable emotional states and reduced levels of stress" (Duhachek 2005, p.42). In short, coping behaviors are seen as a means of eliminating anxiety (Mick and Fournier, 1998) or other negative emotions.

The coping literature suggests that coping can be in the form of problem-focused and emotional-focused coping. Problem-focused coping involves attempts to address the source of threats directly. For example, problem-focused coping entails improving the stressful situation produced by the negative situation. Conversely, emotion-focused strategies are initiated to regulate one's emotional response. For example, a consumer may vent their emotions to "let off steam" or "cool down" (Duhachek 2005). Emotion-focused coping means avoiding thinking about a stressful and threatening situation, reinterpreting the negative event to reduce its stressful impact, or to directly regulate the emotions resulting from a negative situation (e.g., trying to calm oneself down). While consumers often rely on both coping approaches in dealing with a stressed episode (Luce 1998; Luce, Bettman and Payne 2001; Mick and Fournier 1998), in general, threatened consumers who believe they possess the ability to alleviate a negative situation engage in problem-focused coping strategies whereas consumers lacking this belief instead attempt to regulate their emotional response via emotion-focused coping (Sujan, Sujan, Bettman, & Verhallen, 1999).

Similarly, Han et al. (2015), in their discussion of coping with psychological threats, argue that threats may induce either an approach or avoidance motivation. Approach motivations focus the individual towards attaining positive outcomes (Carver & Scheier, 1981, 1990). For example, approach motivations might arise when individuals believe they possess the ability to attain their desired state or that environmental conditions are favorable for taking action (Duhachek, Agrawal, & Han, 2012). Other stressful situations may induce an avoidance motivation when the situation leads the individual to conclude no potential approach behavior is available to mitigate and overcome the stressful state. In the same vein,

Lazarus (1981) and Lazarus & Launier (1978) described four basic modes of coping, including instrumental strategies, intrapsychic strategies, inhibition of action, and information seeking. Instrumental strategies involve direct actions, which are directed towards managing the stressor itself. Intrapsychic strategies are aimed primarily at regulating or minimizing the accompanying emotional distress. Inhibition of action refers to the ability to resist taking action when such action would increase the likelihood of harm, danger, or conflict with moral restraints. Information seeking involves the instrumental activity of gaining a basis for action and also is a form of support mobilization that can relieve emotional distress.

The next question that arises is the use of relationship as the theoretical lens. What types of behaviors would be used to cope with the negative incident, i.e. the functional failure? It is important to understand the behavior in addition to evaluations because, as the current research will show, evaluations do not always indicate the direction of behavior. Past research suggests that evaluations direct behavior toward rewarding objects and away from harmful objects (Ferguson & Bargh, 2004; Roskos-Ewoldsen & Fazio, 1992). Indeed, Murray et al.'s (2006) dependency-regulation research suggests that negative partner evaluation reflects a desire to create a distance from the relationship. However, the present research shows that while the individuals lower their evaluations of the product component (more than the service component), instead of distancing themselves from it, they fix the product. There are a few theoretical explanations for this coping behavior. It might be a way to protect the perceived relationship, thus to protect the self; that is, a self-protected mechanism is present. Alternatively, the individual fixes a product as a way to fix the relationship with the hope that the relationship will continue to develop. Appraisal theorists proposed and showed that people use different coping strategies to reduce negative emotions (Lazarus 1991; Shaver 1985). For example, angry customers often rely on confrontative coping through retaliatory actions (Bolton et al. 2003). Frustration, on the contrary, fosters support-seeking coping (Menon and Dubé 2007; Yi and Baumgartner 2004). The present research explores coping strategy to mitigate disappointment and disconfirmation.

Coping strategies have been examined in the context of interpersonal relationships. Knee (1998) examined the topic in romantic relationships and found that in coping with negative relationship events, depending on the types of beliefs held by relationship members, approach or avoidance strategy may be employed. Specifically, in response to relationship stressors, belief in romantic destiny was found to be associated with coping strategies that disengage and distance oneself from the relationship; that is, an avoidance strategy. Growth belief, on

the other hand, predicts endorsement of relationship-maintenance strategies, reflecting attempts to solve the problem and grow from experience (Knee 1998). From a communal relationship perspective, coping behaviors might depend on the strength of the communal relationship. For example, a strong, certain, and established communal relationship, which might give rise to destiny belief, may induce relationship members to cope with the negative relationship event by avoiding the stressor and distance themselves from the relationship. A less certain, weaker and not yet established communal relationship, on the other hand, might induce growth belief and thus encourage relationship-maintaining or fixing strategies. For example, a fight with a best friend might not make us feel the need to fix the relationship immediately, as a best friendship contains many positive moments that the occasional negative ones are not necessary to cope with. A fight with a friend, however, might cause us to want to take actions to fix the relationship and improve it. One of the goals in the present research is to explore whether similar patterns in coping with negative events will be observed in a consumer-product relationship context. We do so by measuring intentional behaviors and analyzing qualitative data, i.e. participants' written responses.

### **Summary of literature and implications for the present research**

The section above provides an overview of existing research and literature across a number of concepts and domains. A number of theories and literature offers a theoretical lens for the understanding of consumers' reactions to a functional failure and the role of relationship aspects in their responses. In summary, when facing a functional failure, according to attribution theory, the individuals search for the causes of the problem and make causal attributions. In making these causal inferences, they might engage in attributional biases. However, consumers might adjust their evaluations to maintain a balanced state in their existing attitudes (Heider's (1958) balance theory). Holt's (1995) consumption framework suggests the forms of consuming, opening up for the speculation that the meaning behind the consumption of a product might constitute the motive to bias their responses. Specifically, the relationship between a consumer and a product (in which the product might be considered as an anthropomorphized relationship partner) might be a potential factor. The present research examines both affective and cognitive aspects of relationship, through emotional attachment and relationship norms respectively. Although evidence in the context of a specific product is

scarce, there are findings in other contexts such as brands to lend support to the present research's propositions.

#### *Why functional failure in the telecommunication context?*

The present research elected to use a malfunction in the telecommunication context in hypotheses testing. There are several reasons for this choice. First, telecommunication is a suitable context to study consumer-product relationship because the product involved is likely to be perceived as an anthropomorphized relationship partner. Indeed, technological products are especially conducive to anthropomorphism because the artificial intelligence and overt actions readily enable inferences of volition, motivation, and feeling on the unanimated products (Mick & Fournier, 1998; Moon, 2000; Turkle, 1984). Malfunction, moreover, is a functional failure which is the central idea of the current research. Such a functional failure presents a negative event which provides an appropriate context to investigate attitude change. The ease of observing attitude change in turn facilitates the examination of attributional or evaluation biases. Combining the two, a technological malfunction is suitable for the investigation of whether and how the product/service being regarded as a relationship partner regulates responses to a functional failure. The technological malfunction, additionally, is a context for elevated anthropomorphism. Epley et al. (2007) investigate whether people perceive computers that malfunction as humanlike. They found that participants were more likely to perceive their computers to have minds, beliefs, and desires when their computers frequently malfunctioned. This is because expectation violation increases effectance motivation (Epley et al. 2007).

#### *Why functional failure at all?*

In the present research project, the context for examining research issues is the attitude change following a functional failure. Specifically, a functional failure with an ambiguous source involving a PSB is used to observe the bias in evaluations of the PSB elements. An investigation into consumers' reactions and responses to a transgression is interesting in general and particularly for the present research. There are several reasons for this. First, there is evidence in past research, although in a brand context again, that negative information surrounding a brand can threaten the stability of the consumer-brand relationship and has a

higher salience and diagnostic value than positive information (Aaker et al. 2004). According to research on branding, a key benefit of strong consumer-brand relationships is their ability to help maintain brand attitudes in the face of negative information (Ahluwalia, Burnkrant, and Unnava 2000; Fournier 1998). Because brand attitude change is likely to vary significantly based on relationship strength, it provides an ideal context for investigating the relative importance of consumer-brand relationship dimensions (Swaminathan, Page, and GurhanCanli 2007). Second, technology malfunction is a context for elevated anthropomorphism. The increasing likelihood of anthropomorphism might enhance the salience of the relationship one perceives to have with a product. This matter will be discussed in more depth in a later section.

### *Why functional failure involving a PSB?*

Existing research in the context of PSBs is rare. It is necessary to differentiate the concept of PSB from brand extension and brand alliance. PSB is different from brand extension in a few ways. PSBs, by simple definition, are products and services whose uses are interrelated with one another, such that a demand for one generates demand for the other. PSBs function in the absence of one of the two elements. Cellphone and network service, car and car mechanics, or a computer and Internet are some examples of PSBs. Brand extension, on the other hand, is the use of established brand names to launch new products. Brand extension is a type of brand leveraging, which is attaching established brand names to new products, tapping into consumers' favorable associations with the brand name in an attempt to create financial value for the firm (Lane and Jacobson 1995). The PSB investigated in this research is different from brand extension in the sense that the product and service are two, even though related, separate entities; unlike brand extension in which the parent brand and extended product/service share brand-related properties.

Further, a PSB is different from brand alliance. Brand alliance involves the short- or long-term association or combination of two or more individual brands, products, and/or other distinctive proprietary assets (Rao and Ruekert 1994; Simonin and Ruth 1998). These brands or products can be represented physically (e.g., bundled package of two or more brands) or symbolically (e.g. an advertisement) by the association of brand names, logos, or other proprietary assets of the brand. One characteristic that differentiates the PSB focused in our research from brand alliances or product bundles is that brand alliances or product bundles are

often intentionally collaborative efforts of companies while in the case of a PSB, the joint of the two in most cases are the choice of the consumers rather than marketers. This is in part thanks to the increasing compatibility of separate products and services. For example, consumers get to choose which network service to use with their phone or which Internet network to use on their laptops. From the consumers' perspective, they are more likely to perceive the product and service as separate entities than a cooperated product/service from different companies.

## Overview of the three studies

The empirical context of this dissertation are industries that provide dual product-service bundles (PSB) for their customers, such as car/equipment rentals and leasing companies, mobile phone subscription services, etc. In such industries functional failures may occur that are not easily attributable to the product component of the offering (e.g. the telephone) or to the service part (e.g. network-services and maintenance). The dissertation addresses how consumers react to such failures. To what extent will their evaluations of the service component and of the product component be differentially affected by a failure that cannot be unequivocally blamed on either component? We believe customers' reactions following a failure partly will depend on their relationship to the firm's offering prior to the failure.

We conducted three studies in a lab setting. These are experiments conducted in the behavioral lab. Subjects were recruited from a paid pool of the business school. The majority of the subject pool consists of students; however the pool also includes professionals who are employees of the school and the University. In addition to the main studies, two pretests and one posttest were conducted on Mturk, an American-based online panel. A detailed description will be provided for each study, concerning the purpose, method, procedure, results and discussion of findings. Study 1 examines emotional attachment to the product and service component, and how these factors influence evaluations of the product and service. Study 2 and 3 however, as noted earlier, narrows the focus to the product component of the PSB. This limitation is due to certain constraints of the present research. Table 3 provides an overview of the procedures of the experiments.

STUDY			HYPOTHESES	Issue/Effect to be examined	PROCEDURE	CORRESPONDING CONSTRUCTS
1	2	3	1-6		<ol style="list-style-type: none"> <li>1. Measure existing evaluations in an ostensibly separate task</li> <li>2. Manipulation of the independent variable in each study (to be explained below, for each study 1, 2, and 3)</li> <li>3. Presentation of a functional failure scenario</li> <li>4. Measure post-failure evaluations</li> <li>5. Measure covariates and capture demographic information</li> </ol>	<ul style="list-style-type: none"> <li>- Pre-failure evaluations (at time t)</li> <li>• ...of product component</li> <li>• ...of service component</li> <li>- Emotional attachment</li> <li>- Post-failure evaluations (at time t+1)</li> <li>• ...of product</li> <li>• ...of service</li> <li>- Self-brand connection</li> </ul>
1			H1a & H1b	- Whether evaluations of product and service component in a PSB are equally affected by a functional failure in high product vs. service emotional attachment	<p>Step 1 to 5 as above, especially for step 2:</p> <ul style="list-style-type: none"> <li>- Manipulation of focus (activating high emotional attachment to PC vs. SC)</li> </ul>	<ul style="list-style-type: none"> <li>- Measurement of emotional attachment</li> <li>- Evaluations</li> <li>- Self-brand connection (Escalas &amp; Bettman, 2005)</li> </ul>
			H2	To examine whether the effects (in H1a.b) are due to brand attachment or specific product/service attachment	- Manipulate self versus other, i.e. the functional failure occurs to oneself or someone else	

2			H3	To compare the influence of a functional failure on product evaluations when product attachment is high versus low	Step 1 to 5 as above, especially for step 2: - Manipulate the magnitude of emotional attachment, high versus low. However, we limited our focus to emotional attachment to the product component only	- EvalPC(t) - EvalPC(t+1)
			H4	- To examine the underlying process – an affective one, disappointment: The higher product attachment is, the more disappointment one feels, which causes evaluations to decrease. - Rule out identity threat as an underlying mechanism	- Measure disappointment and self- threat	- Disappointment (Zeelenbergn & Pieters, 2004 ) - Self-threat (Argo, White, & Dahl 2006)
3			H5a & H5b	- Examine the role of relationship norms (certain communal, uncertain communal, and exchange) on product evaluations following a functional failure	Step 1 to 5 as above, especially for step 2: - We used consumer-product relationship type as a proxy for relationship norms.	- EvalPC(t) - EvalPC(t+1)

			H6a & H6b	- examine the underlying process – a cognitive one: disconfirmation process	- Measure perceived disconfirmation	- Disconfirmation (Oliver 1977, 1980; Zeelenber and Pieters 2004)
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**Table 3. Overview of the three studies**

The next chapter presents the first study to examine the responses to a product failure and preliminarily investigate the role of product emotional attachment. Specifically, to differentiating the effect of emotional attachment to a product compared to that of a service, study 1 manipulates a variable labeled ‘focus’, i.e. whether people’s focus is on the emotional attachment to the product or service component of the PSB. In doing so, emotional attachment was kept as high for both.

## **Chapter3. Study 1**

### **3.1 Introduction**

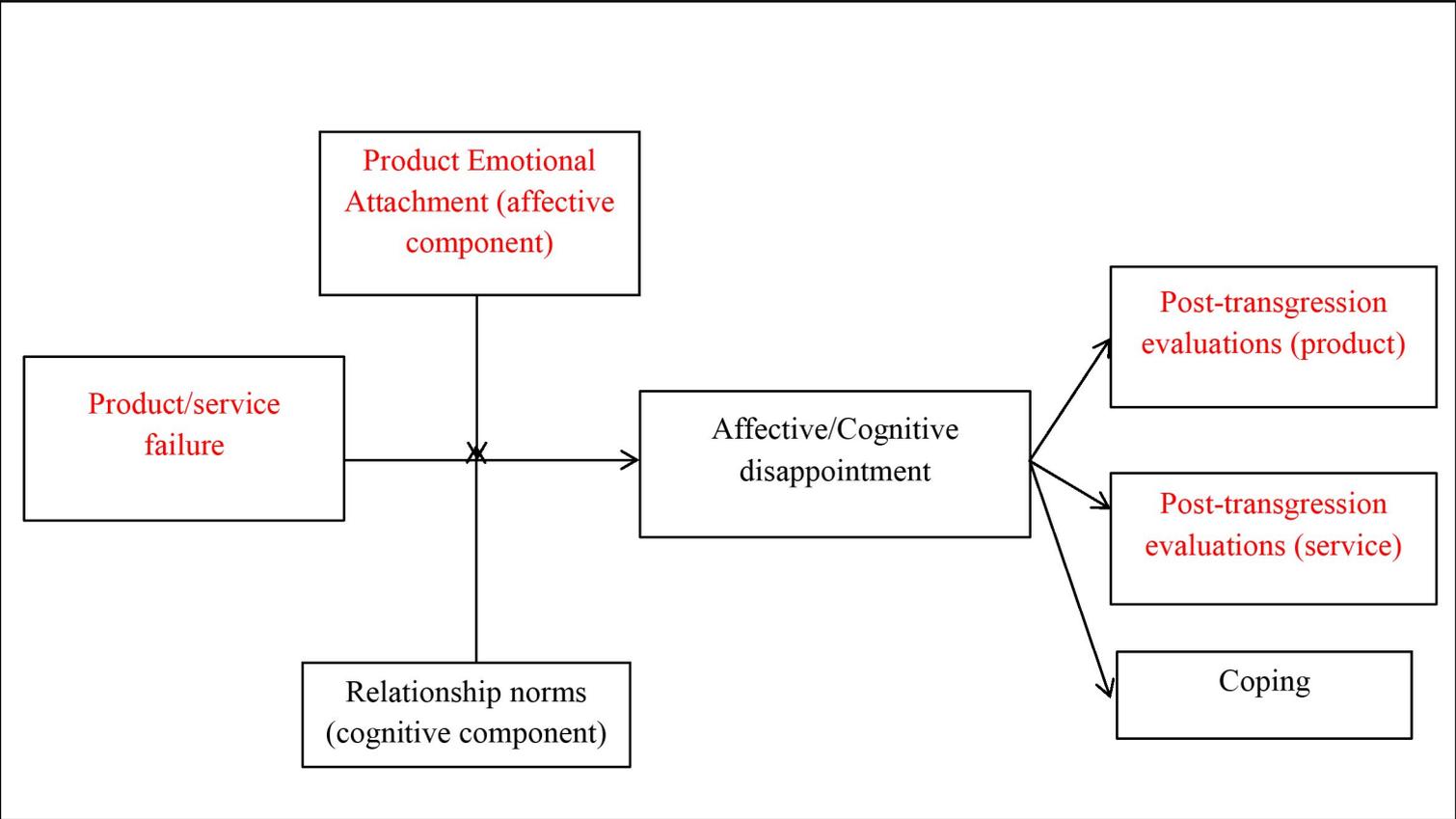
In study 1, we inspect the affective component of relationship, namely emotional attachment. To detangle the two components of the PSB (product and service), we first examined and compared how being emotionally attached to the product component versus to the service component might differently influence evaluations following a functional failure. Moreover, we previously argued that theoretically emotional attachment to the product component is likely to be stronger compared to attachment towards the service component. Study 1 allows us to examine this argument empirically as well. The chapter is organized as follows. First, the purpose of the study is outlined. Second, a conceptual development is provided which leads to the hypotheses tested in the study. Third, a methodology section discusses the design of the study, measures of constructs and the procedure of the experiment. Fourth, the data analysis reports the results, including manipulation checks, tests of assumptions and tests of the main effects. Finally, a discussion of the results and directions for the next study is presented.

**3.2 Purpose of the study**

The purpose of the first study is threefold. A goal of the study is to provide preliminary evidence that emotional attachment, the affective element of relationship, might bias consumers’ evaluations following a functional failure. Second, this study compares emotional attachment one shares with a product versus a service, and their influence on post-failure assessments. Third, Study 1 attempts to show that the effect of the affective component of relationship is pertinent to the individual and the product/service itself rather than with the brand.

**3.3 Conceptual Development and hypotheses**

The following section discusses the theoretical background for the hypotheses of the first study. Specifically, we discuss how relationship between the consumer and the offering might regulate their responses to a functional failure. In doing so, we compare emotional attachment to the product and the service in the PSB. In the main conceptual framework, the components that will be tested in study 1 are highlighted in red below (Figure 4).



**Figure 4. Study 1 – Conceptual Model**

### 3.3.1 Affective component of relationship: Emotional Attachment

Emotional attachment is a property of the relationship between a specific person and a specific object of possession (Kleine et al. 1995). Attachment is primarily considered as the degree of emotional bond between consumers and their psychologically appropriated consumption objects (Lastovicka and Sirianni 2011). Possessions that create strong attachments are more closely held to the proximal self and are more affectively charged than objects of lesser attachment (Ball and Tasaki 1992). Emotional attachment is one of the reasons for the endowment effect, a pattern in which the price people are willing to pay for a good is often less than the price they are willing to accept to give up the same good (Thaler 1980; Kahneman and Tversky 1980; Dommer and Swaminathan 2013). One of the reasons for the endowment effect is that people are less willing to give up possessions that they are psychologically attached to. Consumers become attached to their possession that they love (Ahuvia 2005, Lastovicka and Sirianni 2011), favorite things (Wallendorf and Arnould 1988), and special possessions (Price, Arnould and Curasi 2000). Past research suggests a strong link between emotional attachment and self-identity, such that individuals use attachment as part of self-definition (Ahuvia 2005; Belk 1988; Kleine et al. 1995; Shavitt, Torelli and Wong 2009). Other researchers (e.g. Bardhi, Eckhardt, and Arnould 2012) pointed out the conditions under which emotional attachment does not necessarily imply identity. This issue was discussed in the theoretical background section in Chapter 2.

