

Ajmal Hafeez

Promoting Upskilling: How a Situational Growth Mindset Increases Consumers' Adoption of Really New Products





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Consumers' Adoption of Really New Products

A PhD dissertation in
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Abstract

Despite their evident capacity for improving people's lives, 40 to 90 percent of innovations fail. A significant amount of research suggests that one important reason for failure is consumers' lack of understanding of the benefits that a new product can offer. This dissertation seeks to enhance our understanding of how firms can help consumers to learn about and understand the benefits a new product can offer them. The general emphasis in the extant literature is on consumer declarative learning, which is mainly focused on the benefits of new products related to functional features. The underlying assumption regarding declarative learning about a product is that people already know how to use the new product—that is, they have procedural knowledge in the form of user skills. However, a literature review suggests that people do not have procedural knowledge when the product is really new. In this dissertation, I propose that lack of procedural knowledge inhibits declarative learning, and that procedural learning is needed in order to create an understanding of and an interest in a new product. Accordingly, I introduce the concept of “upskilling communication” to refer to messages related to learning how skills can be improved with the new product. Such learning of new skills is referred to as procedural knowledge. Not all people at all times will react to upskilling communication with the same desire to learn new skills. In order to learn, people need to be open for change and learning. Therefore, I propose that when consumers are in a state of growth mindset, their openness to change and learning should enable them to appreciate the benefits presented in upskilling communication. Specifically, this dissertation has examined two research questions: (1) will upskilling communication increase consumers' adoption of really new products? And (2) will consumers' situational growth mindset enhance the effect of upskilling communication on adoption of really new products? Across six studies and a meta-analysis, using four different ways to operationalize upskilling communication and across four different new products, the findings converge.

The results from empirical investigation confirmed that upskilling communication leads to higher consumer adoption of really new products. More importantly, I demonstrated that upskilling communication works better for consumers with a situational growth mindset. However, if marketers are unable to identify consumers' situational growth mindset, then signaling communication is more effective. The underlying mechanism of these effects was cognitive effort in learning about a new product and perceived relative advantage of the new product. The results presented herein are important for both consumer researchers and marketing practitioners.

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Chapter 1

Introduction

1.1 How to communicate about new products

"I usually find that the more technologically advanced the product is, the more difficult it is for the average layman to understand how it works, to understand why it works, and what it is going to do, and how it does it. They don't know. It becomes more of a mystery" (Mick and Fournier, 1998, p. 130)

Despite its evident capability to improve existing practices and enable consumers to learn new ways of addressing their consumption challenges, innovation most often fails (40% to 90%; Gourville, 2006). Among others, one important reason for failure is the lack of consumers' understanding of the benefits that a new product can offer (Urban, Weinberg, and Hauser, 1996; Aggarwal, Cha, and Wilemon, 1998; Moreau, Lehmann, and Markman, 2001; Hoeffler, 2003; Gourville, 2006; Castaño et al., 2008; Jhang, Grant, and Campbell, 2012).

How can firms help consumers to understand the benefits a new product can offer? According to the existing research on consumer learning, companies can focus on declarative learning (know-what) and communicate what the new product is in terms of product benefits related to functional features (Rogers, 2003; Ziamou and Ratneshwar, 2003; Jhang, Grant, and Campbell, 2012) or signaling benefits (Berger and Heath, 2007; Ma, Yang, and Murali, 2014). The underlying assumption of declarative learning is that people already have the knowledge related to how to use the new products. However, this is not always true. For example, when the Segway was introduced, many consumers lacked procedural knowledge (know-how) necessary to understand how exactly this two-wheel vehicle makes turns, goes forward, or moves backward (Gourville, 2006). Research shows that a lack of procedural knowledge can be an impediment to the learning process (Lakshmanan and Krishnan, 2011). In this thesis, I propose that a lack of procedural knowledge inhibits declarative learning and that procedural learning is needed in order to create an understanding of and an interest in a new

product. Accordingly, I introduce the concept of “upskilling communication” to refer to messages related to learning how skills can be improved with the new product. Such learning of new skills is referred to as procedural knowledge (Cohen and Squire, 1980). Communication regarding the improved skills that a new product can provide is believed to motivate consumer learning about the new product (Mukherjee and Hoyer, 2001; Thompson and Norton, 2011; Lakshmanan and Krishnan, 2011).