### 3.3.2 The role of emotional attachment in responses to functional failure

In general, customer reactions to product failures or performance lapses include feelings of stress, irritation, annoyance, and anger (Hui and Tse 1996; Smith and Bolton 2002; Taylor 1994). However, one's response to a performance failure might change in its direction and might be determined by the strength of the relationship. Past research suggests that it is desirable for firms to pursue strong relationships with consumers (Keller and Lehmann 2006). While there is little research concerning the role of emotional attachment particularly, past research on consumer-brand relationship in response to a brand failure presents mixed findings.

Some past research found that strong emotional attachment leads to favorable responses to a performance failure. For example, brand love is found to be associated with

forgiveness of brand failures (Bauer, Heinrich, and Albrecht 2009). According to research on branding, a key benefit of strong consumer-brand relationships is their ability to help maintain brand attitudes in the face of negative information (Ahluwalia, Burnkrant, and Unnava 2000; Fournier 1998). Friends are often tolerant of one another's transgressions and are willing to forgive their occurrence (McCullough et al. 1998). This suggests that consumers will react less negatively to a service provider's failure if their relationship is built on friendship than if it is based on purely business (Goodwin 1996). In Wan, Hui, and Wyer (2011), when their attention is drawn to their own obligation in the relationship, however, the reverse is true. On the other hand, there is also evidence suggesting positive consequences of a strong consumer-brand relationship. Cheng et al. (2011) found that self-brand connection has positive effects on reactions to brand failures. Consumers who are connected with the brand raised evaluations towards the brand after the failure as a way to protect their self-concept (Cheng et al. 2011). In addition, strong consumer-brand bonds were found to mitigate the detrimental effects of negative experience (Brady et al. 2008; Tax, Brown and Chandrashekar 1998).

Another stream of research, on the other hand, shows evidence of negative consequences of strong relationships during a transgression. Friendship is not always beneficial (Wan, Hui, and Wyer 2011). In Wan, Hui, and Wyer's (2011) study, when consumers focus their attention on the provider's obligation to respond to their needs, they react more negatively to a service failure when they are friends of the provider than when they have only a business relationship with him or her. In fact, friendship with a provider can sometimes magnify the negative reactions that consumers experience when they fail to receive good service. Gregoire and Fisher (2008) recognized this possibility. For example, Johnson, Matear and Thomson (2010) show self-relevant consumer relationships as a potential liability. Specifically, a strong consumer relationship is more likely to lead to anti-brand behaviors after experiencing a failed relationship with the brand (Johnson et al. 2010). Johnson et al. (2010) draw the analogy between failed consumer-brand relationship with failed marriages, such that while most marriages presumably begin with something akin to love, many end badly in divorce plagued by hostility and spiteful behavior. Indeed, consumers with formerly strong relationships with a brand are often its harshest critics (Gregoire and Fisher 2006) and tend to express negative emotional responses (Hocutt 1999). The question is then, why is there empirical support for two opposite directions regarding the effects of a strong relationship on consumers' reaction to a product or service failure? What factors

determine which direction the effects will take? Wan et al. (2011), as mentioned above, found that perspective taking is one of those factors. Specifically, it is dependent on what the consumer is focusing on, and what perspective they are taking. For example, are they focusing on themselves, or the relationship partner?

In summary, existing research provides mixed findings with regards to the effect of emotional attachment on attitudes and decision making. Gregoire and Fisher's (2006) competing hypotheses, the "love is blind" and "love becomes hate", might summarize the two possible effects. The first hypothesis, "love becomes hate", predicts that emotional attachment should negatively affect evaluations of the product as a result of disappointment with the relationship partner. The second hypothesis, "love is blind", in contrast, expects that emotional attachment should positively affect product evaluations because the consumers are likely to forgive the product they are attached to. In the present research, to predict the direction of the effect, we conducted a pretest. The pretest is brief, yet is able to suggest which of the two effects should be expected. The purpose of the pretest is to gain initial understanding regarding reactions towards a product failure when the individual has a high emotional attachment towards the product. Due to certain constraints, we did not include emotional attachment in the pre-test. However, the pre-test allowed us to predict in general the influence of emotional attachment to a target on evaluations of this target following a functional failure. Ten individuals participated in this pretest. They were told that they would be doing 2 short writing tasks. The first writing task is in fact a priming task to induce product emotional attachment. Participants wrote about things they have done to customize their mobile phone. This priming method is supported by the literature stream in self-object link (Belk 1988; Fernandez and Lastovicka 2011). The rationale behind this priming approach is that when the individual customizes or personalizes a product, they are 'contaminating' the product with parts of their self, through which an emotional connection is developed (Belk 1988). The same manipulation will be used later in the main test. After participants finish the first writing task, they read a scenario in which their phone malfunctioned. The malfunction (i.e. the phone's camera was not working properly) was chosen so that it only pertains to the product itself, not to the service. In the second writing task, participants wrote about their feelings when facing with the functional failure. Results from the pretest show that most of the responses (90%) express negative feelings such as disappointment, frustration, anger. Based on the insights provided by the pretest, we propose in the present research the 'love becomes hate' hypothesis.

### *Emotional attachment to the product and service component in a PSB offering*

There is little research regarding consumers' emotional attachment with a service. Indeed, most of the research which examined emotional attachment in a service setting study emotional attachment between consumers and a service firm (Evanschitzky et al. 2006), service personnel (Vlacho, Theotokis, Pramadari, and Vrechopoulos 2009) or service brands (Jawahar and Maheswari 2009) rather than the service itself. One can question whether the consumer could develop emotional attachment with a service which involves little interaction with the firm or the firm's service personnel. This is important because, while many services are personnel intensive, customized to suit heterogeneous needs and preferences, jointly produced by both producer and customers (Lovelock, Magi, and Julander 1996; Shostack 1977, Gronroos 1990), other services might be less personnel intensive. Moreover, since the introduction of different online and electronic platforms, the interaction with the customer service personnel has significantly diminished for some industries. In the current context, a mobile network service requires little interaction between the consumers and the company or sales people. The question is then to what extent the consumers form an emotional attachment with the service itself. This question also applies to many other PSB industries where the primary product (e.g. phone, equipment, or car) is a tangible product and the service serves the facilitating function.

The extent of interaction and importance can explain for why a tangible component like a telephone, car or some rental equipment may lead to more attachment than the facilitating services offered in connection with acquisition and daily use. Compared to the intangible service component which involves little interpersonal interaction between the consumer and the employees, people are more likely to form a relationship to the product component, more likely to anthropomorphize it, and more likely to develop emotional attachment to it. With the telephone you can touch and hold, or even yell at, and has a constant physical presence, but the people behind automated services are definitely distant. We use the product by touching it, holding it or just being physically near it, whereas a service is more abstract and intangible. Physical proximity could enhance the forming and development of emotional attachment (Mishra 2009; Morales and Fitzsimons 2007). These factors in turn could bias the way people make attributions of responsibilities in a functional failure; that is, influence how evaluations of the two elements will be regulated. This study

predicts that emotional attachment to the service component, even when being manipulated as high, is still lower than emotional attachment to the product component. As a result, even at its high level, emotional attachment to the service component is not sufficient to bias evaluations of the service, therefore creates no difference between evaluations of the product and service in the PSB.

To compare the effect of emotional attachment to a product versus service empirically, study 1 manipulates a variable labeled *focus*. The study manipulates whether the participant focuses on their emotional attachment to the product versus the service in the PSB. In the product (service) focus condition, participants wrote about things that they have done to customize their phone (service). The writing task aims to make salient participants' emotional attachment to either the product or the service component of the PSB. This manipulation serves two purposes. First, it allows us to compare emotional attachment to the product versus the service component in the PSB. We did this by measuring emotional attachment to the product and service component in the PSB in their salient state. Second, the manipulation allows us to examine the effect of emotional attachment to the product and service component on respondents' attributions of responsibility for the functional failure. That is, if emotional attachment to the product versus service component was made salient, will that affect product versus evaluations after the failure? Formally, we predict the following:

H1a: In the event of a functional failure, evaluations of the product component will be **more negatively affected** than evaluations of the service component when focus is on the attachment to the product component.

H1b: In the event of a functional failure, evaluations of the product component will be **equally affected** compared to evaluations of the service component when the focus is on the attachment to the service component.

Moreover, we propose that the effect hypothesized is pertained to the emotional attachment between the individual and a specific product, the tangible object, rather than a brand. To do that, this study includes a moderator, self versus other, while keeping the brand constant. If the effect is driven by brand relationship or self-brand connection rather than one's relationship with a specific owned product, the effect should be observed when the incident occurs to an 'other' person as well. Testing self versus other therefore helps to isolate

the effect of product relationship from brand relationship. Therefore, the effect is not likely to take place if the product belongs to another individual, even though the brand of the product and service component is the same. This research proposes that:

H2: The effect stated in H1a only occurs when the failure happens to oneself, not to someone else.

### **3.4 Methodology**

#### **3.4.1 Stimulus Development**

Study 1, as well as the other studies to follow, employs a scenario approach. The scenario method is a research instrument in which respondents read a scenario and answer questions that follow. The validity of scenarios and the similarity of results between laboratory research and role-playing studies has been well documented (Bem 1967). The scenario method is advocated by many researchers and has been applied extensively in consumer behavior. We acknowledge the drawbacks of scenario approach in experimental research, and thus care was taken to improve the effectiveness of the approach. The value of a scenario approach depends heavily on the subject's ability to project him/ herself into the situation, therefore much time and effort were expended to develop a realistic scenario. Based on previous research on scenarios (Eroglu 1987), certain steps were taken to avoid intellectually or socially desirable responses. Specifically, participants were also told that "there are no right or wrong answers" and that it was important to express how they really felt (Dabholkar 1994). They were asked to imagine themselves in a described scenario. They were instructed to "pay attention to what happened, and to whom did the incident happen" when they read the scenario. They were told that "it is very important that you read the text thoroughly" because they will answer subsequent questions afterwards.

The scenario is as follow: "In the past few days, you (vs. a classmate of yours) have (has) been experiencing some problems when using your (his/her) phone (subjects' real phone brand inserted here). Whenever you (s/he) send(s) someone a message, the text is not delivered to the person you intend to contact; instead it is sent to the previous contact in your message list. As a result, all of your (his/her) messages are sent to the wrong people. You (S/he) always have (has) to call the person and explain the problem. You (S/he) are (is)

thinking whether the problem is with your (his/her) (subjects' phone brand) phone or with your (his/her) network service (subject's network service brand)".

### 3.4.2 Research Design

#### 3.4.2.1 Design

Study 1 employs a 2 focus (phone vs. network service) x 2 (self vs. other) between-subjects factorial design. We manipulate the *focus* such that participants either focused on their emotional attachment to the product or the service component. In both conditions, emotional attachment was induced. This would allow for the comparison of product versus service emotional attachment and their hypothesized effects on evaluations, if any. Our prediction is that emotional attachment one has with the product component is likely to be higher compared to emotional attachment to the service component in the PSB. Therefore, even when the service emotional attachment is activated, this study predicts that it might not regulate evaluations following a functional failure. Moreover, to show that the effect pertains to one's specific possession rather than a brand that can be shared among individuals, this study manipulates self vs. other; that is, whether the negative event occurs to oneself or to another person. If subjects in the 'other' condition do not allow emotional attachment to affect their evaluations that would suggest that the mechanism underlying the effects is more about the relationship to the specific product one owns than about the connection to the more abstract brand.

#### 3.4.2.2 Manipulation

The focus variable is manipulated with the main purpose of eliciting product emotional attachment versus service emotional attachment. To stimulate emotional attachment, participants wrote about things that they have done to customize their phone or network service. As mentioned earlier, this approach is supported by the literature stream in self-object link (Belk 1988; Fernandez and Lastovicka 2011). Particularly, when the individual customizes or personalizes a product, they are 'contaminating' the product with parts of their self, through which an emotional connection is developed (Belk 1988). This process is also referred to as contamination, through which both good and bad aspects of objects are seen to

attach to us through physical contact or proximity (Belk 1988). We invest “psychic energy” in an object to which we have directed our efforts, time, and attention (Fernandez and Lastovicka 2011). Having participants writing about what they have done to customize their product or service component of the PSB would activate or in other words, make salient, the emotional attachment with the component.

The self vs. other manipulation was employed such that a negative incident occurs to either the participant (i.e. self) or a classmate (i.e. other). A classmate was chosen instead of a friend or a family member because the latter might be considered as part of the self (Aron, Aron and Smollan 1992; Ward and Broniarczyk 2011).

### 3.4.2.3 Measurements

Several scales were used to measure different constructs in study 1.

#### *Dependent Variables*

Dependent variables in this study include evaluations of the phone and evaluations of the network service. We measured evaluations of the phone and network service with five items on a seven-point scale (positive-negative, favorable-unfavorable, good-bad, desirable-undesirable, like-dislike). In addition, we measured several behavioral intentions, including likelihood to recommend this phone/network service, sell the phone, and give away the phone. For these behavioral intentions, answers were on a seven-point scale, with 1 as ‘very unlikely’ and 7 as ‘very likely’. Moreover, existing evaluations and behavioral intentions were captured. They were measured on the same scale as post-failure evaluations and behavioral intentions.

#### *Independent variables*

Study 1 manipulates an independent variable, which is focus, i.e. whether the individual is emotionally attached to the product or service. Manipulation checks were carried out for the focus (phone vs. network service) as well as the self vs. other manipulations. Answers to the question “when you were writing about things you have done to customize

your phone/network service, to what extent did it make you focus on the phone (vs. network service)?" serve as a manipulation check for the focus manipulation.

In addition, emotional attachment is measured, in order to compare emotional attachment to the product versus the service. Emotional attachment was measured with three items: "I am emotionally attached to my phone (vs. my network service)", "My phone (vs. network service) is important to me", and "Sometimes I feel like my phone (vs. my network service) is more than just an object" ( $\alpha = .87$ ). The last item tapped into the anthropomorphism aspect of emotional attachment.

### *Moderator*

The self vs. other manipulation was checked by two questions: When reading the scenario, to what extent did you feel the incident was happening to you? To what extent did you feel the incident was happening to your classmate? Participants answer on a seven-point scale, with 1 as 'not at all' and 7 as 'very much'. Moreover, the participants were asked how negative they feel the described situation is (1- very negative, 7 – very positive).

### *Other potential moderators*

Several potential moderators were measured and later incorporated into the analysis. These include self-brand connection, mood, and other variables that concern the usage of the telecom product and service.

*Self-brand connection.* It is important to capture Self-Brand Connection, since it is necessary to separate the effect of the connection between an individual and a brand in general or connection to a specific product. If the effect is due to self-brand connection but not product emotional attachment, the effect should also be observed in the 'other' condition if the 'other' person use the same brand of product as oneself. Participants' self-brand connection is assessed by Escalas and Bettman's (2005) Self-Brand Connection scale. This scale consists of several items: 'This brand reflects who I am', 'I can identify with this brand', 'I feel a personal connection to this brand', 'I can use this brand to communicate who I am to other people', 'I think this brand could help me become the type of person I want to be', 'I consider this brand to be "me" (it reflects who I consider myself to be or the way that I want to present myself to others)', 'This brand suits me well'.

*Mood.* We measured participants' mood by asking them how they felt at that moment. Both positive and negative mood was included: excited, enthusiastic, happy, cheerful, pleasant, frustrated, annoyed, troubled, angry, and/or mad. Mood is measured after the Dependent variables, product and service evaluations and other behavioral intentions. Mood was captured early in order to capture the right mood of experiencing the negative event.

*Other moderators.* Participants answered a series of questions regarding their phone and network service consumption. First, participants indicated how long they have been using their current phone and how long they have been using their current network service. Moreover, they were asked whether they are using prepaid or a subscription plan. Additionally, if they are using a subscription plan, how long they are in the contract and whether they will get the same subscription plan when the contract is over. Furthermore, they provided information where they purchased their phone. This is because if they bought the phone from the network service, their evaluations of the phone might be affected by those of the network provider.

### 3.4.3 Research Procedure

#### 3.4.3.1 Participants

Eighty-seven participants from a large North American university participated in the lab experiment for a \$5 compensation. The subject pool consists of students as well as professionals working in the university. The use of a sample comprising of mainly students is not without drawbacks. For example, student samples have been criticized to be not representative of the population. As they represent a sample that is different from nonstudents, students should respond differently from nonstudents in certain social science research studies (Carlson 1971, Frieze, Sales, and Smith 1991, and Sears 1986). However, the use of student sample in the present research might not affect the validity of the findings. Specifically, in the context of the present research, students are already consumers. With the exception of one participant who was removed from the data analysis later on, all participants own a mobile phone. Hence, the results from study one and the other studies to follow, should be generalizable. Furthermore, in general, students represent the upcoming generation of consumers. In fact, most of the research in consumer behavior is conducted among student samples. In addition, the product (i.e. the phone) and consumption situation (i.e. the consumption of a PSB) in the current research are, in general, relevant to the population.

### 3.4.3.2 Procedure

Students were informed that they were going to complete several unrelated studies conducted by different researchers in the marketing department of the business school.

*Part 1.* The first study that participants completed is a product and service evaluations task. This study is masked as a separate study conducted by another researcher in a joint project with a market research company. Participants were told that the purpose of the study is to understand consumers' satisfaction with a variety of products and services they use in their daily life. Participants were asked to evaluate several products and services. Among filtering products and services are the mobile phone and network service. The purpose was to measure existing attitudes and evaluations of the PSB of interest. Other products and services were filtered to mask the study as a separate and unrelated one, hence minimizing its influence on participants' evaluations in the subsequent studies.

*Filler task.* After finishing the first study, subjects moved on to the second study, labeled 'advertisements evaluations', which is in fact a filler task before the main study. Participants evaluated a series of ads in terms of their creativity and effectiveness. The ads are from brands such as Ikea, Scotch, Samsonite, etc. The chosen ads are neutral, not related to technology and do not evoke any emotional responses. The filler task between the first and the main study was used with the goal that participants' responses in the main study would not be affected too strongly by their indications of evaluations in the first study. Also, the purpose of the filler task was to reduce the likelihood that participants would perceive a connection between the initial attitude and latter questions subsequent to the negative event scenario.

*Main test.* After the filler task, subjects completed the main study. First they indicated the brands of their mobile phone and network service. Then, participants were exposed to the 'focus: emotional attachment to product versus service' manipulation. Participants were randomly assigned to one of the two conditions. Specifically, as described in the manipulation section, in the phone focus condition, they were shown a list of things that one can do to customize their phone (e.g. I got a case for my phone, I customized a background picture, I got my own ringtone, etc.). Participants were asked to select things that they have customized on their phone. In the network focus condition, a list of things that one can do to customize

their network service was shown (e.g. I use a family package; I chose the package with a certain number of texts, etc.). Participants selected things that they have done to customize their network service. Later, they completed a writing task within five minutes. On a piece of paper provided to them, participants wrote about the things that they have selected earlier. They were instructed to think about how these things (to customize) have made their phone (vs. network service) unique to them. With this manipulation the aim was to heighten the level of emotional attachment to either the product or service while manipulating the focus that people had either on the product or service.

Once the participants completed the writing task, participants read a scenario. At this point they were exposed to the ‘self versus other’ manipulation. Participants were asked to imagine themselves in the scenario. They were asked to pay attention to what happened and to whom the incident happened. Respondents were instructed to read the scenario carefully in order to answer several questions afterwards. The scenario was described in detail in order to make the experience vivid to participants. Participants were asked to summarize the scenario afterwards as an attention check. They also responded to several open-ended questions about what happened and to whom did the incident happen. Also, they shared their thoughts about the cause of the problem, whether it was due to the phone, or the network service, or both. This perceived cause serves as an additional Dependent Variable.

After describing the scenario, we measured evaluations of the phone and network service (with five items on a seven-point scale: positive-negative, favorable-unfavorable, good-bad, desirable-undesirable, like-dislike). In addition, the study measured several behavioral intentions, including likelihood to recommend this phone/network service, sell the phone, and give away the phone. In addition, to distinguish between emotional attachment to a product/service and with a brand, the study also measured repurchase intentions of the same product/ service or products/services from the same brand. The order of evaluations was counterbalanced; i.e. we alternated the positions of phone evaluations questions and network service evaluations questions. The purpose of this alternation is to ensure that participants did not assume that the phone is the cause of the problem if it is presented first, or that the network service is the cause of the problem if it is presented first.

Finally, participants were asked what the purpose of the study is. This suspicion probe shows that none of the participants guessed the hypotheses. Demographic information

includes gender, age, and whether English is their first language. At the end of the experiment, participants were debriefed, paid, thanked and released.

### 3.5 Results

One participant reported not having a mobile phone, and four participants failed to summarize the scenario. Their responses were removed, leaving 82 (38 males) subjects in the sample for data analysis.

#### 3.5.1 Manipulation checks

Both the focus (phone vs. network service) and the (self vs other) manipulation were shown to be successful. For the focus manipulation, the focus on the phone was higher in the phone condition than the network service condition (4.11 vs. 2.53;  $F(1, 81) = 28.1, p < .001$ ), while the focus on the network service was higher in the network service condition compared to the phone condition (4.47 vs. 2.05;  $F(1, 81) = 64.5, p < .001$ ). Regarding the self vs. other manipulation, participants in the ‘self’ condition feel the incident happening to the self more than those in the ‘other’ condition (3.95 vs. 2.29;  $F(1, 81) = 19, p < .001$ ), while subjects in the ‘other’ condition feel the incident happening to their classmate more than those in the ‘self’ condition (4.5 vs. 2.9;  $F(1, 81) = 36, p < .001$ ). In addition, the scenario was perceived to be negative:  $M = 2.24, SD = 1.12$  (with 1 as negative, 7 as positive on the scale).

#### 3.5.2 Tests of Assumptions

There are several general assumptions that apply to all of the parametric techniques, including the two-way analysis of variance (ANOVA) and t-tests that are employed in this research. They include: level of measurement, random sampling, independence of observations, normal distribution and homogeneity of variances. These assumptions are described below.

*Level of measurement:* dependent variable is measured on a 7-point Likert scales. These scales are ordinal scales, as the difference between two levels of the scale cannot be assumed to be the same as the difference between the two other levels.

*Random sampling:* using a random sample from the population. Subjects in all studies in the present research were recruited from the paid pool in the business school. This pool comprised of members that are recruited randomly. "A few dropped out after registration and no systematic characteristics of those who dropped out were found. The assumption of random sampling is thus fulfilled.

*Independence of observations:* this assumption requires that there is no relationship between the observations in each group or between the groups themselves. For example, there must be different participants in each group with no participant being in more than one group. This is more of a study design issue. A between-subjects design used across three studies in the current research ensures the independence of observations.

*Normal distribution:* dependent variable should be approximately normally distributed for each category of the independent variable. This will be tested using statistical analyses, such as Shapiro-Wilk test. If the significance values for the dependent variables for each level of independent variables is greater than .05, the assumption of normal distribution is not violated.

*Homogeneity of variances.* This assumes that samples are obtained from populations of equal variances. This means that the variability of scores for each of the groups is similar. Levene's test can test for homogeneity of variances. If the significance value for Levene's test is greater than .05, this means that we have not violated the assumption of homogeneity of variance.

### 3.5.3 Preliminary analyses

Analysis of the number of words written reveals no difference in task difficulty ( $M_{\text{product focus}} = 79.58$  vs.  $M_{\text{service focus}} = 81.5$ ,  $t(81) = -.28$ ,  $p = .777$ ). Physical proximity that consumers perceive with their product component is higher than with the service component (5.64 vs. 4.06,  $t(82) = 8.94$ ,  $p < .001$ ).

*Test of normality.* Normality was tested using Shapiro-Wilk test for each cell of the conditions and each dependent variable. The results show that assumption of normality is not violated for product evaluations, with significance values as follows: product focus (.264), service focus (.063), self (.24), other (.072). For service evaluations, the assumption of normality is not violated for product focus (.131) and self (.162), however is violated for

service focus (.045) and other (.002). Fortunately, ANOVA is not very sensitive to moderate deviations from normality. Simulation studies, using a variety of non-normal distributions, have shown that the false positive rate is not affected very much by this violation of the assumption (Glass et al. 1972, Harwell et al. 1992, Lix et al. 1996).

With regards to the Levene's test for homogeneity of variances, results will be reported along with the main effect test below.

#### 3.5.4 Hypothesized effects

Before analyzing the hypothesized effects, i.e. how focusing on one's emotional attachment to the product versus the service component influence how much evaluations are affected by a functional failure, we compare product emotional attachment and service emotional attachment. The 'focus' manipulation aims to heighten emotional attachment to the two, i.e. the product and service component. However, given the distinction between the service and product component in a PSB as discussed in the theoretical section, it is unknown whether the high level of attachment to a service can be higher than that of the product. Paired t-tests show that in the product focus condition, product emotional attachment is higher than service attachment ( $M_{\text{product attachment}} = 4.03$ ,  $M_{\text{service attachment}} = 1.76$ ,  $t(37) = 6.56$ ,  $p < .001$ ). In the service condition, surprisingly, product attachment is also higher than service attachment, although the difference is smaller than in product focus condition ( $M_{\text{product attachment}} = 3.69$ ,  $M_{\text{service attachment}} = 3$ ,  $t(44) = 2.98$ ,  $p = .005$ ). A one-way ANOVA was run with focus (phone vs. service focus) as the independent variable, and product emotional attachment and service emotional attachment as dependent variables. The results show that focus has a significant effect on service emotional attachment ( $F(1,82) = 16.92$ ,  $p < .001$ ), and on product emotional attachment ( $F(1,82) = 10.21$ ,  $p = .024$ ). That is, product attachment is higher in the product focus condition compared to the service focus condition. Service attachment is higher in the service focus condition compared to product focus condition. Interestingly, even when participants were primed to focus on the emotional attachment to a service, it is still lower than product attachment. One way to explain this is that participants in this condition already have a strong attachment to their product. The effect of the manipulation in this study is rather complex, leading to the complication in dismantling the effects of the independent variables (i.e. product emotional attachment and service emotional attachment). However, this manipulation is necessary as it is important to understand the complexity of PSBs. Results

from study 1 provide useful insights regarding emotional attachment towards the product component compared to the service component in the PSB. The results are generalizable to other PSB offerings where the product component is more dominant because of its importance and the constant physical presence. The effects of the magnitude of emotional attachment will be examined in Study 2, as reported in a later section.

### **The role of focus and emotional attachment**

Before running the main test, Levene’s test was run to check for homogeneity of variances. Results from Levene’s test show that assumption of homogeneity of variances is not violated, as significance value for product evaluations and service evaluations are both larger than .05 ( product evaluation: .265, service evaluation: .713).

Both pre- and post- failure evaluations (i.e. EvalPC(t), EvalPC(t+1), EvalSC(t), and EvalSC(t+1)) were taken into account in the analyses. Comparisons between pre- and post-failure evaluations were conducted separately in the ‘self’ and ‘other’ condition. The aim of this comparison is to understand the extent to which the individuals adjusted their evaluations of each PSB component following the product/service failure. In other words, we are interested to examine to what extent evaluations of the product and service component are affected by the functional failure, and whether this ‘decay’ varies depending on consumers’ focus. Recall that in the ‘other’ condition, participants evaluated someone else’s PSB components, while the pre-failure evaluation was that of their own PSB. However, as the brand was the same, comparing pre-and post-failure evaluations allow the examination of whether the effects, if any, were caused by the specific PSB component or the brand. Table 4 displays the mean scores of evaluations before and after the functional failure across experimental conditions (i.e. product focus vs. service focus, self vs. other).

	Product focus				Service focus			
	EvalPC(t)	EvalPC(t+1)	EvalSC(t)	EvalSC(t+1)	EvalPC(t)	EvalPC(t+1)	EvalSC(t)	EvalSC(t+1)
Self	5.48 (1.34)	3.03 (1.23)	4.49 (0.98)	4.06 (1.63)	5.2 (1.29)	3.84 (1.34)	5.33 (1.3)	4.53 (1.54)
Other	5.57 (1.66)	4.47(1.79)	4.51(1.38)	4.15(1.44)	5.44(1.3)	3.99(1.58)	4.91(1.58)	3.87(1.67)

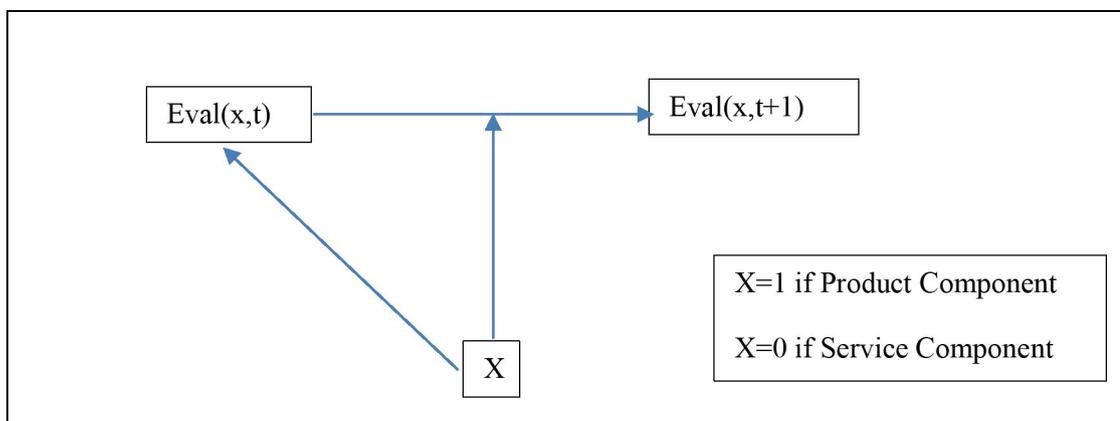
**Table 4. Mean scores of evaluations**

### *Functional failure occurring to oneself*

We start our analyses with a regression analysis. The aim of the regression analysis was to determine which component of the PSB, product or service, was more sensitive to the functional failure and whether this sensitivity is influenced by the manipulated variable (focus: i.e. whether the participant focused on their emotional attachment towards the product versus service component). The model in figure 5 illustrates the conceptual idea for the regression analysis. The larger the effect of Eval (t) on Eval (t+1), the less sensitive the component to the functional failure is. In other words, the smaller regression coefficient ( $\beta$ ) is, the more sensitive the component to the failure. To determine whether the difference between  $\beta$ s is significant, we calculated the Z score according to the following formula:

$$Z = (b_1 - b_2) / \text{SQRT}(SE_1^2 + SE_2^2)$$

With  $b_1$ ,  $b_2$  is the unstandardized regression weights, and SE is the standard errors of these unstandardized regression weights.



**Figure 5. Conceptual ground for regression analyses**

Results from regression analysis show that in the ‘product focus’ condition, the effect of evalPC (t) on evalPC (t+1) is not significant ( $\beta = 0.249$ ,  $p > .05$ ). For the service component, in contrast, the effect of evalSC (t) on evalSC (t+1) is significant ( $\beta = 0.541$ ,  $p = 0.009$ ). This result shows the initial evidence that the product component (PC) is more sensitive to the product failure compared to the service component ( $\beta(PC) < \beta(SC)$ ). In the service focus condition, evalPC(t) has a marginally significant effect on evalPC(t+1) ( $\beta = 0.45$ ,  $p = 0.06$ ),

while EvalSC(t) significantly influences EvalSC(t+1) ( $\beta = 0.58, p = 0.013$ ). Z-score for the  $\beta$ s difference across conditions is as follows:

Condition	b1 (EvalPC)	b2 (EvalSC)	SE <sub>1</sub>	SE <sub>2</sub>	Z-score	p value
Product focus	0.229	0.89	0.199	0.311	-1.8*	0.072
Service focus	0.47	0.68	0.23	0.24	-0.628	0.5

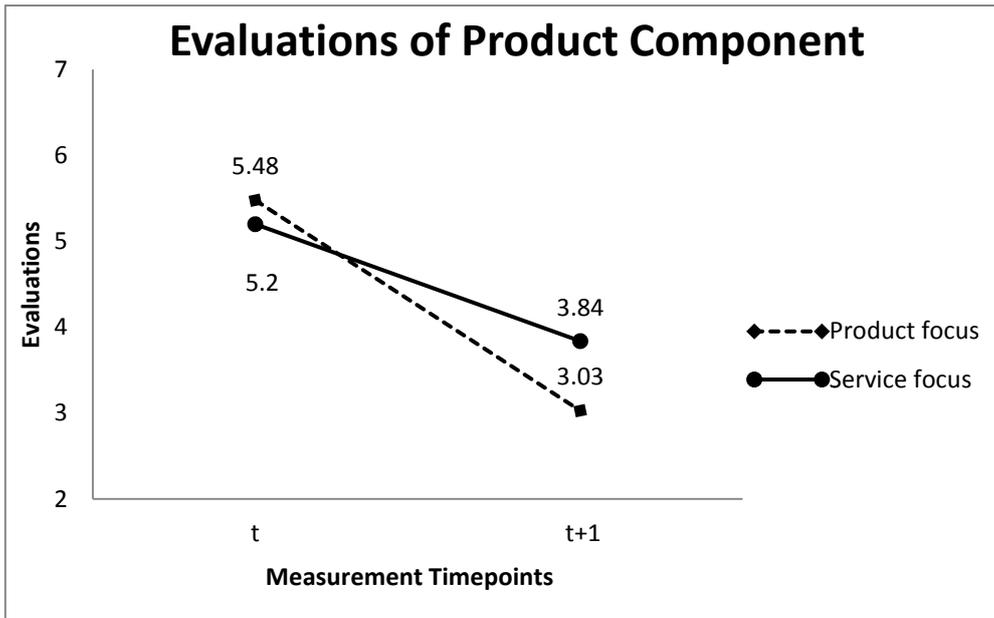
\* significant at 90% confidence level

**Table 5. Regression analysis results**

A marginally significant Z-score ( $p = .07$ ) indicates that the extent of ‘decay’ caused by the functional failure was different for the product and service component in the ‘product focus’ condition. Specifically, when the focus was on emotional attachment to the product, the product component was more negatively affected than the service component. **Hypothesis 1a was supported.** In the ‘service focus’ condition, on the contrary, the extent of ‘decay’ is not statistically different between evaluations of the product and service component. **Hypothesis 1b was supported.**

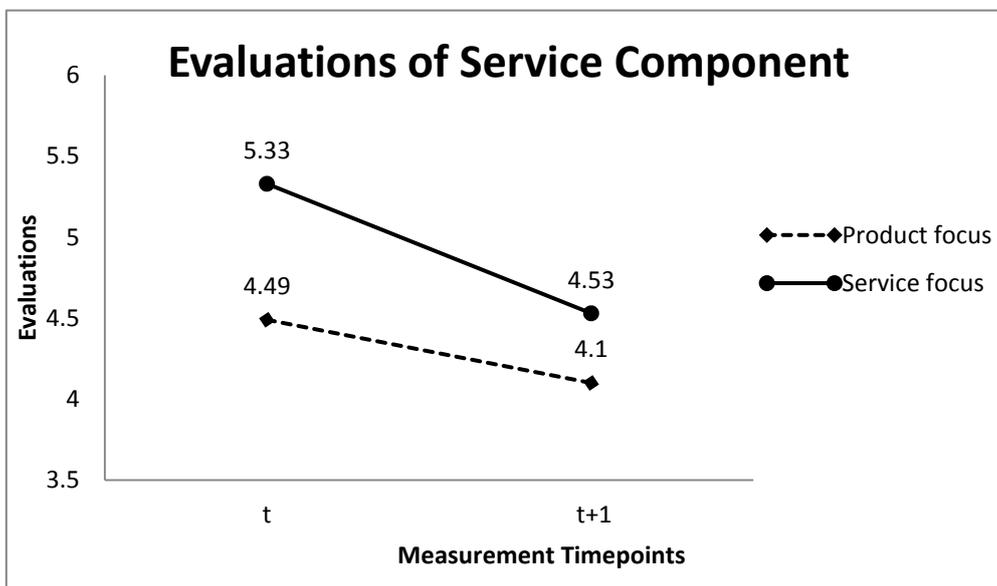
Additional analyses: Mixed-model ANOVA analysis

We use time points of measurement to account for evaluation differences between the product and service components before and after the scenario treatment. As noted earlier, time (t) denotes the time of measurement of evaluations before the functional failure, and time (t+1) denotes the time of measurement of evaluations after the failure. A mixed-model repeated measures ANOVA was run with time of measurement (t and t+1) as the within-subjects factor, and focus (product attachment vs. service attachment) as the between-subjects factor. Results revealed a significant main value of time of measurement ( $F(1,38) = 67.63, p < .001$ ) and a significant interaction effect of time of measurement and focus ( $F(1,38) = 5.56, p = .024$ ).



**Figure 6. Product evaluations (EvalPC) across conditions**

For EvalSC, only a main effect of time of measurement was shown ( $F(1,38)=7.93, p = .008$ ), suggesting a change in evaluations of the service component following the functional failure.



**Figure 7. Service evaluations (EvalSC) across conditions**

*T-tests analysis – Comparison of pre- and post-failure evaluations*

To further examine how evaluations of the two components, t-tests were conducted to compare the means of evaluations before and after the functional failure. That is, we compared means of Eval(t) and Eval(t+1). T-tests results are reported below.

Paired t-tests were conducted for pre- and post-failure product evaluations as well as service evaluations across two conditions, product focus and service focus. Paired t-tests results show that in the product focus condition, product evaluations decreased ( $M_{EvalPC(t)} = 5.48$ ,  $M_{EvalPC(t+1)} = 3.03$ ,  $t(21) = 6.7$ ,  $p < .001$ ). Service evaluations also decreased, although the difference is only marginally significant ( $M_{EvalSC(t)} = 4.49$ ,  $M_{EvalSC(t+1)} = 4.06$ ,  $t(21) = 1.46$ ,  $p = .1$ ). In the service focus condition, both product and service evaluations decreased, with the difference being significant (product evaluations:  $M_{EvalPC(t)} = 5.2$ ,  $M_{EvalPC(t+1)} = 3.84$ ,  $t(17) = 4.17$ ,  $p = .001$ ; service evaluations:  $M_{EvalSC(t)} = 5.33$ ,  $M_{EvalSC(t+1)} = 4.53$ ,  $t(17) = 2.55$ ,  $p = .021$ ).

To determine which PSB component was more negatively affected by the functional failure across conditions, effect size of the effects was calculated. Effect size of paired t-tests was calculated according to the formula:  $r = \sqrt{t^2/(t^2+df)}$ . Cohen (1988, 1992) has suggested the following threshold for interpreting effect size  $r$ :  $r = 0.10$ : small effect,  $r = 0.30$ : medium effect,  $r = 0.50$ : large effect. Table 6 summarized the effect size for product and service evaluations across conditions.

	Product focus				Service focus			
	Eval(t)	Eval(t+1)	Sig. Value	Effect size (r)	Eval(t)	Eval(t+1)	Sig. Value	Effect size (r)
Product Evaluations (EvalPC)	5.48	3.03	<.001	0.83	5.2	3.84	.001	0.71
Service Evaluations (EvalSC)	4.49	4.1	.1	0.3	5.33	4.53	.021	0.53

**Table 6. Effect size (r) of pre- and post-failure evaluations difference**

The effect with the largest effect size was the decrease of product evaluations in the product focus condition ( $r = 0.83$ ). When the focus was on the product attachment, the reduction of service evaluations was indicated by a medium effect size ( $r = 0.3$ ). In the service focus, there was a drop in both product and service evaluations. The effect size values suggested a high practical significance for these effects (EvalPC:  $r = 0.71$ ; EvalSC:  $r = 0.53$ ). Effect size values suggest that regardless of whether the focus was on the product or service attachment, evaluations of the product component seem to be more sensitive to the functional failure. That is, compared to the service component, evaluations of the product component dropped more after the functional failure. Moreover, product evaluations appeared to be most sensitive to the failure when the focus was on product emotional attachment.

*Functional failure occurring to someone else ('other' condition)*

In an attempt to isolate any effects as specific to product/service attachment and to brand attachment, we carried out analyses for the “other” condition; that is, when the functional failure occurred to someone else. Recall that our Hypothesis 2 predicts that the effects hypothesized in H1a (i.e. evaluations of the product component would be more negatively affected than the service component if the focus was on the product attachment) when the functional failure occurs to oneself, but not to someone else. This means that we should be able to detangle the effect of product/service attachment, i.e. that of a specific product or service that one possesses, and brand attachment. If our prediction in H2 is true, results should show that in the ‘other’ condition, regardless of the focus, the decay of evaluations of the two components would not differ. This is what our results revealed. A regression analysis with EvalPC(t+1) as the dependent variable and EvalPC(t) as the independent variable shows that when one focused on the emotional attachment to their product component, EvalPC(t) has a marginally significant effect on EvalPC(t+1) ( $\beta = .482, p = .069$ ). The effect of EvalSC(t) on EvalSC(t+1) was not significant ( $\beta = .20, p < .05$ ). The Z-score ( $z = .98, p > .05$ ) however shows that the two  $\beta$ s were not statistically different from each other. The degree of “decay” due to the functional failure was not different between evaluations of product and service component. In the service focus condition, EvalPC(t+1) was not significantly influenced by EvalPC(t) ( $\beta = .137, p > .1$ ). EvalSC(t+1) however was affected by EvalSC(t), although the effect is only marginally significant ( $\beta = .348, p = .07$ ). Z-score ( $0.68, p > .05$ ) shows that the difference between the two  $\beta$ s was not statistically significant. **H2 was supported.**

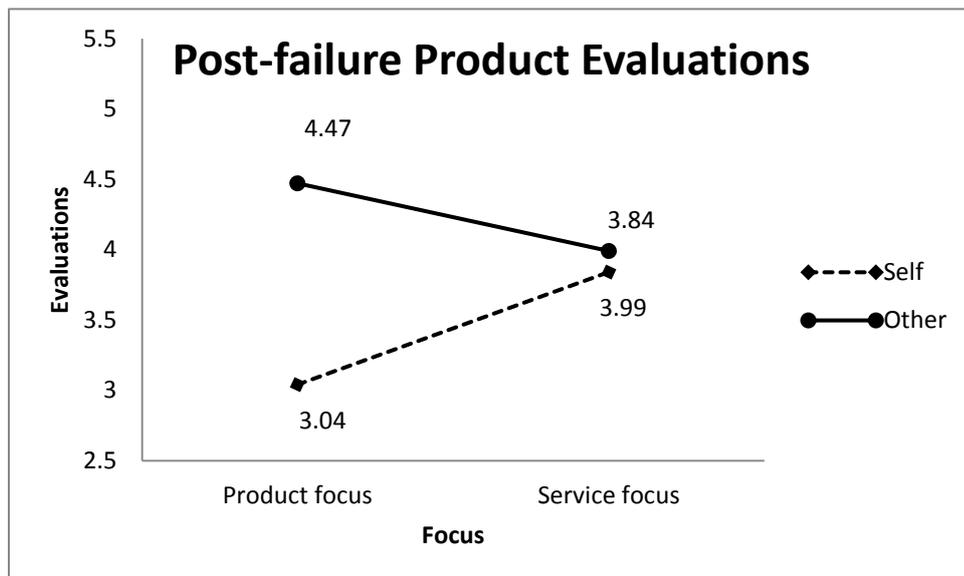
	b1(EvalPC)	b2 (EvalSC)	SE <sub>1</sub> (EvalPC)	SE <sub>2</sub> (EvalSC)	Z-score	p-value
Product focus	.521	.212	.263	.284	.98	.33
Service focus	.167	.368	.241	.168	0.68	.49

**Table 7. Regression analysis results in ‘other’ condition**

To deeper understand the effects specific to the emotional attachment to a particular product/service or to brand connection, we examined evaluations across experimental conditions.