Empirical support for the effect of upskilling communication on new product learning may also be inferred from other findings in the literature. For example, research has shown that really new products (RNPs) often imply novel tasks (Veryzer, 1998) and in turn require consumers to learn new skills and behaviors in order to take advantage of the features of a new product (Urban, Weinberg, and Hauser, 1996; Moreau, Lehmann, and Markman, 2001; Gourville, 2006; Castaño et al., 2008; Lakshmanan and Krishnan, 2011). Typical examples of products that require self-improvement in skill are technological devices and sports-related products.

Research has shown that people’s self-improvement motives can significantly affect consumer behavior (Mathur, Chun, and Maheswaran, 2016), because new products vary in their degree of newness (Hoeffler, 2003) and people differ in their desire to learn new skills (Dweck and Leggett, 1988). In order to learn, people must be open to change, and openness to change and learning should therefore enhance the effect of upskilling communication on learning about new products. An open mindset influences the extent to which people seek or shun effort in learning new skills (Dweck and Leggett, 1988). That is, upskilling communication’s effect on consumer learning of RNPs should be stronger when a thirst for change and learning is amplified. The existing literature suggests that the extent to which people seek learning and change is determined by implicit self-theories or a growth mindset (Dweck and Leggett, 1988). Implicit self-theories are lay beliefs about the malleability of personality traits (Park and John, 2010). Two distinct cases of self-theories include that held by entity theorists who believe in relatively fixed traits of personality and that of incremental theorists who believe that traits are dynamic and malleable (McConnell, 2001). The mindsets related to the implicit theories can be situationally induced: A situational growth mindset is the belief that peoples’ basic intellectual characteristics and abilities can be developed (i.e., they are not “fixed”) or can (un)change through learning, dedication, and effort (Dweck and Leggett, 1988). In this research, I consider how a person’s situational growth mindset will influence the motivation to understand new products that require the learning of new skills. The idea is that, as

a situational growth mindset is activated in facing a novel task, people will appreciate learning opportunities associated with that novel task (Hong et al., 1997). In turn, this will enhance their learning of RNPs (Veryzer, 1998). Accordingly, I propose that, when consumers adopt a growth mindset, their openness to change and learning enables them to appreciate the benefits presented in the upskilling communication of RNPs.

1.2 Research objective

The goal of this dissertation is to gain insight into how consumers learn about really new products and to understand the extent to which learning affects their perception of relative advantage and subsequent adoption.

This dissertation has two main research objectives:

1. To introduce the concept of upskilling communication. The following specific research questions are addressed: How is upskilling communication different from existing concepts of a) functional communication and b) signaling communication. More precisely, the main research question is whether upskilling communication will increase consumers' adoption of RNPs.
2. To advance our understanding of when upskilling communication is most effective. More precisely, the second research question is whether consumers' situational growth mindset will enhance the effect of upskilling communication on adoption of RNPs.

1.3 The importance of research

1.3.1 Theoretical contributions

This thesis has three theoretical contributions. First, the construct upskilling communication is introduced, defined, and operationalized. Prior research on the marketing communication of new products has mostly focused on functional and signaling benefits (Mukherjee and Hoyer, 2001; Ziamou and Ratneshwar, 2003; Jhang, Grant, and Campbell, 2012; Berger and Heath, 2007; Ma, Yang, and Mourali, 2014). I take a different perspective; instead of examining the product-focused benefits, I examine self-focused benefits; i.e., the opportunity the new product gives consumers in terms of raising their skill levels.

Second, drawing on the declarative-procedural model by Cohen and Squire (1980), this research is among the first in the marketing literature to test upskilling communication as a form of procedural learning, thereby enriching the extant literature on consumer learning about new products. Prior research in consumer learning about new products has relied largely on functionality preference and declarative learning such as product-benefit associations related to product attributes and features. Thus, this research attempts to fill a gap by examining the consumers' interest in upskilling that help consumer to form mental models of the product (Norman, 2002).