*Post-failure product evaluations and service evaluations across conditions*

Results from ANOVA tests show that for evaluations of the phone, there is a significant main effect of self vs. other ( $F(1, 78) = 5.46, p = .022$ ). Importantly, there is a marginally significant interaction effect of Focus and Self vs. other ( $F(1, 78) = 3.68, p = .059$ ). Figure 8 demonstrates the interaction effect from the ANOVA test.



**Figure 8. Interaction of attachment and self vs. other on post-failure product evaluations.**

Table 8 displays the descriptive results of EvalPC across conditions. When the product/service failure occurs to oneself, product evaluation is lower in the product focus compared to the service focus ( $M_{\text{product focus}} = 3.04$ ,  $M_{\text{service focus}} = 3.84$ ,  $F(1, 38) = 3.95$ ,  $p = .05$ ). When the failure happens to another person, there is no significant difference in product evaluations ( $M_{\text{product focus}} = 4.47$ ,  $M_{\text{service focus}} = 3.99$ , *NS*). Moreover, when the focus is on the phone, i.e. emotional attachment to the phone is activated, phone evaluations are lower if the negative event occurred to oneself compared to when it occurred to someone else:  $M_{\text{self}} = 3.04$ ,  $M_{\text{other}} = 4.47$ ,  $F(1, 35) = 8.36$ ,  $p = .007$ . When the focus is on the network service, phone evaluations are not significantly different between self and other conditions ( $M_{\text{self}} = 3.84$ ,  $M_{\text{other}} = 3.99$ , *NS*). This result shows that the effect of emotional attachment is limited to a self-related process. As the same brand is used in both oneself and somebody else condition, this shows that the emotional attachment relates to an owned specific object rather than a brand.

	Self	Other
<b>Phone focus</b>	<b>3.04 (1.22)</b>	<b>4.47 (1.79)</b>
<b>Service focus</b>	3.84 (1.34)	3.99 (1.58)

**Table 8. Breakdown of Interaction effect on product evaluations**

Results from ANOVA tests show no significant main effect or interaction for evaluations of the network service. Descriptive results were summarized in table 9.

	Self	Other
Phone focus	4.06 (1.62)	4.15 (1.44)
Service focus	4.53 (1.54)	3.87 (1.67)

**Table 9. Breakdown of Interaction effect on service evaluations**

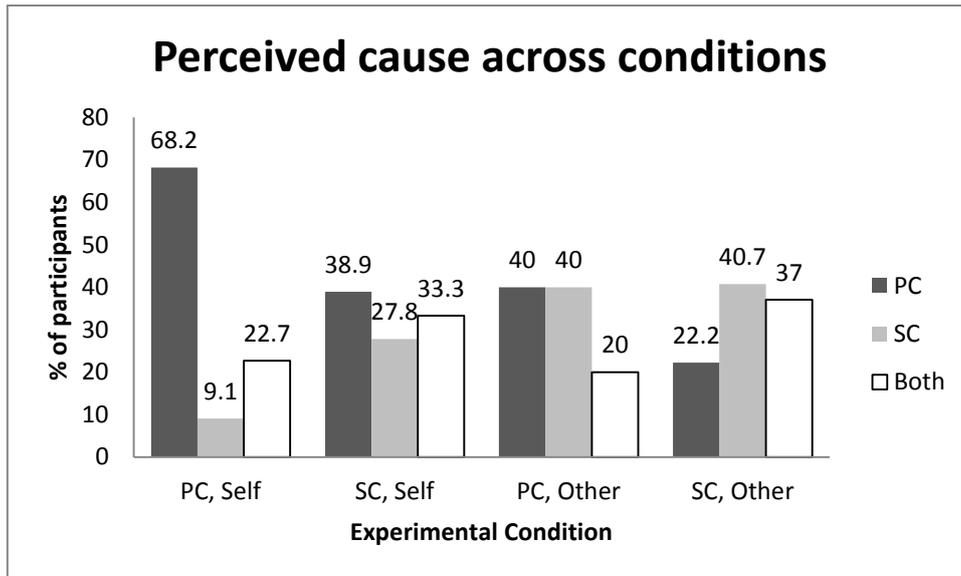
Other behavioral intentions, including likelihood to recommend, switching intentions, re-using intentions, likelihood to sell the product, were analyzed. Regardless of conditions, likelihood to recommend network service decreased ( $M_{\text{before}} = 4.74$ ,  $M_{\text{after}} = 4.15$ ,  $t(38) = 2.46$ ,  $p = .019$ ). Moreover, switching intentions of network service increased, although only

marginally. We asked participants how likely they are to use the network again in the future: ( $M_{\text{before}} = 4.8$ ,  $M_{\text{after}} = 4.4$ ;  $t(38) = 1.86$ ,  $p = 0.07$ ). However, there is no difference in intentions of switching of the network service and recommendation behavior between focus (phone or network service). Regarding the phone, noticeably, the likelihood to sell the phone is higher for those who are emotionally attached to their phone compared to those attached to the service: ( $M_{\text{phone}} = 4.3$ ,  $M_{\text{service}} = 3.06$ ;  $F(1, 39) = 4.66$ ,  $p = .037$ ).

### *Cause*

We asked participants to choose what they thought caused the problem, the phone, the network service, or both. We found that when the focus was on product attachment and the failure occurred to oneself, 68.2% of the participants in this condition indicated that the product was the cause of the problem, 9.1% indicated that the service was the cause, and 22.7% indicated both components were to blame for the failure. This finding shows that in this condition, a higher percentage of participants blamed the product for the functional failure. In other conditions, the number of participants who blamed the product and service were more equally distributed (service focus, self: phone 38.9%, service 27.8%, both 33.3%; product focus, other: phone 40%, service 40%, both 20%; service focus, other: phone 22.2%, service 40.7%, both 37%).

A Chi-square test of independence was performed to examine the relation between the perceived cause of the functional failure and the experimental condition (product focus, self/ service focus, self/ product focus, other/ service focus, other). The association between these variables was significant,  $\chi^2(6, N = 82) = 12.53$ ,  $p = .05$ . Together with the results of cross-tabulation, this result suggests that the perceived cause differ by the experimental condition.



**Figure 9. Perceived cause across experimental conditions**

### Covariates

Self-Brand Connection and mood are incorporated in the analyses as covariates. The results did not change and the effects of these covariates are not significant. Specifically, we first incorporated Self-brand connection as a covariate in the mixed-model ANOVA analysis. Results revealed no significant effect of self-brand connection ( $F(1, 37) = .19, p > .05$ ) on EvalPC. The significant main effect of time point of measurement remained ( $F(1, 37) = 13.09, p = .001$ ), and the interaction effect of time and focus is marginally significant ( $F(1,37) = 3.42, p = .07$ ). For EvalSC, the effect of Self-brand Connection is not significant ( $F(1, 37) = 1.16, p = .29$ ). Only main effect of time point of measurement was significant ( $F(1, 37) = 5.17, p = .03$ ). This result is similar to the results without incorporating SBC as a covariate. This shows that self-brand connection has no influence on evaluations following a functional failure.

Mood items were grouped into two variables: negative ( $\alpha = .87$ ) and positive mood ( $\alpha = .79$ ). An ANCOVA (with negative and positive mood as covariates) showed no significant main effect of mood. Moreover, results of the main variables did not change. Specifically, with EvalPC as the dependent variable, the effect of negative mood ( $F(1, 36) = .43, p > .1$ ) and positive mood ( $F(1, 36) = .1, p > .1$ ) were not significant. There was a significant effect of time points of measurement ( $F(1, 36) = 11.36, p < .01$ ) and a marginally significant interaction ( $F(1, 36) = 3.32, p = .07$ ). With EvalSC as the dependent variable, the effect of

negative mood ( $F(1, 36) = 0.59, p > .05$ ), positive mood ( $F(1, 36) = 0.52, p > .05$ ) were not significant. Only the main effect of time was significant ( $F(1, 37) = 3.79, p < .05$ ).

We also took into consideration gender, how long they have been using their phone and network service, and where they bought their phone from. I found no differences in the results when incorporating these variables as covariates ( $p > .05$ ). The same is the case for study 2 and 3, thus we shall not discuss these factors further.

### **3.6 Discussion and further analyses**

Results from the first study provide initial evidence that being emotionally attached to the product or service component of a PSB has an impact on responses to a functional failure. Study 1 manipulated focus (i.e. product focus or service focus) by activating and heightening participants' emotional attachment to the product or service component of the PSB. In doing so, results from study 1 provided insights regarding the different effects of product versus service emotional attachment. When the focus was on the emotional attachment to the product, there was a significant difference in the "decay" of product versus service evaluations. Product evaluations were more sensitive to the functional failure compared to the service evaluations. That is, when the focus was on product attachment, product evaluations were "deteriorated" by the functional failure more than service evaluations. When the focus was on service attachment, there was no significant difference in the degree of "decay" in evaluations caused by the functional failure. Product evaluations were deteriorated as much as service evaluation. H1a and H1b were supported.

Recall that we also hypothesized that the effects predicted in H1a only hold when the functional failure occurred to oneself, but not to the other person. This is because the effect should pertain to the specific emotional attachment between the consumer and a specific owned product or service rather than a brand. The analysis in the "other" condition shows that this was indeed the case. H2 was supported.

One limitation of study 1 is that the strength of emotional attachment was not varied. Instead, we manipulated the object/focus of emotional attachment. This comparison however helps to differentiate between a high emotional attachment towards the product versus service component of a PSB, allowing us to somewhat understand the dynamic nature of PSBs. Upon study 1, a few questions arise. First, in both conditions, product and service focus, attachment

towards the product component was shown to be higher compared to service component. What will happen if product emotional attachment is low? Second, while results from study 1 show that the effect pertains to the relationship, in particular emotional attachment, between the consumer and his/her particular possession rather than the brand shared by many users, one might wonder whether this emotional attachment goes beyond the relationship perspective and relates to self-identity. If emotional attachment to a product implicates the role of the product as part of one's self-identity, the product failure might be perceived as an identity threat; whereas if emotional attachment represents the consumer-product relationship, the effects might come from relationship-related reasons, for example relationship disappointment. With these questions in mind, we conducted Study 2. Study 2 manipulates emotional attachment to the product (the phone) while keeping focus constant (only the product). In addition, to determine the mediating factor, a self-threat measure and a measure of relationship disappointment are included. We, however, limit our attention to examine only evaluations of the product component.

## **Chapter 4. Study 2**

### **4.1 Introduction**

Study 2 advances the first study in several aspects. Study 1 shows that in a situation where emotional attachment to the product component is held at a high level, we observed a higher level of “decay” caused by the functional failure for the product component compared to the service component. It is however unclear what will happen if this product emotional attachment is low. It is important to investigate different levels of product emotional attachment itself. We examine the magnitude of product emotional attachment in study 2. Moreover, while study 1 shows the evidence that a self-related process is underlying the process, it has yet to determine what process underlies the effect of product emotional attachment on evaluations. This will be another focus of Study 2. However, it should be noted that due to certain constraints, we only examined the effect of product attachment on evaluations of the product component, but not the effect of service attachment on evaluations of the service component. We chose the product attachment as the focus of Study 2 because study 1 shows that there was a difference in the degree of decay, i.e. sensitivity to the functional failure, between product and service component evaluations when the focus was on the product attachment but not the service attachment. In the following, we report the purpose of the second study and discuss the conceptual foundation for the research hypotheses. Then, the methodology section including research design and the procedure of the study is described. We then present the results of the study and discuss the findings.

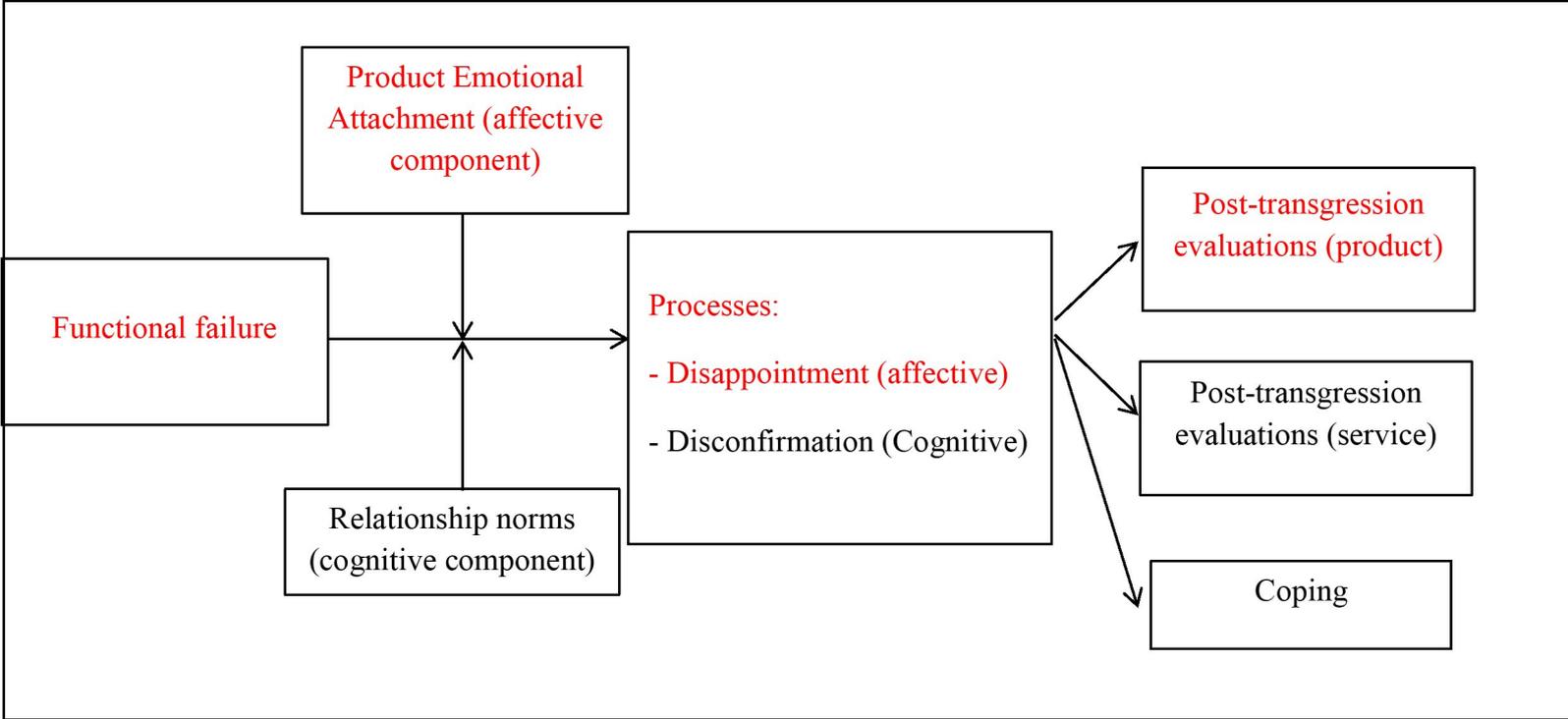
### **4.2 Purpose of the study**

The purpose of study 2 is twofold. First, this study aims to examine the magnitude of product emotional attachment and how different levels of product attachment influence customers’ responses to a functional failure. Specifically, this study manipulates product emotional attachment to be high or low. Based on results from study 1, we propose that high emotional attachment to the product component should influence evaluations of the product component in the “love becomes hate” direction, such that evaluations of the product component will be more negatively affected than what will be the case when product emotional attachment is low. The second purpose of the study is to investigate the underlying process of the observed effects. We measured both self-threat and disappointment. If the process shown in study 1 is related to the concept of self and identity, self-threat should mediate the effect of emotional

attachment on evaluations. Otherwise, if the process is more about the relationship rather than the self, then the process should be related to the relationship or the relationship partner. We predict disappointment would mediate the effects in that case.

**4.3 Conceptual development and research hypothesis**

Study 2 tests the highlighted (in red) paths in the main conceptual framework.



**Figure 10. Conceptual Framework – Study 2**

The first study has provided evidence that lends support to the “love becomes hate” hypothesis with regards to the effect of product emotional attachment on evaluations. Similarly, in this study, we predict that evaluations of the product component will be more negatively affected by when the product attachment is high compared to when it (product attachment) is low. Specifically, this study hypothesizes that:

- H3:** In the event of a functional failure, evaluations of the product component will be more negatively affected when the emotional attachment to the product is high compared to low.

As mentioned earlier, we investigate the underlying mechanism of the effect in this study. From a relationship perspective, a potential factor that might underlie the observed effect is the feeling of disappointment. Emotional attachment might lead to different levels of disappointment. That is, individuals who are highly attached to a product might go through two different thoughts, either: ‘I am so emotionally attached to you, how could you do this to me?’ (‘love becomes hate’ hypothesis) or ‘I am emotionally attached to you, so it is ok!’ (‘Love is blind’ hypothesis). The extent of disappointment experienced should be higher in the ‘love becomes hate’ hypothesis. As discussed in the literature review, disappointment in this case is affective, derived from the emotional attachment an individual has with a target which in the end disappoints him. As the “love becomes hate” hypothesis has been supported in the previous study, at this point we propose that disappointment mediates the effect of high (vs. low) product emotional attachment on post-transgression evaluations.

Formally, we hypothesize that:

**H4:** In the event of a functional failure, high (vs. low) product emotional attachment leads to higher disappointment, which in turn affects product evaluations more negatively.

We do not however rule out the possibility that identity threat is the factor that causes the individual with strong product attachment to lower their evaluations of the product. Therefore, this study includes a self-threat measure to explore whether the product in this research (i.e. cell phone) is expressive of one’s self-identity. If yes, identity self-threat might underlie the process. Specifically, a negative incident related to the product would threaten the self and identity: subsequently this self-threat might influence evaluations. In the section that follows, we report the methodology and the procedure of the study.

## **4.4 Methodology**

### **4.4.1 Pretest**

In study 1 all respondents within the respective product vs service component treatment groups were assigned to one level of emotional attachment (i.e. high emotional attachment). In study 2 we limit our attention to the product component, but assign the respondents to two levels, low and high, of emotional attachment. To check the effect of the manipulation, a pre-

test was conducted among 145 participants (70 males) on American-based MTurk panel. Participants completed the survey in exchange for a small monetary compensation. They were assigned to two conditions. In high emotional attachment condition, participants wrote about “a time when they feel emotionally attached to the phone”. In low emotional attachment condition, they wrote about “several functions of the phone” that they use. While writing about functions of the phone could also elicit emotional attachment to it, it should evoke lower emotional attachment compared to when participants wrote directly about their emotional attachment. This will be shown in the analysis below. The manipulation was expected to induce two levels of emotional attachment to the product component, high and low, while keeping the focus constant (i.e. focus on the product component).

As in Study 1, emotional attachment was measured with three items: ‘I am emotionally attached to my phone’, ‘My phone is important to me’ and ‘Sometimes I feel that my phone is more than just an object’ ( $\alpha = .82$ ). Results from an ANOVA show that the manipulation has its intended effect. Specifically, participants in the high emotional attachment condition are more emotionally attached to their phone compared to those in the low emotional attachment condition (4 vs. 3.36,  $F(1, 143) = 4.57, p = 0.03$ ). The manipulation was then used in the main test.

#### 4.4.2. Stimuli Development

To ensure consistency, the same scenario is used in Study 2. Specifically, respondents were asked to imagine themselves in a scenario where their phone and network service malfunctioned. Again, we include instructions that ask participants to read the scenario carefully and immerse themselves in the scenario. The scenario is as follows: “In the past few days, you (vs. a classmate of yours) have (has) been experiencing some problems when using your (his/her) phone (subjects’ real phone brand inserted here). Whenever you (s/he) send(s) someone a message, the text is not delivered to the person you intend to contact; instead it is sent to the previous contact in your message list. As a result, all of your (his/her) messages are sent to the wrong people. You (S/he) always have (has) to call the person and explain the problem. You (S/he) are (is) thinking whether the problem is with your (his/her) (subjects’ phone brand) phone or with your (his/her) network service (subject’s network service brand)”.

### 4.4.3. Research Design

#### 4.4.3.1 Design

This study employs a 2 product emotional attachment (high vs. low) x 2 (self vs. other) between-subjects design. To keep it consistent with study 1, a self versus other manipulation was also employed in study 2. If the effect only takes place in the self condition (but not in the ‘other’ condition) again, this will reaffirm that any effect observed is pertained to the relationship between the consumer and the specific product rather than the brand.

#### 4.4.3.2 Manipulations

Study 2 employs two manipulations. The first manipulation concerns the level of emotional attachment that one has with a product, whether it is high or low. As in the pre-test, in the high emotional attachment condition, participants were instructed to “write about a time when they feel emotionally attached to the phone”. In the low emotional attachment condition, they were instructed to “write about several functions of the phone that they use”. We asked participants in the ‘low attachment’ condition to write about their phone instead of writing about an unrelated topic. This is to ensure the focus was the same in the two conditions (i.e. on the phone component). As we will show later, our manipulation check showed that the manipulation was again successful. The second manipulation, similarly to study 1, is a self versus other manipulation. Participants read the scenario in which they were asked to imagine the incident to happen either to themselves or to a classmate.

#### 4.4.3.3 Measurement

For consistency, the same measurements and scales items from Study 1 are used in Study 2, with an addition of a self-threat measurement scale and a measure of disappointment. The self-threat scale was adopted from Argo, White, & Dahl (2006), including three items: (when reading the scenario, to what extent did the described situation) “threaten yourself” (1-absolutely no threat, 7-definitely a threat; “threaten your ego” (1-absolutely no threat, 7-definitely a threat); “had the potential to make you feel worse about how your view yourself” (1-absolutely no potential, 7-definitely a potential). As we discussed earlier, here we measured disappointment by a single item: “After this experience, how much disappointment did you feel about your phone?” (1 – not at all, 7 – very much).

#### 4.4.4 Research Procedure

##### 4.4.4.1 Participants

Eighty-seven participants took part in the study for a \$5 compensation. The experiment was conducted in the behavioral lab. The majority of the sample is students, but the subject pool also consists of some professionals who work at the University. Participants who already participated in Study 1 were not allowed to participate in Study 2.

##### 4.4.4.2 Procedure

The procedure is similar to Study 1. Participants completed three ostensibly unrelated tasks, which they were told are designed by different researchers in the department of the business school.

*Part 1.* In task 1, named ‘product and service evaluation’ task, the aim is to capture existing evaluations of the product and service before participants are exposed to a malfunctioning scenario. Besides the phone and the network service, participants evaluated other filler products as services, so that they perceived this part of the study to be a different one from the main study.

*Filler task.* Task 2 is a filler task, masked by the name of an ‘Artistic evaluations’ study. Participants were asked to evaluate a series of photographs by indicating how good/bad each photograph is, and also asked to tell to what extent they thought the photograph was taken by a professional photographer. These photographs mainly portray nature and places. These photographs are kept neutral so as not to have any mood impact on the main test afterward. Moreover, no technology related pictures were used.

*Main task.* Task 3 is the main task, in which participants completed a writing task, which is in fact a manipulation of high versus low emotional attachment. Participants were given five minutes to complete the writing task. Depending on the condition they were randomly assigned to (i.e high or low emotional attachment), participants were asked to write in details “about a time when you feel emotionally attached to your phone” or “several functions of your phone that you use”. This manipulation has been shown to be effective from the pre-test discussed earlier. Participants were asked to write as much as they could within the time limit. They were then shown a scenario in which a malfunction incident occurred to their phone and network service. The functional malfunction caused confusion regarding the source of the

issue. As in Study 1, evaluations were measured, followed by several items that tapped into a number of behavioral intentions. Moreover, other potential moderators such as self-brand connection, usage patterns, and mood were captured.

## 4.5 Results

### 4.5.1 Manipulation check

Emotional attachment manipulation check shows that our manipulation was successful ( $M_{\text{high EA}} = 5.21$ ,  $M_{\text{low EA}} = 3.2$ ,  $t(85) = 2.01$ ,  $p < .05$ ). Regarding the self vs. other manipulation, consistent with study 1, participants in the ‘self’ condition feel the incident happening to the self more than those in the ‘other’ condition ( $M_{\text{self}} = 3.2$ ,  $M_{\text{other}} = 2.36$ ;  $F(1, 85) = 5.09$ ,  $p = .027$ ), while subjects in the ‘other’ condition feel the incident happening to their classmate more than those in the ‘self’ condition ( $M_{\text{self}} = 2.42$ ,  $M_{\text{other}} = 3.17$ ;  $F(1, 85) = 3.89$ ,  $p = .05$ ). The incident was perceived as negative,  $M = 2.06$ ,  $SD = 1.08$  (on a 7-point scale with 1 as negative).

### 4.5.2 Tests of assumptions

*Test of normality.* Shapiro-Wilk test for each cell and each dependent variable was run. Results show that assumptions of normality were not violated for product evaluations: high product emotional attachment (.069), low emotional attachment (.456), self (.095) and other (.055).

### 4.5.3 Preliminary results

Analysis of the number of words written in the two conditions, high and low product emotional attachment, reveals no difference in task difficulty ( $M_{\text{high EA}} = 80.31$ ,  $M_{\text{low EA}} = 82.02$ ,  $t(85) = -.262$ ,  $p = .794$ ).

#### 4.5.4 Hypothesized effects

##### *Product emotional attachment*

Before conducting statistical tests, a Levene's test of homogeneity of variances was conducted. Results from the Levene's test show that the homogeneity of variances assumption was not violated, with significance values larger than .05 for both dependent variables: product evaluations (.189) and service evaluations (.196).

##### *Descriptive statistics*

	High product EA		Low product EA	
	Pre-failure	Post-failure	Pre-failure	Post-failure
Self	5.65 (1.42)	3.18 (1.87)	5.34 (0.96)	4.5 (1.72)
Other	5.42 (1.29)	3.41 (1.59)	5.95 (0.82)	3.94 (1.37)

**Table 10. Mean scores of product evaluations across conditions**

##### *Functional failure occurring to oneself*

Similar to study 1, we compared the extent of “decay” in evaluations caused by the functional failure across experimental conditions. We compared how sensitive product evaluations were to the functional failure when the emotional attachment to the product component is high versus low. We did this by comparing regression coefficients in the two conditions, high and low product emotional attachment.

Regression analysis was run with Eval(t) as the independent variable and Eval(t+1) as the dependent variable. Regression was run separately for the high versus low product attachment condition. Results show that in the high attachment condition, EvalPC(t) did not influence EvalPC(t+1) ( $\beta = .021, p = .92$ ). In the low emotional attachment condition, EvalPC(t) significantly affected EvalPC(t+1) ( $\beta = .757, p < .001$ ). More importantly, a smaller  $\beta$  in the high attachment condition compared to low attachment condition indicates that high product attachment gave rise to a more sensitive reaction to the functional failure. We

calculated Z-score to determine whether this difference is statistically significant (see table 11).

Condition	$b_{1/2}$	$SE_{1/2}$	Z-score	$p$ value
High EA	0.037	0.466	z = 1.91	p = .05
Low EA	0.984	0.167		

\* $b_{1/2}$ : unstandardized coefficients in high and low attachment condition, respectively

$SE_{1/2}$ : standard error in high and low attachment condition, respectively

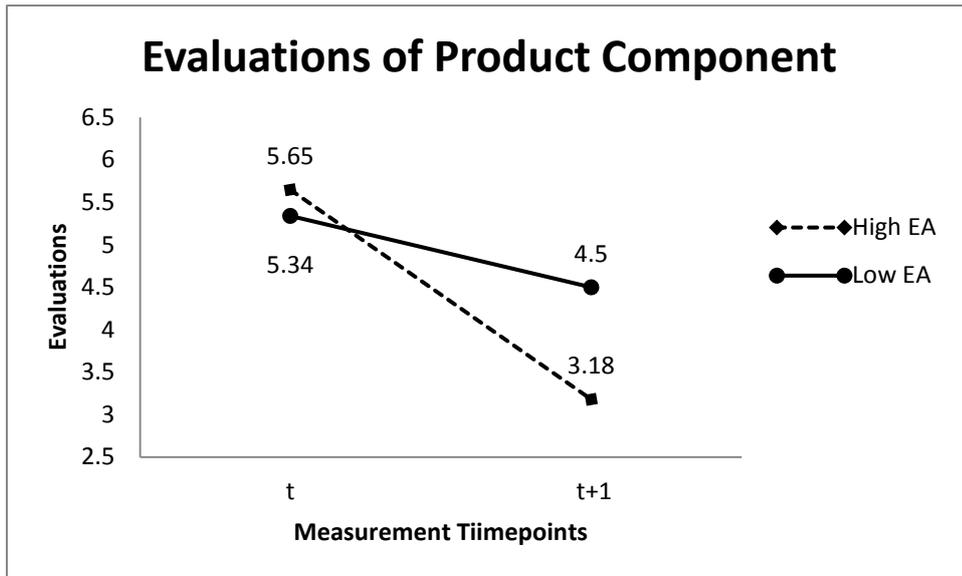
Z-score:  $(z = (b_1 - b_2) / \sqrt{SE_1^2 + SE_2^2})$

**Table 11. Z-score calculation**

The significant Z-score ( $z = 1.91, p = .05$ ) indicates that there was a statistically significant difference in the degree of ‘decay’ in product evaluations when product attachment is high versus low. The lower  $\beta$  in the high attachment (vs. low attachment) condition denotes that a high level of emotional attachment towards the product component resulted in a larger ‘decay’ in product evaluations following a functional failure. **H3 was supported.** We carried out mixed-modeled ANOVA analysis as an additional approach to interpret the effect more clearly.

*Additional analysis: Mixed-model ANOVA*

A mixed-model repeated measures ANOVA was run with time point of measurement (t and t+1) as a within-subjects factor and emotional attachment (high EA vs. low EA) as a between-subjects factor. Results show a significant main effect of time point ( $F(1,42) = 48.87, p < .001$ ) and a marginally significant interaction of time point and EA ( $F(1,42) = 3.38, p=0.073$ ). Figure 11 depicts the results. When EA is high, the drop in EvalPC from time t to time t+1 appears steeper.



**Figure 11. Mixed-model ANOVA results**

Evaluations of the PSB components were compared between two time points, before and after the failure. This comparison provides insights on how participants adjusted their evaluations following the product/service failure.

Regardless of the extent of product emotional attachment, high or low, In the high attachment condition, product evaluations decreased significantly after the functional failure (high attachment:  $M_{\text{pre-failure}} = 5.65$ ,  $M_{\text{post-failure}} = 3.18$ ,  $t(27) = 7.16$ ,  $p < 0.001$ ; low attachment:  $M_{\text{pre-failure}} = 5.34$ ,  $M_{\text{post-failure}} = 4.5$ ,  $t(15) = 2.8$ ,  $p = .06$ ). We calculated the effect size ( $r$ ) to determine the strength of each effect. Table 12 summarizes the effect size for each effect. The effect size values in the two conditions (0.81 vs. 0.58) indicate that the reduction in product evaluations is larger when product attachment is high (vs. low).

	<i>t</i> value	<i>df</i>	Effect size*
High product EA	7.16	27	0.81
Low product attachment	2.8	15	0.58

\* Effect size:  $r = \text{SQRT}(t^2/(t^2+df))$

**Table 12. Effect size of pre- and post-failure evaluations difference**

*Functional failure occurring to someone else ('other' condition)*

Similar to the 'self' condition, we conducted regression analyses in the 'other' condition and compared the regression coefficients between the two conditions, high versus low product emotional attachment. In the high product attachment condition, the effect of EvalPC(t) on EvalPC(t+1) was not significant ( $\beta = 0.295, p > .05$ ). The same for low attachment condition ( $\beta = 0.007, p > .1$ ). The z-score ( $z = .76$ ) was not significant ( $p = .45$ ), suggesting the degree of 'decay' was not different between the high and low product attachment.

Condition	$b_{1/2}$	$SE_{1/2}$	z-score	p value
High EA	0.364	0.295	z = 0.76	p = .45
Low EA	0.007	0.364		

\*  $b_{1/2}$  : unstandardized regression coefficients in high and low EA condition, respectively

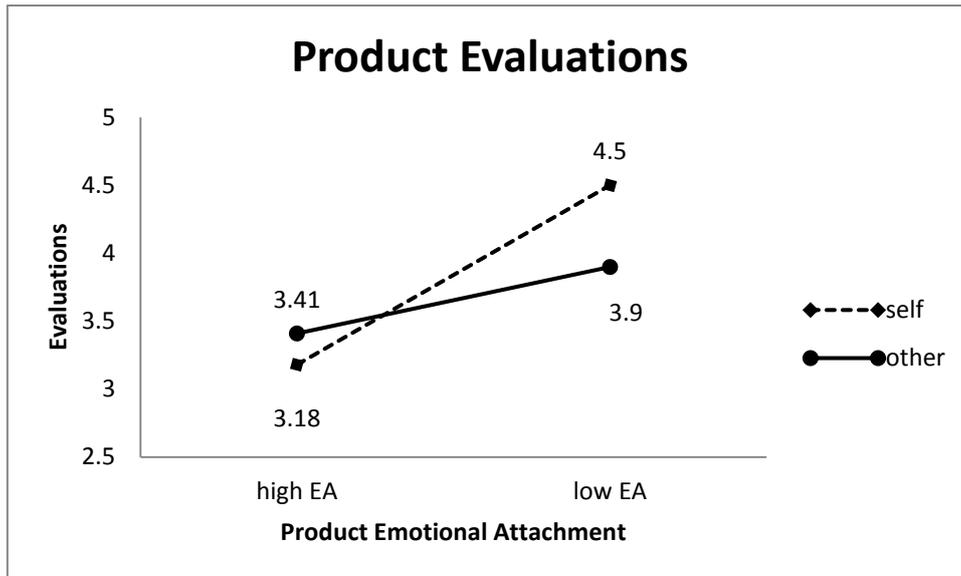
SE1/2: standard error in high and low EA condition, respectively

$$\text{z-score: } z = (b_1 - b_2) / \sqrt{SE_1^2 + SE_2^2}$$

**Table 13. Z-score calculations across experimental conditions**

*Post-failure product evaluations and service evaluations across conditions*

In addition, similar to Study 1, we ran a 2 (high vs. low) x 2 (self vs. other) between-subjects ANOVA. Only a significant main effect of high versus low emotional attachment on phone evaluations was found ( $F(1,81) = 5.2, p = .025$ ). The main effect is show in figure 12.



**Figure 12. Main effect of product emotional attachment on product evaluations**

The significant main effect of high versus low product attachment on product evaluations indicates that, in both conditions, ‘self’ and ‘other’ (i.e. the functional failure occurred to oneself or to someone else), high emotional attachment drives product evaluations to be lower. This is surprising because it was not expected that one’s emotional attachment would affect product evaluations negatively when the event is occurring to someone else. This may be because subjects who were in a high product attachment condition carry over the mindset into the scenario which did not even happen to themselves. However, when analyzing the ‘self’ and ‘other’ condition separately, some discrepancies between the two conditions ‘self’ and ‘other’ appeared (See table 14 for a summary of mean scores). When the functional occurred to oneself (‘self’ condition), product evaluations were significantly lower in the high product attachment condition compared to the low product attachment ( $M_{\text{high EA}} = 3.18$ ,  $M_{\text{low EA}} = 4.5$ ,  $t(42) = 1.86$ ,  $p = 0.06$ ). When the failure occurred to someone else, on the contrary, the difference in product evaluations between high versus low product attachment was not significant ( $p=0.29$ ).

	Self	Other
High product attachment	3.18 (1.86)	3.41 (1.59)
Low product attachment	4.5 (1.72)	3.9 (1.36)

**Table 14. Product evaluations**

### *Cause of the functional failure & other behavioral intentions*

In addition, indication of the perceived cause of the problem show that people decide on the culprit depending on their emotional attachment to the product. Particularly, 65.5% of subjects in the high emotional attachment condition indicated the phone is the cause of the problem, while only 43% among the low emotional attachment condition did so. However, there was no difference in switching intentions of network service and recommending intentions across conditions.

### *Mediating role of disappointment*

As predicted, an independent t-test shows that participants with high emotional attachment with their phone were more disappointed at the phone compared to their counterparts with low phone attachment ( $M_{\text{high attachment}} = 3.34$ ,  $M_{\text{low attachment}} = 2.06$ ,  $t(43) = 2.45$ ,  $p = .018$ ). To test the mediating effect of disappointment, we performed 5,000 bootstrap resamples using Preacher and Hayes' (2008) SPSS macro to test the indirect path (i.e., the path from emotional attachment to evaluations via disappointment). Regression analyses show that attachment affects disappointment ( $\beta = 1.28$ ,  $p = .018$ ) and disappointment influences evaluations of the phone ( $\beta = -1.25$ ,  $p = .07$ , 95% CI = [-2.3, -0.23]). The significance of the effect of emotional attachment disappeared ( $\beta = .14$ ,  $p = .39$ ), allowing us to conclude that disappointment fully mediated the effect of emotional attachment on evaluations of the product component. **H4 was supported.**

### *Self-threat*

Self-threat is compared between high and low emotional attachment conditions. We focused on the 'self' condition, i.e. when the failure occurred to oneself. This is because participants in the 'other' condition (i.e. the failure occurred to someone else) were not likely to perceive a threat to the self. The comparison shows that those emotionally attached to the phone experience a higher self-threat than their counterparts who are less emotionally attached to the phone ( $M_{\text{high EA}} = 3.16$ ,  $M_{\text{low EA}} = 1.9$ ,  $F(1,43) = 6.61$ ,  $p = .014$ ). To have a better understanding of self-threat, individual items in self-threat scale were analyzed separately. Recall the three items we used to measure self-threat: (when reading the scenario, to what extent did the

described situation) “threaten yourself” (1-absolutely no threat, 7-definitely a threat; “threaten your ego” (1-absolutely no threat, 7-definitely a threat); “had the potential to make you feel worse about how you view yourself” (1-absolutely no potential, 7-definitely a potential). This analysis shows that the difference between high and low emotional attachment groups only exist in the first item; that is, the extent the negative event ‘threaten them’ in general ( $M_{\text{high EA}} = 3.69$ ,  $M_{\text{low EA}} = 2.0$ ;  $F(1, 43) = 7.35$ ,  $p = .01$ ). However, there was no significant difference between high and low emotional attachment group with regards to how much the situation has threatened their ego (the second item) or has had the potential to view their self more negatively’ (the third item). This result provides initial evidence that the threat consumers were experiencing, while associated with the self, might not be related to identity or ego.

#### **4.6 Discussion**

Results from study 2 confirmed the predicted “love becomes hate” hypothesis regarding the role of emotional attachment in consumers’ reactions to a transgression. Specifically, high emotional attachment to the product component of a PSB (compared to low emotional attachment) in fact reduces product evaluations after a function failure. This study also provides the evidence that disappointment mediates the observed effect. The more emotionally attached an individual is to the product, the more disappointed he or she would be when a functional failure occurred. Disappointment in turn leads them to lower their product evaluations. Moreover, results from this study allow for ruling out the possibility that identity threat is the underlying process.

One might argue that the product failure in Study 1 and 2 did not pose an identity threat to the respondents because the level of severity of the negative event is not strong enough to do so. To check this possibility, we conducted a post-test. Another purpose of this posttest is to check the level of ambiguity of the event. As discussed earlier, the ambiguity that opens up for biases in causal attributions and subsequently evaluations is due to the intricacy of the complementarity of the product and service (we explored this issue in study 1). However, the nature of the product failure might contribute to the ambiguity as well, such that for some types of failures it is easy for the consumer to determine if the product or the service is at fault, whereas for other types of failure this distinction might be more challenging. The following section reports details of this posttest.

## 4.7 Posttest

### 4.7.1 Introduction

We conducted the posttest to examine other malfunction scenarios besides the one we used in study 1 and 2. In doing so, we looked into the severity of the malfunctions and gained some insights on consumers' reaction to each malfunction.

### 4.7.2 Method

A between-subjects study was run among 155 participants (83 males,  $M_{age} = 36$ ) on MTurk panel. Participants were shown a scenario in which they encountered a malfunction and the source of the problem (whether it is the phone or network service) is ambiguous. Six malfunctioning scenarios (e.g. not able to call/text, pictures and videos deleted; internet not working, etc.) were shown between subjects. A detailed description of these six scenarios can be found in Appendix 1. The variety of malfunctioning scenarios was used to check for the perceived severity of each scenario. Moreover, each type of malfunctioning incidents might evoke different types of mechanisms that lead to different effects.