Third, this research contributes to the growth mindset literature. Growth mindset is one of the most important areas of inquiry for student performance (Dweck and Leggett, 1988; Levy, Stroessner, and Dweck, 1998). The crux of this literature revolves around people improving themselves through learning, dedication, and effort. Despite decades of research have accumulated a rich body of research on a growth mindset, less is known about how a growth mindset applies to consumer behavior and marketing. The focus of my research is on the behavioral consequences of a growth mindset in consumers' adoption of innovation and thereby answers recent calls for research on how a growth mindset affects self-enhancement-based consumer behavior (Mathur, Chun, and Maheswaran, 2016).

1.3.2 Practical contributions

There are two managerial implications of this thesis. First, upskilling communication as an alternative strategy to functional and signaling communication will allow firms to influence consumer perceptions more effectively for RNPs. By addressing the self-improvement in skills that can be achieved with the new product, advertisers can enhance procedural learning and thereby make it easier for the consumer to comprehend the benefits of the new product. Prior research reveals two fundamental communication strategies of new products: functional communication and signaling communication. However, research shows that functional communication of new products tends to backfire (Ziamou and Ratneshwar, 2003), because the consumer does not have time to absorb all the changes. Furthermore, signaling communication does not resonate with all consumers (Berger and Heath, 2007; Mathur, Chun, and Maheswaran, 2016). Thus, the challenge for many marketers is to introduce new products into the marketplace without overwhelming the user (Thompson, Hamilton, and Rust, 2005). This research attempts to fill this gap by showing that upskilling communication can make the transition of RNPs more easy and intuitive.

Second, this research shows that the situational growth mindset increases consumers' ability to understand the benefits of upskilling communication. In turn, such heightened understanding leads to the higher adoption intention of radical innovations. Accordingly, this research will help marketing managers to design marketing messages that either are compatible with or violate the situational growth mindset of the consumers. For example, people watch thousands of videos on YouTube that can prime a growth mindset; therefore, making the advertising message more relevant to the already activated growth mindset can enhance consumers' adoption of new products. Overall, this research will inform the extant innovation adoption literature and practicing managers of the nuances involved in using situational mindsets as a segmentation variable for introducing radical innovations.

1.4 Outline of the thesis

The dissertation is structured as follows. Chapter 2 develops a conceptual background and propositions. First, this chapter provides an overview of new product innovation and what makes new products really new from a consumer perspective. Second, a detailed literature review on consumer learning about new products is presented. The concept of upskilling communication is introduced as a new way of motivating consumers to learn about new products. The concept of situational growth is discussed as a mechanism for understanding when upskilling communication is likely to be effective. Chapter 3 presents an empirical investigation of the proposed conceptual framework. First, I develop testable research hypotheses for each proposition systematically and provide a logical grounding for the overall dissertation. Second, this chapter contains a summary of the findings of each study, general discussions, research contributions, and future directions. Chapter 4 concludes with a summary of the dissertation.

Chapter 2

Theoretical Background and Propositions

In this chapter, the theories underlying the assumptions of this thesis will be discussed in detail. First, this chapter provides an overview of new product innovation and what makes a new product really new from a consumer perspective. Second, a detailed literature review on consumer learning about new products is presented. The concept of upskilling communication is introduced as a new way of motivating consumers to learn about new products. The concept of situational growth mindset is discussed as a mechanism for understanding when upskilling communication is likely to be effective. Finally, two main propositions and the conceptual framework are presented at the end of the chapter.

2.1 Overview of product innovation

2.1.1 Definition

Although product innovation can be viewed from many perspectives (Garcia and Calantone, 2002), in this dissertation, product innovation refers to discontinuities in product benefits, technological capabilities, and/or consumption patterns (Veryzer, 1998; Gourville, 2006; Ma, Gill, and Jiang, 2015). First, the discontinuities in product benefits are based on the new capabilities that an innovation provides in terms of customer need fulfillment (Ali, Krapfel, and LaBahn, 1995; Rogers, 2003). In other words, product innovation offers entirely novel benefits not available from the existing products (Ma, Gill, and Jiang, 2015). Second, the discontinuities in technological capabilities are based on the degree to which an innovation improves technical performance and/or expands technological capabilities beyond existing boundaries (e.g., digital cameras vs. film cameras) (Veryzer, 1998; O'Connor, 1998; Chandy and Tellis, 1998). Third, the discontinuities in consumption patterns denote the degree to which customers need to

adapt their thinking and behavior to utilize an innovation (Veryzer, 1998). Research suggests that innovative products frequently challenge consumers to acquire knowledge, give up existing behaviors, and learn new skills and behaviors (Urban, Weinberg, and Hauser, 1996; Gourville, 2006; Castaño et al., 2008). For example, the first digital cameras created a greater need for learning, as well as considerable behavioral changes (Moreau, Lehmann, and Markman, 2001).