In an open-ended question, participants were asked to share how they would feel if the scenario is really happening to them. After that, they were shown a list of 11 possible thoughts that they might have experienced when reading the scenario. These also include thoughts related to self identity. For a detailed list of these 11 issues please refer to Appendix 2. Participants were asked to rank these 11 thoughts in terms of to what extent they experienced it. They ranked 1 as 'experienced the most' and 11 as 'experienced the least'.

Emotions were measured by asking "to what extent would you feel anxious/frustrated/uneasy?". These measures were used to compare the severity of each negative incident. Further, ambiguity regarding the cause of the problem is checked across scenarios with one item: "How difficult was it for you to determine who is to blame for the problem? (i.e. phone or network service)".

### 4.7.3 Results

The thoughts that are ranked to be "experienced the most" included "the incident makes you feel that perhaps you chose a bad phone" and "the incident makes you feel that perhaps

you chose a bad network service” (“The incident makes you feel that perhaps you chose a bad phone” –  $M = 3.88$ ; “The incident makes you feel that perhaps you chose a bad network service” –  $M = 4.04$ ). Identity-related issues, such as ‘You feel like part of your identity is lost’, however, is ranked towards ‘experienced the least’ more than other issues.

With regards to the severity of the event, to our surprise, no significant difference was found in the extent of negative emotions experienced across scenarios. Different types of functional failures appeared to create similar levels of negative feelings, suggesting the severity of the failures were not significantly different from each other.

Concerning the ambiguity level, malfunction 3 is indicated to be the most ambiguous scenario in terms of difficulty to decide which source to blame for the problem. We used this scenario in study 1 and 2. We can thus affirm that the type of failure in study 1 was sufficiently ambiguous and therefore opened up for psychological factors such as emotional attachment to bias evaluations.

### **Insights from posttest**

Results from the posttest shows that regardless of the types of functional failures, respondents did not perceive it as a threat to their self-identity. Instead, they would feel that they have chosen a bad product or service. This is more in line with a relationship perspective, just as in interpersonal relationship context we feel that we have chosen a bad partner or friend. The posttest also shows that the same extent of negative emotions was experienced in all scenarios.

Study 1 and 2 investigated the affective component of relationship, which is emotional attachment, and its role in consumers’ responses to product failures. The next study, Study 3, looks into the cognitive element of relationship, namely relationship norms. The next chapter describes in details this study.

## **Chapter 5. Study 3**

### **5.1 Introduction**

In this study, we examine the role of relationship norms, the cognitive aspect of relationship, in consumers' reactions to a functional failure. We propose and show that the types of relationships consumers have towards their product carry different relationship norms that guide consumers' assessments. Specifically, we borrow the concepts of communal and exchange relationships (Clark and Mills 1979; Mills and Clark 1982) from the interpersonal context and use it to describe how consumers relate to their products. In addition, this study explores the mechanism behind the effects and further looks into the subsequent coping behavior following the negative event (i.e. the functional failure). As in study 2, we limit our focus to the product component in this study.

In the following section, we describe in detail the method, procedure, and findings from Study 3, followed by a posttest.

### **5.2. Purpose of study 3**

The purpose of this study is threefold. First, one aim is to investigate the role of relationship norms in regulating consumers' evaluations following a functional failure. Specifically, we follow Clark et al.'s (1979, 1982) categorization of communal and exchange relationships. Moreover, within communal relationships, we examined a strong, certain and established communal relationship and a weaker and less certain communal relationship. In addition, this research investigates the mechanism of the effects observed. Study 2 showed that disappointment mediates the effect of emotional attachment (i.e. the affective component of relationship) on post-transgression evaluations. Study 3 aims to test another process that underlies the effect of relationship norms, i.e. the cognitive aspect of relationship, on responses to a functional failure. Specifically we examined the disconfirmation process. As we discussed earlier, disconfirmation is closely related to disappointment, however it is a cognitive process whereas disappointment is more affect-laden. Another goal of Study 3 is to explore the coping behavior following a functional failure, in other words a transgression. We examine whether different relationship norms lead to different ways of coping.

## 5.3 Conceptual model and hypotheses

### 5.3.1 Communal and exchange relationship norms

In social psychology, different types of relationships governed by different norms have been explored (Berscheid, Mark, and Omoto 1989; Fitzsimons and Bargh 2003). Most notably is the program of research that focuses on a distinction between communal and exchange relationships (Clark and Mills 1979; Mills and Clark 1982). This distinction mainly bases on the rules governing the giving and receiving of benefits. In communal relationships (e.g., relationships among family members, friends, and romantic partners), members feel a special obligation to be concerned about the other's welfare and act in response to each other's needs. In exchange relationships (e.g., strangers, acquaintances, and business partners), on the other hand, members act in order to maintain equity inputs and rewards.

It should be noted that, most communal relationships are mutual (Clark and Mills 1993). Although maintaining equal benefits is not the norm in a communal relationship, members in this type of relationship do have expectations about the partner's concerns for one's own needs (Clark and Mills 1993; Holmes and Rempel 1989; Lemay Jr. and Clark 2008; Reis, Clark and Holmes 2004). Communal relationships can also vary in strength (Mills and Clark 1982) and certainty (Clark, Dubash and Mills 1998). For instance, the communal relationship with one's best friends is typically stronger and more certain than that with one's other friends (Clark and Mills 1993). Depending on the strength and certainty of the communal relationship, interest in consideration given to one's needs varies. When there is high uncertainty about the communal relationship, people look for clues suggesting that the other, like the self, wishes to follow communal norms in order to know whether that other desires to maintain or to form a mutual communal relationship (Clark et al. 1998). That is, the less certain one is about the communal nature of one's relationship with the other, the greater should be the monitoring of the other's consideration of one's own needs (Clark et al. 1998).

The current research borrows the concepts of exchange, certain communal and uncertain communal relationships to apply in the context of consumer-product relationship. Moreover, we focus on the norms of considering a relationship partner's needs and the monitoring of this norm. We further propose that the effect of relationship on reactions to a product failure might depend on whether the relationship is exchange, certainly communal, or uncertainly communal. Specifically, relationship norms, such as different levels of monitoring of the partner's concern of one's own needs involved in each type of relationship, might drive

evaluations differently. When monitoring the partner's consideration of one's own needs is high (e.g. in an uncertain communal relationship), a transgression might indicate that the partner is not considering one's own needs. This perception might trigger punishing behavior and subsequently influence product evaluations negatively. In contrast, a strong and certain communal relationship is likely to give room for forgiveness and trust. As such, consumers whose product is a certain communal relationship are more likely to protect their 'best friend' product and not allow one functional failure to affect their attitudes towards the product. In an exchange relationship, there is less interest in the other's consideration of one's own needs as well as less trust and forgiveness. Thus, there is no reason for the consumers to either forgive or punish the relationship partner. People who regard their relationship with the product as an exchange relationship might reduce their evaluations less than those in an uncertain communal relationship but more than those in a certain and strong communal relationship.

In the present research, relationship norms are activated by asking the respondents to indicate the relationship they have with their product, i.e. the phone. Social relationship theory posits that relationships carry with them specific rules and norms of behaviors that then are used as a guide for evaluations of the relationship partner (Aggarwal 2004). Therefore, by activating the types of relationships one has with a product, the ensuing rules and norms should be activated as well. To ensure it is the relationship norms that are driving the effects, participants were further asked to write about the norms of the relationship they perceive between themselves and the product. Aggarwal and Zhang (2006) primed interpersonal relationship norms in the product relationship context, and suggested that a stronger effect should be observed if the direct type of relationship is used. The present research follows Aggarwal and Zhang's (2006) suggestion and uses relationship types as proxies for relationship norms. We included three types of relationships: friendship (uncertain communal relationship) and best friendship (certain communal relationship), acquaintanceship (exchange relationship). Especially, with both being friendships, the different level of intimacy in friendship and best friendship might lead members of each relationship type to follow different norms, which in turn influence members' expectations and behavior. The following section discusses the distinction between friendship and best friendships.

### 5.3.2 Friendship and best friendship

In general, friendships are assumed to be communal relationships, in which members trust one another more than non-friends do (Walster et al., 1978). Different types of friendships are governed by different mechanisms. Previous research has distinguished the difference between a friendship and a best friendship. Overall, a best friendship demonstrates a higher degree of friendship compared to a normal friendship. Indeed, children use loose definitions of friendship, as opposed to their definition of ‘best friendship’ (Leenders 1996). Dyads which successfully developed into close friendships showed different behavioral and attitudinal trends from dyads which did not become close friends (Hays 1984). The different degree of closeness in relationships is likely to bring about different consequences. Specifically, close and non-close friendships are differentiated in the emotional support and the provision of a confidant (Hays 1984). In an interpersonal setting, for example, prior research notes that people in close relationships have a heightened positive evaluation of their partner (Martz et al. 1998) and a greater commitment to the relationship (Rusbult and Buunk 1993). Similarly, people in committed relationships such as a best friendship tend to put a relatively lower value on alternatives that threaten their existing relationships (Johnson and Rusbult 1989). Similar consequences might ensue a close versus not close relationship shared between a consumer and a product.

The concepts of friendship and best friendship can be matched into Clark’s conceptualization of communal relationships, especially the level of uncertainty in communal relationship. Clark et al.’s (1998) had participants select someone with whom he or she would like to have a close relationship (assumed to be an uncertain communal relationship) and someone with whom he or she had had a close relationship for a long time (assumed to be a certain communal relationship), along with someone with whom they do not have a close relationship (assumed to be an exchange relationship). The present research takes a similar approach. A best friendship could be compared to a certain communal relationship that is already established, while friendship can be described as an uncertain communal relationship that the individual desires to develop into a strong communal relationship (i.e. into a best friendship). An acquaintanceship, on the other hand, can be compared to an exchange relationship. In the consumer-product relationship context, a consumer might regard a specific product as a best friend, a friend, and an acquaintance, which in turn influences their evaluations and judgment during an act of transgression.

Clark et al.'s (1998) classification	'Friendship' literature	Characteristics/Relationship norms
Certain communal	Best friendship	Established relationship, developed over time
Uncertain communal	Friendship	Not yet certain and established, but close enough to feel concerned about the partner's welfare
Exchange	Acquaintance	Maintain equity in giving and receiving

**Table 15. Cross-classified conceptualizations**

In summary, following a malfunctioning incident that involves a PSB, relationship norms might regulate consumers' responses. This study postulates that:

**H5a:** A weak communal relationship (i.e. a friendship) with the product component results in a greater decay in product evaluations after a functional failure compared to an established communal relationship (i.e. best friendship) as well as compared to an exchange relationship (i.e. acquaintanceship).

Certain communal relationships are stable and consist of accumulated positive experience, one single negative event is unlikely to cause extreme disappointment. Just as people in close and long-term relationships have known one another long enough to work out complicated exchanges and trust one another (Clark 1981), only one negative incident should not affect a certain communal relationship. Therefore, we predict that an certain, established communal relationship would 'protect' the product component such that product evaluations will be affected less negatively compared to the uncertain communal relationship and an exchange relationship. The comparison between certain versus uncertain communal relationships has been included in H5a. In H5b, as shown below, we propose the predicted difference between a certain communal relationship and an exchange relationship:

**H5b:** An exchange relationship (i.e. acquaintanceship) with the product component leads to a greater decay in product evaluations following a functional failure compared to an established communal relationship (i.e. best friendship).

### 5.3.3. Disconfirmation process

We previously predicted that a disconfirmation process is likely to emerge if a violation of the relationship norms is perceived. Negative disconfirmation takes place when the outcome did not meet expectations. This process is related to the specific emotion of disappointment examined in study 2, It makes sense that negative disconfirmation is likely to result in disappointment. In fact, when measuring the emotion of disappointment, past research (e.g. Zeelenberg and Pieters 2004) includes items tapping the specific emotion of disappointment itself as well as the comparison of the outcome and the consumers' expectations e.g. "To what extent was the delivery of the service worse than you expected beforehand?". .

In this study, we predict that the disconfirmation process might vary depending on the type of relationship and more importantly the ensuing relationship norms. Specifically, the greater the monitoring of the partner's concerns for one's own needs, the higher the expectations. Consequently, in the case of a functional failure which might be considered a transgression, a violation of relationship norms, an uncertain and weak communal relationship with greater monitoring of the partner's concerns for one's own needs will face greater negative disconfirmation compared to a certain communal relationship as well as an exchange relationship. Consequently, the greater negative disconfirmation leads to lower evaluations of the product component following a functional failure. We hypothesize that:

**H6a:** A weak communal relationship (i.e. a friendship) with the product component results in greater negative disconfirmation compared to an established communal relationship (i.e. best friendship) as well as compared to an exchange relationship (i.e. acquaintanceship), subsequently leading to lower evaluations following a functional failure.

A certain communal relationship, as we mentioned earlier, might give room to forgiveness. One negative incident should not affect the long-term relationship. Compared to an uncertain communal relationship, a certain communal relationship involves less monitoring of the partner's concerns for one's needs, hence less negative disconfirmation following a functional failure. An exchange relationship would fall somewhere in between. An exchange relationship does not involve the monitoring of the partner's concerns, hence should not incur as much negative disconfirmation as an uncertain communal relationship. On the other hand, an exchange relationship might not give room to forgiveness as in a certain communal

relationship, therefore the negative disconfirmation process still takes place regarding the inequity in giving and taking. We propose that:

**H6b:** Compared to an established communal relationship (i.e. best friendship), an exchange relationship (i.e. acquaintanceship) with the product component leads to more negative disconfirmation following a functional failure, which in turn leads to lower product evaluations.

Besides post-failure evaluations, we explore another consequence of functional failure, namely coping. We discuss coping mechanisms in the following section.

#### 5.3.4 Coping mechanisms following a product failure

Coping refers to cognitive or behavioral efforts to reduce stress (Duhachek, 2008) and eliminate anxiety (Mick and Fournier, 1998). The coping literature suggests that coping can be in the form of problem-focused, involving attempts to address the source of stress directly, and emotional-focused, initiated to regulate one's emotional response (Duhachek 2005). Similarly, coping may follow either an approach or avoidance motivation (Han et al. 2015). In general, approach motivations might arise when individuals believe they possess the ability to attain their desired state or that environmental conditions are favorable for taking action (Duhachek, Agrawal, & Han, 2012) whereas consumers lacking this belief instead attempt to regulate their emotional response via emotion-focused coping (Sujan, Sujan, Bettman, & Verhallen, 1999; Yi and Baumgartner 2004). In the context of interpersonal relationships, negative or hurtful partner acts leveled against a couple member may pose a relationship threat (Arriaga et al. 2007), which induces coping mechanisms. Relationship members may cope with negative relationship events by approach or avoidance strategy, depending on the types of beliefs held by relationship members. For example, Knee (1998) found that in response to relationship stressors, one may employ an avoidance strategy that disengages and distances oneself from the relationship, or an approach strategy that endorses relationship-maintenance, reflecting attempts to solve the problem and grow from experience.

In the present research, we were interested in the coping strategy that the consumer might opt for depending on the type of relationship between the consumer and the product. Will the consumer employ the avoidance approach, in that they distance themselves from the product, e.g. give it away/ try to sell it? Or, are they more likely to use an approach strategy in which

they solve the problem by fixing the product? We explore this issue based on participants' written answers.

Figure 13 demonstrates the paths that will be tested in Study 3 (in red).

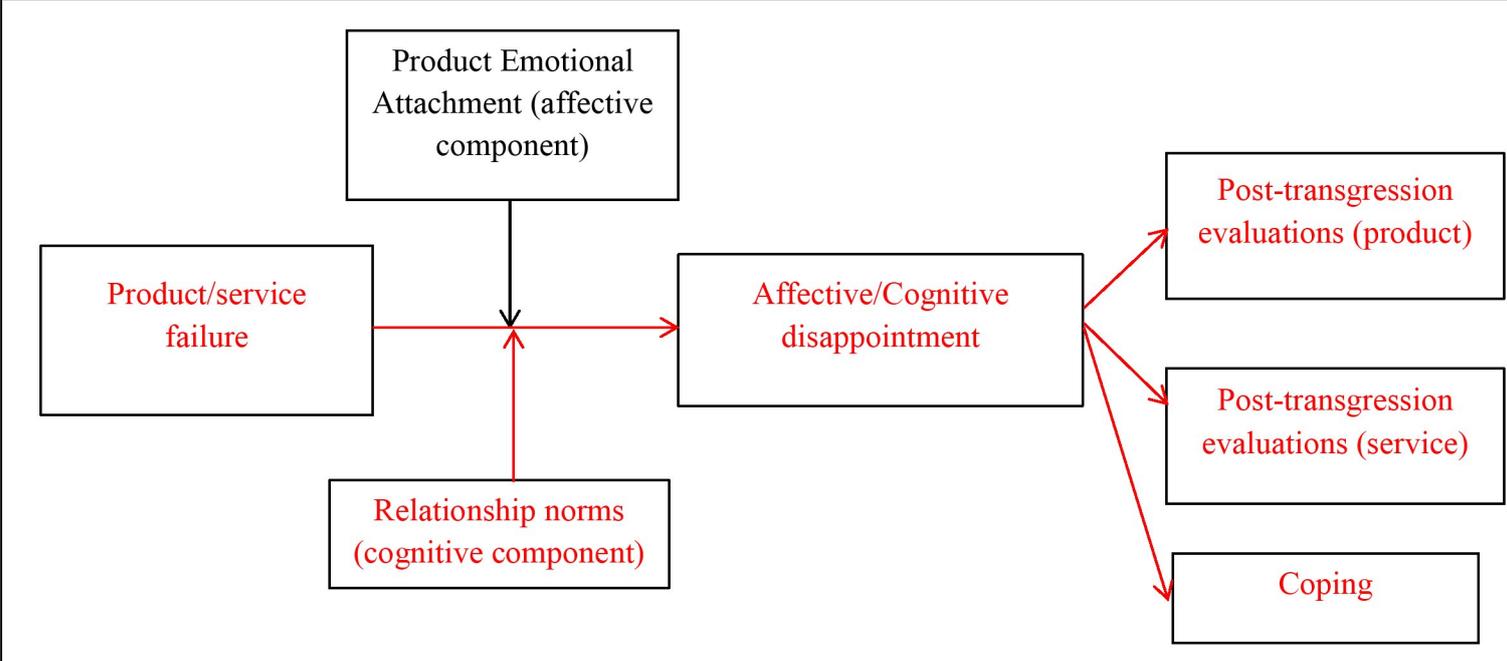


Figure 13. Conceptual Framework – Study 3

## 5.4 Methodology

### 5.4.1 Research Design

#### 5.4.1.1 Design

Study 3 employs a single factor (relationship type) between-subjects design. Three levels of relationship were included. Moreover, in this study, only the ‘self’ condition is run. Study 1 and 2 show that the mechanism is a self-related one, therefore it would be redundant to include the ‘other’ condition in this study.

#### 5.4.1.2 Manipulation

As noted earlier, to make salient relationship norms, respondents in this study were asked to indicate the real relationship that they perceived between themselves and a product. Specifically, three types of relationship, including a best friend, a friend, or an acquaintance are used as proxies for a strong and established communal relationship, a weaker communal relationship and an exchange relationship, respectively. Subjects selected an option that best described their relationship to their cell phone in an interpersonal way. After selecting the relationship type, participants wrote on a piece of paper about the relationship and relationship norms. Aggarwal and Zhang (2006) primed interpersonal relationship norms in the product relationship context by letting participants read about relationship norms. Here, the present research had participants write about the norms themselves. To check whether the types of relationship induce the norms as intended, we include three questions relating to three aspects of norms. These questions are as follows: If your relationship with the phone is an interpersonal relationship: ‘How certain is this relationship to you?’, ‘To what extent do you expect the relationship partner to care for your needs?’. ‘To what extent is maintaining equity in giving and receiving important in this relationship?’. Subjects answered these questions on a 7-point scale (1-not at all, 7-very much).

#### 5.4.1.3 Measurements

Dependent variables are measured with the same items as in Study 1 and 2. In addition, we measured the disconfirmation process by a single item: “To what extent was the delivery of the phone worse than you expected beforehand?” (1 - not at all worse and 7- much more worse) (Zeelenberg and Pieters 2004). Moreover, we examine coping behaviors following the transgression. Specifically, we explore whether the individuals will employ an approach or avoidance coping strategy. The approach coping is assessed by these items: “how likely are you to attempt to fix the phone yourself? (e.g. open the back of the phone, turn the phone on and off, etc.), and “how likely are you to bring your phone to the shop to get it repaired?”. The avoidance approach was gauged by the following items: “how likely are you to replace your phone with a new one?”, “how likely are you to give your phone away to someone else?”, and “how likely are you to sell this phone?”. Responses were recorded on a 7-point scale, with 1 as “very unlikely” and 7 as “very likely”. We also analyze coping strategy based on participants’ writing.

## 5.4.2 Research Procedure

### 5.4.2.1 Participants

Eighty subjects were recruited for a \$5 compensation. They came to the behavioral lab in the business school to take part in the experiment.

### 5.4.2.2 Procedure

Similarly to the first two studies, participants completed three presumably unrelated tasks. The first task measures existing evaluations of the product component, filtered with other products and services. Task 2 is a filler task. The last task is Study 3, a single factor between-subjects design with three levels of relationship (best friend, friend, acquaintance). Participants read the following instruction: “If you have to describe the relationship you have with your phone in an interpersonal way, what would that be?” They were instructed to choose from a list, including three items: ‘a best friend’, ‘a friend’, and ‘an acquaintance’. Then, in a 5- minute writing task, they wrote about the relationship that they chose and the ensuing relationship norms. They were asked to write as much as they can on (1) how strong, established is the relationship in their opinion, and (2) what are the norms in this relationship. This is to ensure they are immersed in the manipulation condition as well as to provide an additional check regarding the norms. After this writing task, they answered 3 questions which were our manipulation check of relationship norms. As mentioned earlier, these 3 questions were: If your relationship with the phone is an interpersonal relationship: ‘How certain is this relationship to you?’, ‘To what extent do you expect the relationship partner to care for your needs?’. ‘To what extent is maintaining equity in giving and receiving important in this relationship?’. Subjects answered these questions on a 7-point scale (1-not at all, 7-very much).

They were then shown the malfunction scenario. The same scenario from study 1 and 2 was used in study 3. The instruction emphasizes that they “imagine the event is really occurring to you”. After the scenario, we measured evaluations of the product component, followed by the disconfirmation measurement item (“To what extent was the delivery of the phone worse than you expected beforehand?” (1 - not at all worse and 7- much more worse)). In addition, coping behaviors were captured, with the items described in the measurement section. Moreover, participants were asked to indicate the cause of the problem, whether it is

the phone or the network service, or both. Subsequently, they are asked to complete a writing task. In the task, they wrote about what they would do in that situation. The written responses help to understand coping behaviors following a functional failure.

## 5.5. Results

### 5.5.1 Preliminary analysis.

After selecting the type of relationship (best friendship, friendship, and acquaintanceship), participants wrote about this relationship and the ensuing relationship norms. An analysis of the writing task demonstrates that the norms mentioned were in line with Clark and Mills (1979) distinction of communal (certain and uncertain types) and exchange relationship. Those who chose a 'best friendship' to describe their relationship to their phone mostly described it as a long-term relationship. Regarding the norms, most of the participants in this group referred to 'just like norms between me and my best friend', indicated by "helping each other", "understanding each other". For those who chose a 'friendship', some of the thoughts that were relevant to our examination are: "would not consider a friend someone too close", "effort from both partners to show each other we can be friends". In an acquaintanceship, participants talked more about "the phone does its job".

### 5.5.2 Tests of Assumptions

#### *Test of normality*

Results from Shapiro-Wilk shows that the study's assumption of normality has not been violated. Significant values are larger than .05 for product and service evaluations. Evaluations of phone: best friend ( $p = .654$ ), friend ( $p = .1$ ), acquaintance ( $p = .087$ ).

#### *Homogeneity of variance*

Levene's test shows that this assumption is also not violated in this study, with significant values larger than .05. Specifically: product evaluations ( $p = .235$ ).

### 5.5.3 Manipulation check

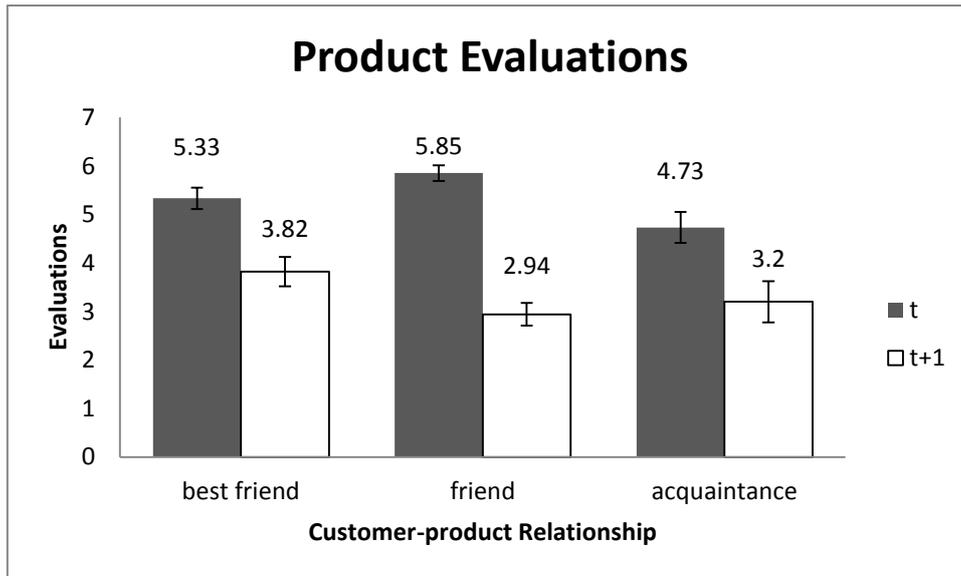
As reported previously, three questions were included to check if relationship norms were induced as intended. These questions are: ‘How certain is this relationship to you?’, ‘To what extent do you expect the relationship partner to care for your needs?’. ‘To what extent is maintaining equity in giving and receiving important in this relationship?’. Subjects answered these questions on a 7-point scale (1-not at all, 7-very much). Independent t-tests compare the mean difference of each norm between a pair of relationships. Results from the t-tests show that a best friendship is perceived as more certain than a friendship ( $M_{\text{best-friendship}} = 4.4$ ,  $M_{\text{friendship}} = 2.87$ ,  $t(57) = 4.35$ ,  $p < .001$ ). The expectation that the partner care for one’s needs is higher in a friendship compared to a best-friendship ( $M_{\text{best-friendship}} = 2.9$ ,  $M_{\text{friendship}} = 3.82$ ,  $t(57) = 2.91$ ,  $p = .005$ ). Moreover, maintaining equity is higher in an acquaintanceship compared to best friendship ( $M_{\text{best-friendship}} = 2.4$ ,  $M_{\text{acquaintance}} = 4.1$ ,  $t(39) = 4.86$ ,  $p < .000$ ) as well as friendship ( $M_{\text{friendship}} = 3.05$ ,  $M_{\text{acquaintance}} = 4.1$ ,  $t(58) = 3.25$ ,  $p = .002$ ). The results show that the norms of the indicated relationship types were as predicted.

#### 5.5.4 Main effects

##### *Effect of Relationship types on post-failure evaluations*

##### *Mixed-model ANOVA analysis*

Mixed-model ANOVA was run on product evaluations (evalPC) with time points of measurement before and after the functional failure scenario (t and t+1) as the within-subjects factor and relationship type as the between-subjects factor. Results show a significant main effect of time point of measurement ( $F(1, 77) = 174.79$ ,  $p < .001$ ) and a significant interaction effect of time point of measurement and relationship type ( $F(2,77) = 5.4$ ,  $p = .006$ ) on EvalPC. Figure 14 summarize the mean scores of product evaluations before and after the functional failure.



**Figure 14. Pre- and post-failure product evaluations across relationship types**

We conducted further t-tests to dissect the interaction effect.

*T-tests analysis: Pre-failure versus post-failure product and service evaluations*

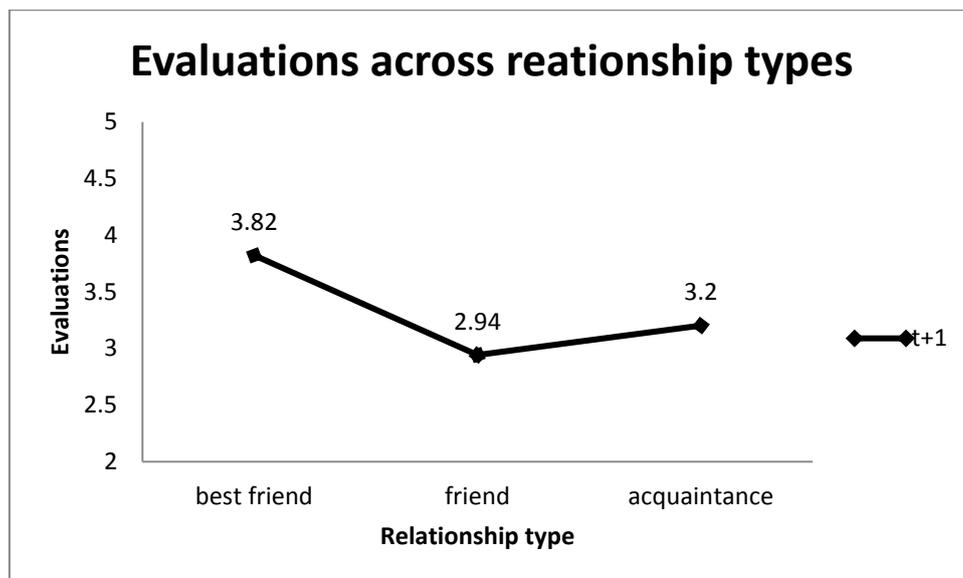
Paired t-tests results provide insights on how evaluations change after the functional failure. Results revealed that product evaluations were negatively affected regardless of the relationship type (best friendship:  $M_{\text{evalPC}(t)} = 5.33$ ,  $M_{\text{evalPC}(t+1)} = 3.82$ ,  $t(19) = 4.06$ ,  $p = .001$ ; friendship:  $M_{\text{evalPC}(t)} = 5.85$ ,  $M_{\text{evalPC}(t+1)} = 2.94$ ,  $t(38) = 13.07$ ,  $p < .001$ ; acquaintance:  $M_{\text{evalPC}(t)} = 4.73$ ,  $M_{\text{evalPC}(t+1)} = 3.2$ ,  $p < .001$ ). Similarly to study 1 and 2, effect size of the difference between pre-failure and post-failure evaluations was calculated to determine the strength of the effect. Table 16 displays effect size ( $r$  value) for each effect found in t-tests. The result indicates that a ‘friend’ relationships lead to the largest decrease in product evaluations ( $r = .9$ ), followed by an acquaintanceship ( $r = .76$ ) and a best friendship ( $r = .68$ ). Product evaluations deteriorated most in the friendship condition. That is, an uncertain communal relationship such as a friendship results in a greater decay in product evaluations following a functional failure compared to a certain communal relationship (i.e. a best friendship) and an exchange relationship (i.e. an acquaintanceship). **H5a was supported.** Moreover, a best friendship led to smaller decay in product evaluations compared to exchange relationship. **H5b was supported.**

Relationship	Mpre-failure (SD)	Mpost-failure (SD)	t value	p value	r (effect size)
Best friend	5.33 (.99)	3.82 (1.35)	$t(19) = 4.06$	.001	.68
Friend	5.85 (.96)	2.94 (1.41)	$t(38) = 13.07$	<.001	.90
Acquaintance	4.73 (1.39)	3.2 (1.85)	$t(20) = 5.19$	<.001	.76

**Table 16. T-tests of pre- and post-failure product evaluations**

### *Post-failure Product across conditions*

An ANOVA was run with Relationship as the independent variable and post-failure product evaluations as the dependent variable. Results show that there was a marginally significant effect of relationship type on product evaluations ( $M_{\text{best friend}} = 3.82$ ,  $M_{\text{friend}} = 2.94$ ,  $M_{\text{acquaintance}} = 3.2$ ,  $p = .09$ ). Figure 15 demonstrates the effect. Further t-tests show that product evaluations are significantly higher for the ‘best friend’ relationship compared to ‘friend’ relationship ( $M_{\text{best friend}} = 3.82$ ,  $M_{\text{friend}} = 2.94$ ,  $t(57) = 2.29$ ,  $p = .026$ ). There was however no significant difference in product evaluations between the ‘best friend’ and ‘acquaintance’ relationship ( $p > .05$ ) and between ‘friend’ and ‘acquaintance’ ( $p > .05$ ).

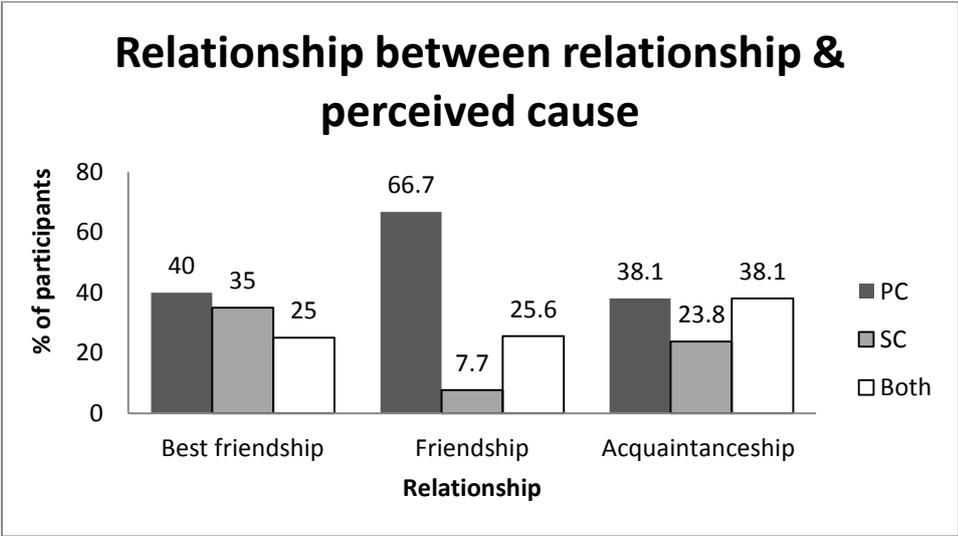


**Figure 15. Post-failure product evaluations across relationship types**

*Cause of the product failure*

The cause that is chosen by participants as the source of the problem (i.e. the phone, network service, or both) is shown to be contingent on their relationship with the product. A cross-tabulation demonstrated that 40% of those who consider their phone as a best friend indicated the phone as the source of the malfunction (35% chose network service and 25% chose both), while 66.7% among those who consider their phone as a friend did so (7.7% chose network service and 25.6% chose both). For those who indicated their phone as similar to an acquaintance, 38.1% chose the phone as the source of problem, 23.8% chose the network, and 38.1% chose both. Also, among those who chose the phone as the cause of the problem, only 18.6% have a best friendship with their phone, 60.5% have a friendship with their phone, and 20.9% are just acquaintances with their phone. Among those who chose the network, 50% are a best friend, 21.4% are a friend, 28.6% are an acquaintance with their phone. For those who chose both the phone and the network as the culprits, 20.8% are a best friend, 41.7% are a friend, and 33.3% are an acquaintance with the phone.

A Chi-square test of independence was performed to examine the relation between the perceived cause of the functional failure and the relationship. The association between these variables was significant,  $\chi^2(4, N = 80) = 9.43, p = .05$ . Together with the results of cross-tabulation, this result suggests that the perceived cause differs according to the relationship. People with a friendship with the product were more likely to blame on the product compared to others with a best friendship and an acquaintance.



**Figure 16. Perceived cause across relationship types**

### *The mediation through disconfirmation process*

To test the mediating effect of disconfirmation, we performed 5,000 bootstrap resamples using Preacher and Hayes' (2008) SPSS macro to test the indirect path (i.e., the path from relationship type to evaluations via disconfirmation). We conducted the mediation analyses for each pair of relationship type, i.e. best friendship versus friendship, best friendship versus acquaintanceship, friendship versus acquaintanceship. Note that, the Dependent Variable in the mediation analyses is the post-failure product evaluations.

#### *Best friendship versus friendship*

Regression analyses show that relationship type affects disconfirmation ( $\beta = 1.52, p = .04$ ) and disconfirmation influences product evaluations ( $\beta = -.33, p < .001$ ). The direct effect of relationship type on evaluations disappeared in this mediation model ( $p > .1$ ). Disconfirmation fully mediated the effect (95% CI = [-1.24, -.12]).

#### *Best friendship versus acquaintance*

Results show that disconfirmation influences evaluations ( $\beta = -.34, p < .001$ ), however the effect of relationship type on disconfirmation was not statistically significant ( $\beta = .26, p > .1$ ).

#### *Friendship versus acquaintance*

Disconfirmation influences evaluations ( $\beta = -.37, p < .001$ ), however relationship type did not influence disconfirmation ( $\beta = -.1, p > .1$ ).

**H6a was partially supported.** A weak communal relationship (i.e. a friendship) with the product component results in greater negative disconfirmation compared to an established communal relationship (i.e. best friendship), subsequently leads to lower evaluations following a functional failure. However, the negative disconfirmation was not significantly different between friendship and acquaintanceship. H6b hypothesizes that compared to an established communal relationship (i.e. best friendship), an exchange relationship (i.e. acquaintanceship) with the product component leads to more negative disconfirmation following a functional failure, which in turn leads to lower product evaluations. However, we did not find this from our data. **H6b was not supported.**

## *Coping behaviors*

### *Coping by fixing*

A look at the solution to the problem that individuals seek reveals a difference in the tendency to ‘fix the phone’ between those who consider their phone as a best friend and those whose phone is just a friend to them. Recall that we measured ‘fixing’ behaviors by two items: ‘How likely are you to attempt to fix the phone yourself? (e.g. open / the back of the phone, turn the phone on and off, etc...)’ and ‘I am likely to bring the phone to the shop to get it repaired’.

Moreover, switching behaviors were measured with three items: ‘how likely are you to replace your phone with a new one?’, ‘how likely are you to give your phone away to someone else?’, and ‘how likely are you to sell this phone?’.

Results show that regardless of the relationship (best friend or friend), people are more likely to fix both the product than to switch/replace them. This might be motivated by an economic reason; fixing costs less than obtaining a new product. One’s initial reaction to a product/service malfunction is to repair it. Notably, however, there is a difference between intention to fix the product across relationship type:  $M_{\text{best friend}} = 5.1$ ,  $M_{\text{friend}} = 5.8$ ;  $F(1, 58) = 3.95$ ,  $p = .05$ . People cope with negative feelings produced by a functional product failure by fixing it, just like the way they fix a friendship when it goes through a certain hurdle. What is interesting is that people were more likely to fix the product which they considered a friend than a best friend.

### *Coping by directing the source of problem*

Participants who consider their phone as a friend cope with the perceived relationship failure by fixing the phone. This raises the question regarding how people to whom the phone is a best friend cope with the event. We analyzed participants’ written responses to the question ‘what is the cause of the problem?’ Participants (20 who indicated their phone is their best friend) indicated that the phone is the problem (40%), the network service is the source of the problem (35%), and both phone and network service (25%). However, their written responses show that that even when indicating the cause is the phone, participants who considered their phone as a best friend still redirected the responsibility to either the network service or to themselves, or not sure about their choice.

Two independent coders were employed to categorize the coping strategy that participants use in their answers. The coders, who were blind to the hypotheses, were asked to mark the answers that express one of the following: (1) defending the phone, (2) redirect the responsibility to the network service, (3) blame on the self instead, (4) blame on phone products in general. In addition, the coders were asked to note down any points that are related to emotions in the answers. The results show that among eight responses which indicate the phone is the cause, one participant redirects the responsibility to the network service, referring to the possibility of the network service being the cause of the problem. Two respondents blame themselves for the incident, guessing that it must be them who have gotten water in the phone, dropped the phone, or tweaked something in the phone. Three participants referred to the problem as a general problem of cell phones. One respondent was not sure about his/her choice.

For those who chose the network service as the cause of the problem (seven responses), four of them defended the phone, while three responses directed the responsibility to the network service. Among five participants who chose both phone and network service as the possible causes, two in the end redirected the responsibility to the network service, one blamed the texting apps instead, and one participant expressed emotional response that ‘it is hard to believe my iPhone could be doing something like that’. These written answers show that those in a best friendship coped with the functional failure by convincing themselves that it is not their phone that caused the negative event.

#### 5.6. Posttest – Connecting affective and cognitive component of relationship

Linking study 3 back to study 1 and 2, there is some inconsistency in the findings. That is, while study 1 and 2 suggest that a high level of product emotional attachment motivates the individual to evaluate the product worse than the service, study 3 found that a best friendship, which is supposed to involve higher emotional attachment compared to a normal friendship, motivates forgiving intentions. One possibility is that the level of emotional attachment captured in study 1 and 2 was only equivalent to the level of emotional attachment of a friendship. To testify this possibility, a posttest is run using a sample on MTurk panel. The purpose of this posttest is to examine the level of emotional attachment in the relationship examined in study 3.

## Method

Participants were told that the survey is conducted by a researcher in the school, and that the survey is a small part of a larger research project. They were informed that the purpose of the survey was to examine the relationship people hold with a certain product/service.

Respondents read the instruction: “If you have to describe the relationship you have with your phone in an interpersonal way, what would that be? Please choose from the list below: a best friend, a friend, an acquaintance”. Then, emotional attachment was measured using the same scale as in Study 1 and 2. Emotional attachment was measured with three items: “I am emotionally attached to my phone (vs. my network service)”, “My phone (vs. network service) is important to me”, and “Sometimes I feel like my phone (vs. my network service) is more than just an object”.