In sum, product innovation involves creating new products or improving versions of the existing products by offering greater benefits relative to existing offerings, or it can take the form of a new technology, or a new way to do something. The following section reviews the existing literature on what makes a new product innovative.

2.1.2 What makes a new product really new?

What makes a new product really new, and how does the degree of newness affect consumers' behavior? Past research suggests that product newness is determined by the extent to which consumers have the existing category knowledge to understand the new product (Moreau, Lehmann, and Markman, 2001; Wood and Lynch, 2002). From a consumer perspective, two broad types of product innovation are distinguished: incrementally new products (INPs) and really new products (RNPs) (e.g., Hoeffler, 2003; Moreau, Lehmann, and Markman, 2001). INPs represent minor changes in product benefits, technological capability, and consumption patterns (Zhao, Hoeffler, and Dahl, 2009; Veryzer, 1998). In other words, INPs neither involve dramatically new technology nor provide very new benefits (Veryzer, 1998). Regarding consumption patterns, INPs represent minor changes in consumers' established ideas or concepts (Dahl and Hoeffler, 2004), routines (Gourville, 2006), norms (Noseworthy and Trudel, 2011), and ways of doing things (Zhao, Hoeffler, and Dahl, 2009; Gourville, 2006) and imply familiar routine tasks (Veryzer, 1998). Consequently, consumers can draw on prior knowledge and experience when trying to make sense of an INP (Zhao, Hoeffler, and Dahl, 2012). In turn, it is easier for consumers to fully understand the potential benefits of the INPs (Veryzer, 1998; Jhang, Grant, and Campbell, 2012).

In contrast, RNPs represent major changes in product benefits, technological capability, and consumption patterns (Veryzer, 1998; Gourville, 2006). In other words, RNPs offer entirely novel benefits not available from existing products (Ma, Gill, and Jiang, 2015), new technological capabilities (O'Connor, 1998; Veryzer, 1998; Chandy and Tellis, 1998), "a completely new way of doing something, or a completely new thing to do, something that was not possible before" (Norman, 2004, p. 77). In such a case, consumers must make greater

changes in their own behavior (Gourville, 2006), alter established social norms (Rogers, 2003), as well as acquire knowledge to attain the potential benefits of RNPs (Moreau, Lehmann, and Markman, 2001; Thompson, Hamilton, and Rust, 2005). Thus, RNPs are more difficult for consumers to fully understand and learn than INPs (Hoeffler, 2003; Jhang, Grant, and Campbell, 2012).

This discussion suggests that the more the radical the product innovation is in terms of new capabilities or a new technologies or a new way of doing things, the more difficult it is for the consumer to learn about the potential benefits that an innovation can offer. The following section reviews the existing literature on how consumers learn about new products and how this learning differs from learning about really new products.

2.2 Consumer learning about new products

How can firms help consumers learn about new products? Various types of consumer learning have advanced over time, and a majority of these have been grounded in declarative paradigms (Lakshmanan and Krishnan, 2011), that is, they refer to the learning, representation, and use of knowledge pertaining to facts and events (Cohen and Squire, 1980). Consumer learning about new product benefits related to functional features and knowledge of product attributes fall in the domain of declarative knowledge (e.g., Osselaer and Janiszewski, 2001). Even signaling benefits (i.e., acquire and display new products in order to signal highly positive information about themselves to others) have been explicated principally from a declarative standpoint (e.g., Levy, 1959; Berger and Heath, 2007). Marketers of Tesla, for example, may focus on reduced fuel costs, and marketers of smart devices may highlight that owning a new device can make consumers feel different from others. This type of message can be determined as declarative learning (Lakshmanan and Krishnan, 2011). This focus on declarative learning is largely based on the functional benefits of the new products. Typically, marketing communication employs explicit comparisons of new functional benefits with the existing functional benefits in a new product launch. That is, when interacting with new products, consumers access information about prior functional practices. For example, when consumers encountered a digital camera for the first time, they accessed their functional knowledge of film-based camera, because digital cameras and film-based cameras are similar in appearance (Moreau, Lehmann, and Markman, 2001). This access of functional knowledge and practices can be cued by analogies (e.g., Gregan-Paxton et al., 2002), categorization (e.g., Moreau, Lehmann, and Markman, 2001), mental simulation (e.g.,