## Results

As predicted, the level of emotional attachment captured in Study 1 and 2 is only moderate, equivalent to that of a normal friendship ( $M_{PC} = 3.68$  in study 1,  $M_{\text{high EA}} = 4$  in study 2,  $M_{\text{friend}} = 3.4$  in study 3). A best friendship, on the other hand, shows higher emotional attachment than what was measured in Study 1 and 2 ( $M_{\text{best friendship}} = 5.03$ ). Emotional attachment in a best friendship is significantly higher than emotional attachment in a normal friendship,  $M_{\text{best friendship}} = 5.03$ ,  $M_{\text{friendship}} = 3.4$ ,  $t(76) = 6.68$ ,  $p < .001$ . Moreover, emotional attachment in an acquaintanceship is significantly lower than that in a friendship,  $M_{\text{friendship}} = 3.4$ ,  $M_{\text{acquaintance}} = 2.63$ ,  $t(73) = 3.07$ ,  $p = .003$ .

## 5.7 Discussion

Together with the findings from Study 1 and 2, results from study 3 have broadened our understanding of the dynamic relationships between a consumer and a specific product. The product is considered much more than just an unanimated object, but is regarded as a partner engaging in a relationship. Indeed, if products are only considered as objects, no differentiated effects should be found when priming with relationship type. Here, the effects were evident, indicating a much more complex interaction between the consumer and the product.

Participants' evaluations suggest that they follow rules in interpersonal relationships and

apply them into interactions with products. When the distinct relationship norms are salient in a consumer - product interaction, then consumers use these norms to guide their behavior and their evaluations of the product. Specifically, the rules in a communal relationship, strong or weak, and an exchange relationship guide the individual's reaction to a functional failure, a negative transgression. When a communal relationship is already established as in a best friendship, the consumer does not allow one single malfunction incident to affect the strong relationship. There is less uncertainty involved, thus there is less monitoring of the relationship partner's consideration of one's needs. As a result, the consumer is less disappointed by the product itself. On the other hand, the uncertainty in a weaker communal relationship such as a friendship involves high monitoring of the relationship partner's consideration. Thus, in the case of a functional failure, the consumer went through a process of negative disconfirmation which resulted in a greater extent of decay in product evaluations.

Moreover, study 3 shows that the individuals engage in coping behaviors following a functional failure, and that the coping approach varies depending on relationship type. Friendship members coped by fixing the product, as a way to fix the relationship. Best friendship members, on the other hand, coped with this negative event by redirecting the responsibility to the network service or to themselves. One explanation for this coping approach is that in doing so, they could convince themselves that it is not the fault of the product. Another speculation is that people who hold a friendship towards the phone might fix the product as they have the desire to develop the relationship into a stronger, more certain communal relationship. However, this is merely a hypothesis and should be investigated in future research.

In the next chapter, a discussion of the findings across three studies is presented. In addition, theoretical and managerial implications are discussed.

## **Chapter 6. Discussion and Implications**

### **6.1 Introduction**

This section provides a summary of the findings throughout three studies. After that, a discussion of these findings will be presented, followed by the implications of this research, both theoretically and managerially.

### **6.2 Summary of findings**

#### **6.2.1 Main effects**

Three studies in the present research examine the role of relationship in customers' reactions to a product failure. Specifically, study 1 and 2 inspect emotional attachment, the affective element of relationship, while study 3 studies the cognitive aspect which is relationship norms. In study 1, we examined both components of the PSBs, product and service. We compared the effects of product attachment versus service attachment and examined how a focus on product versus attachment might influence evaluations of the product and service component. In study 2 and 3, however, we limit our investigation to the product component. Results from study 1 and 2 show that one's emotional attachment to a product might actually cause product evaluations to suffer from a greater decay following a functional failure. Study 1 results revealed that product evaluations decayed more than service evaluations when the focus was on the product attachment. In contrast, when the focus was on the service attachment, the decay was not different for product and service evaluations. Study 2 further showed that the magnitude of emotional attachment had an impact on evaluations in the event of a functional failure. We showed that high (compared to low) product attachment leads to a greater decay in product evaluations.

Moreover, through study 1 and 2, we demonstrated that the effect observed was specific to the relationship between an individual and an owned product rather than the relationship with a brand. We tested this issue by manipulating self versus other, such that the functional failure occurred to oneself versus to someone else. The brand in both conditions was the same. We did not find the effect when the failure happened to someone else. This allows us to rule out the possibility that self-brand connection is the underlying factor driving the effect.

Study 3 further explored relationship from a cognitive aspect and found that interpersonal relationship norms act as a guide in consumers' evaluations during a transgression. Results suggested that how much a functional failure influences one's product evaluations is contingent on the relationship type with according relationship norms. A certain communal relationship such as a best friendship gave room for forgiveness while an uncertain communal relationship such as a normal friendship gave rise to punishment. In addition, study 3 looks into one of the downstream consequences, which is coping behavior. The findings show that, people in less certain communal relationship cope with the product failure by fixing it, while those in a certain communal relationship cope by blaming the service or themselves instead of blaming the product, their relationship partner.

### 6.2.2 Mediation effects

The present research proposes and shows that two different, but related, processes underlie the effect of the affective and cognitive aspects of relationship on evaluations in the event of a functional failure. Emotional attachment (i.e. the affective component of relationship) influences evaluations through the mediation of a specific emotion of disappointment, while relationship norms affect evaluations through a negative disconfirmation process. One limitation in our mediation analyses is that we conducted the analysis with post-evaluations as the dependent variable without taking into account pre-failure evaluations.

Study 2 shows that disappointment mediates the effect of emotional attachment on post-failure evaluations. Specifically, individuals with high emotional attachment to a product experienced higher disappointment with the product, which in turn led them to evaluate the product lower compared to the service. Individuals with low product emotional attachment, on the other hand, experienced lower disappointment, resulting in no difference between product and service evaluations.

In Study 3, participants who have a friendship with the product went through higher negative disconfirmation after the failure compared to those with a best friendship with their product. This disconfirmation led them to lower their evaluations of the product. A friendship, as an uncertain communal relationship, implies the high monitoring of the partner's care for one's own needs. When the product as a relationship partner does not fulfil its role and fails to conform to the norm, the individuals might feel that the partner does not care for their needs,

resulting in negative disconfirmation. A best friendship, on the other hand, is a certain communal relationship in which members have little motivation to monitor the partner's attention to one's own needs. Thus, people in this relationship with the product experienced less negative disconfirmation, hence evaluating the product better than the service.

### 6.2.3 Covariates and alternative explanations

We examined several covariates including mood, self-brand connection and other telecommunication-related variables such as usage period, type of service plans, etc. Results from ANCOVA analyses suggested that these variables did not have an effect on evaluations.

Moreover, we ruled out the effect of self-threat, or more specifically, self-identity threat. We measured self-threat in a main test and examined it again in a post-test. Results revealed that while the functional failure might be threatening to the consumer, it had nothing to do with identity threat.

## 6.3 Discussion of findings

### 6.3.2 Emotional attachment

Emotional attachment to a product regulates customer's responses to a product failure. When product emotional attachment is high (study 2) and when people focus on this high emotional attachment (study 1), product evaluations in fact did not benefit from this emotional attachment during a functional failure. Product evaluations were deteriorated, or decayed, by the functional failure more than service evaluations when people focused on the high emotional attachment (study 1). Moreover, product evaluations were decayed more when product emotional attachment was high compared to when product emotional attachment was low.

Another insight our studies provided is that the emotional attachment people develop towards a product and service component in a PSB were to different extents. First, emotional attachment to the product component was higher than that towards the service component. Second, emotional attachment to a service did not influence evaluations as much as product

attachment. Even when the emotional attachment to a service was activated at a high level (in Study 1), the attachment is not strong enough to change the direction of evaluations.

Based on results from the post-test after study 3, we make a speculation regarding the role of emotional attachment. It appears that the high level of emotional attachment we captured in study 1 and 2 matches the emotional attachment level in a normal friendship. We therefore speculate that a high level of emotional attachment (one that is equivalent to the level of emotional attachment in a normal friendship) to a product has a negative effect on its evaluations, however only up to a certain point. Beyond this level, for example to the level of emotional attachment involved in a best friendship, this emotional attachment turns to protect the product, resulting in lower decay in product evaluations following a functional failure.

### 6.3.3 Relationship norms

The role of relationship norms in influencing evaluations following a product failure in the PSB setting was shown in study 3. Consumers apply interpersonal relationship norms as guidance for their judgments in evaluating the product and service. Aggarwal and Zhang (2006) found that consumers use interpersonal relationship norms that are salient into their interaction with brands. In this research, instead of merely priming subjects with interpersonal relationships norms, subjects directly indicate their relationship with a specific product in an interpersonal way. The relationship between a consumer and a product, therefore, is examined in a more direct way. By using the labels of the relationship types, i.e. best friendship, friendship, and acquaintance, this research suggests that thinking about the relationship one shares with a target will activate the rules and norms inherent to the relationship. Furthermore, to ensure the norms were made salient, participants wrote about the norms of their relationship towards the product.

Our findings on how relationship norms influenced product evaluations show that people bring what guide their interpersonal relationships into their interaction with the product. Clark and Mills's (1979, 1982) classification of relationships focuses on two types: communal and exchange. We further examined the two different types of communal relationships which vary on the level of uncertainty involved in the relationship. We found that a certain and uncertain relationship to a product influenced product evaluations differently. In the event of a functional failure, a certain communal relationship benefits the

product more than an uncertain communal relationship. A certain communal relationship such as a best friendship led to lesser decay in product evaluations compared to an uncertain communal relationship such as a normal friendship.

#### 6.3.4 Do emotional attachment and relationship always mean self-identity integration?

Previous research often examined emotional attachment as part of the self-object link. In other words, a strong emotional attachment to an object tends to indicate the object's role in constituting the identity of an individual. Results from the present research however show that for certain product categories, such as a mobile phone in the current context, individuals develop emotional attachment to a product without integrating it as part of the self and identity. Even if they do, the role of the product in maintaining identity is not sufficient such that when the product is broken or not functioning well, the event did not pose any self- or identity- threat to the individual. One reason might be that a phone is easy to be replaced. Instead, the individual forms a relationship with the product that mirrors interpersonal and social relationships. While several participants indicated that they considered their phone as a best friend, the product itself does not seem to link to identity of the self. Alternatively, the integration into the self and identity is not strong enough to influence one's self-concept. Previous research suggested that a close other might be considered as part of the self (Aron, Aron and Smollan 1992; Ward and Broniarczyk 2011). Here, that is not the case, perhaps because the interaction between an individual and an object is different from interpersonal interactions. As a result, when faced with a product and service transgression, the individual did not encounter self-threat or identity-threat, rather, the individual experienced disappointment and disconfirmation regarding the relationship partner.

## 6.4 Implications

### 6.4.1 Theoretical implications

Across three experiments, we explored the effects of relationship on consumers' responses to a product failure with an ambiguous cause. Both affective and cognitive components of relationship were examined. Findings from the present research contribute to the literature theoretically by broadening our understanding in several aspects. First, just as consumers form relationships with a brand, they do the same with a specific product. By investigating both affective and cognitive aspects of relationships, the present research

provides insights into the dynamics of the relationship construct. Second, findings from the studies in this research help us to understand more about consumers' responses and behaviors in negative situations. The relationship between an individual and a product brings about a type of attributional bias in the event of a product failure. Depending on their relationship with the product, consumers would respond differently both in evaluations and subsequent behaviors such as coping behavior.

Third, relationship norms were investigated across different levels of relationship. Past research examining the role of relationship in reactions to transgression often focus on two levels of relationships. For example, Aaker, Fournier and Brasel (2004) examine an intimate, friendship-like brand relationship versus a fling-like relationship. Wan, Hui and Wyer Jr. (2011) investigate how a friendship relationship versus a business relationship with the service failure influences responses to service failure. The examination of three types of relationships (i.e. acquaintance, friend, best friend) which vary in the extent of emotional intensity and relationship norms expands our understanding of how dynamic relationships could be.

Fourth, the present research provided some insights regarding the dynamics of a PSB. Although we only studied evaluations of both components, product and service, in study 1, findings from this study broaden our knowledge about a type of product and service bundle. Note that the PSB we investigated was one in which the primary product (e.g. phone) is a tangible product and the service serves the facilitating function. The result can be generalizable to similar types of PSB. Our findings show that, first of all, in this type of PSB emotional attachment to the product component is higher than that to the service component. Moreover, the effect of a functional failure on product and service evaluations appeared to depend more on product emotional attachment than service emotional attachment. When the focus was on product emotional attachment, product evaluations were more negatively affected by the failure compared to service evaluations. One might expect that in that case, when the focus was on emotional attachment to the service, service evaluations should be more negatively affected than product evaluations. This was not the case based on our data. This finding allowed us to prove our argument regarding the different effect of product versus service attachment in the context of a PSB.

#### 6.4.2 Managerial implications

Findings from the current research provide managerial implications for firms whose offerings are part of the PSB. Specifically, the research investigates the dynamic interaction between the consumer and the product/service bundle. Such an investigation is important as PSBs are becoming common and their interaction should be of interest for marketers. The results demonstrate that companies who offer the product (versus the service) have more control over the consumer's attribution of responsibility in the event of a product/service failure with an ambiguous source. Evidence regarding the role of both affective and cognitive aspects of relationship in consumers' responses to the failure provides insights for marketers in managing such performance failures.

From the emotional attachment perspective, the research shows that when the emotional attachment people hold with their product is high, they respond more negatively to the product. From the perspective of relationship norms, a certain communal relationship (i.e. a best friendship) drives the individual to direct the responsibility to the complementary service as a way to defend the product, whereas uncertain communal relationship (i.e. a friendship) leads the individual to punish the product component. As such, one way for the product providers to manage customers' responses to the failure in their favor is to activate the certain communal relationship (e.g., a best friendship) norms. Through marketing communications, marketers of the product companies might suggest ways to encourage a customer-product best friendship. As for the service provider, although findings suggest that service providers should promote an uncertain communal relationship between the consumer and the product, this is in practice inappropriate. Instead, the service provider might want to develop and promote a strong relationship between the service and the consumers. Similarly, findings from this research indicate the need for service providers to develop emotional attachment between their offerings and the consumer. As shown from the first study, even when high emotional attachment to a service is activated and made salient, this emotional attachment is not strong enough to have any effect on consumers' evaluations. In other words, the emotional attachment to the service is not sufficient to guide the consumer's judgment in favor of the service provider. Thus, it is important to establish and maintain a certain communal relationship with the customers. This can be more challenging for a service compared to a product, as a product is right next to the consumer, while the service is more intangible. However, service providers can compensate the intangibility of the service itself by increasing interactions with consumers.

Another managerial implication from the current research is the importance of communication and interference from the company in the event of a product/service failure. The present research studies customers' reactions to a failure before the customers get in touch with the company personnel. Results show that in such an event psychological bias occurs which influences the way people make causal attributions and subsequently their evaluations. Communication with the customers is therefore important and could help to change customers' evaluations and attitudes. Last but not least, an implication for the consumers from this research is that when facing a transgression, the consumer should not rush to conclude who is the culprit of the problem. Their evaluations might be biased based on their relationship with the product itself.

## **Chapter 7. Limitations and Future Research**

### **7.1 Limitations**

The current research has several limitations that present avenues for future research. The context of telecommunication industry somewhat limits the generalization of the findings. Future research can explore other PSBs such as car and car mechanics, or, in a retail context, a retailer and products. Moreover, the main experiment approach in this research is scenarios. As noted earlier, this approach, while allowing for the testing of effects and mechanisms, has many drawbacks. By using scenarios, real behaviors were not captured in this research. In addition, in the context of a PSB, a natural examination would be the spillover effect between evaluations of the two components, product and service. In the present research, we did not measure evaluations of the PSB as a whole, therefore were not able to analyze the spillover effect. Future research should examine the spillover effect.

Last but not least, the present research makes several arguments which are based on assumptions. For example, we speculated that one of the reasons individuals tend to try and fix the product if they perceive their relationship with the product as a friendship lies in their desire to develop stronger communal relationships. This hypothesis has not been empirically testified in the present research. Moreover, with regards to the connection between affective and cognitive aspects of relationship, although the level of emotional attachment and relationship were matched in the posttest, the flipping effect of a high level of emotional attachment was merely our reasoning. It would be better if the level of emotional attachment is manipulated (low, high, and higher) to see if the effects are the same as in relationship (acquaintanceship, friendship, and best friendship).

These limitations of the present research open up opportunities and potential avenues for future research in the topic of product failure or consumer-product relationship.

### **7.2 Directions for future research**

The present research and its findings open several potential avenues for future research. First of all, the product category in the present research (i.e. cell phones) is not identity-related, as indicated by participants' respondents. Future research can explore

contagion effects between a PSB in which the product is related to the consumer's identity. It would be interesting to see if the relationship explanation still holds, or a more self-related process will determine the effects. Moreover, future research can look into the real behaviors of the effects. A field study in which a real consumption context is involved would be ideal for the observation of real behaviors.

As mentioned earlier, future research can look into the interaction between evaluations of the product and service component. Several related, but different, effects might exist within a PSB, such as spillover, halo and contagion effects. To do so evaluations of the PSB as a whole should be measured before and after the functional failure, in addition to evaluations of each component. It would also be interesting for future research to distinguish spillover, halo and contagion effects in a PSB context. For example, a study in which respondents are asked to evaluate something totally unrelated would be useful to explore whether the effect is a halo. To inspect the spillover or contagion effects, the cause can also be manipulated to be from either the phone or the service. This would help to answer questions such as, whether the spillover/contagion are from the physical, tangible source (i.e. the product) or the abstract source (i.e. the service) and explore any physical proximity involved between the two, so that the effects can be considered as contagion effects.

Furthermore, future research can explore the issues that have not been tested, as mentioned in the limitations of the research. Particularly, future research might want to manipulate more levels of emotional attachment, e.g. weak, moderate, and strong to see if there will be a flip in the effects when emotional attachment is very strong. In addition, research in the future could test the role of the desire for a certain strong and established communal relationship by measuring it in coping behaviors following a transgression.

## **APPENDIX**

### **Appendix1. Pretest Study 3 - Malfunctioning Scenarios**

#### Scenario 1:

In the past few days, you have been experiencing some problems when using your phone. You are not able to send or receive any messages. Sometimes it shows that it is delivered but in fact your contact never receives it. Also, you cannot make or receive any calls. The phone just displays a missed call without you even hearing it ring. In addition, you can't access emails properly. You are wondering whether the problem is with your phone or your network service.

#### Malfunction 2:

In the past few days, you have been experiencing some problems when using your phone. All of your photos and videos are suddenly deleted. You have been taking these photos and videos for a long time, and unfortunately did not transfer them to a computer or external drive. Moreover, whenever you try to take a new picture, it stays for a few days, and then disappears again. As your phone uses data connection most of the time, you are wondering whether the problem is with your phone or your network service.

#### Malfunction 3:

In the past few days, you have been experiencing some problems when using your phone. Whenever you send someone a message, the text is not delivered to the person you intend to contact; instead it is sent to the previous contact in your message list. As a result, all your messages are sent to the wrong people. You always have to call the person and explain the problem. You are wondering whether the problem is with your phone or with your network service.

#### Malfunction 4:

You just got your phone bill for this month. To your surprise, you have been charged much more than the previous months. You go through the invoice and realize that most of the expenses come from your data usage. It shows on the bill that your data usage limit has been exceeded.. You are wondering whether the network service provider is overcharging you, or maybe that your phone is using up too much data.

### Malfunction 5:

In the past few days, you have been experiencing some problems when using your phone. Normally you use data connection, but these days you have been unable to browse the Internet. All the webpages you want to open cannot load. Also, all the apps that require Internet connection cannot be opened. As the result, you are not able to access your emails, Facebook or Google maps, etc.. You are wondering whether the problem is with your phone or your network service.

### Malfunction 6:

In the past few days, you have been experiencing some problems when using your phone. Whenever you charge your phone, it never fully charges. It instead stops charging at 30 or 40% battery. Even worse, sometimes it stops charging at 10% battery. As a result, your phone always runs out of battery quickly. You have to bring the charger with you all the time. You are wondering whether your phone or your network service is using up too much battery.

## **Appendix 2. Pretest Study 3 – Reasons for distress**

- The phone is an important part of your life; the incident makes you feel that your self-esteem and personal values are deteriorated.
- The network service is an important part of your life; the incident makes you feel that your self-esteem and personal values are deteriorated.
- The incident makes you feel that perhaps you chose a bad phone.
- The incident makes you feel that perhaps you chose a bad network service.
- The incident makes you question your knowledge of technology.
- You always had the belief that your phone functions perfectly. The incident makes you wonder if you were wrong. You always had the belief that your network service functions perfectly. The incident makes you wonder if you were wrong.
- Your phone represents you to other people. The incident makes you feel that others might think of you negatively.
- Your network service represents you to other people. The incident makes you feel that others might think of you negatively
- The incident make you worry about what others would think about your knowledge of technology.
- You cannot get in touch with other people when you need to.

- You feel like a part of your identity is lost.

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