Hoeffler, 2003), benefits comparison (e.g., Ziamou and Ratneshwar, 2003), and attribute associative learning (e.g., Mukherjee and Hoyer, 2001). In this approach, consumers assimilate the new functional features or benefits to the existing features or benefits (Urban, Weinberg, and Hauser, 1996; Moreau, Lehmann, and Markman, 2001; Ziamou and Ratneshwar, 2003). The learning problem occurs when the new products have features or benefits that are not already stored in memory. Assimilation will then fail, and a likely consequence is the generation of more scenarios in which learning about the new product might fail (Ziamou, Gould, and Venkatesh, 2012). This is particularly a problem with RNPs in which the promoted functional elements have no reference in memory, or in which the practices of the new products operate differently from their experience with other existing products (Ziamou and Ratneshwar, 2003). Therefore, it is difficult for consumers to access and apply their existing knowledge to the RNPs (Gregan-Paxton and Moreau, 2003). Thus, declarative knowledge can be an impediment to the learning process.

Procedural learning is an alternative approach to consumer learning about new products. Procedural learning involves learning and control of sensorimotor and cognitive skills as well as the development of new routines and habits (Lakshmanan and Krishnan, 2011). Procedural learning is primarily related to how consumers do things (Squire, 1986; Lakshmanan and Krishnan, 2011); for example, riding a bike. From a consumer perspective, procedural learning involves matching one's skill level to a product's intended skill level in order to take advantage of the new product features (Burson, 2007; Johnson, Bellman, and Lohse, 2003; Wernerfelt, 1985; Murray and Häubl, 2007). The learning problem is that people do not have such procedural knowledge for RNPs stored. For example, when the Segway was introduced, many consumers lacked the procedural knowledge (in the form of user skills) necessary to learn how exactly this two-wheel vehicle makes turns, goes forward, or moves backward (Gourville, 2006). Such a lack of procedural knowledge can be an impediment to the learning process (Lakshmanan and Krishnan, 2011).

Table 2.1 summarizes the existing literature on declarative and procedural learning about new products. We see that the existing literature has studied differences in declarative learning between INPs and RNPs. The key finding, as addressed in the previous discussion, is that declarative learning works for INPs, but not RNPs. Also, although procedural learning has been addressed in previous research, the difference between procedural learning about INPs and learning about RNPs has not been addressed. Furthermore, a comparison of declarative learning with procedural learning for RNPs has not been conducted, either. This dissertation is intended to address the need for research on this issue.

TABLE 2.1: Extant consumer learning of new product research

Name	Description	Products	Key Findings	Prior Literature	
Functional Benefits:					
Analogies	Using a familiar domain as a reference point to make conclusions about the innovation	RNP vs. INP	Facilitates consumers' assessment of new product benefits	Stephanie, Veronica, and Amanda (2008); El Houssi, Morel, and Hultink (2005); Gregan-Paxton and John (1997); Gregan-Paxton et al. (2002)	
Categorization cue	Indicating the membership of a new product to a certain product category	RNP vs. INP	Helps consumers to better understand the new product's features	Gregan-Paxton, Hoeffler, and Zhao (2005); Moreau, Lehmann, and Markman (2001); Gregan-Paxton and Moreau (2003); Goode, Dahl, and Moreau (2013)	
Declarative Learning	Mental simulation	RNP vs. INP	Helps consumers to align new product with existing usage patterns	Stephanie, Veronica, and Amanda (2008); Thompson, Hamilton, and Petrova (2009); Dahl and Hoeffler (2004); Hoeffler (2003); Zhao, Hoeffler, and ZauberMan (2011); Castaño et al. (2008); Ziamou (2002)	
	Benefit comparison	RNP vs. INP	Increases consumers' perceived benefits of a new product	Katrin and Dirk (2013); Hess (2009); Ziamou and Ratneshwar (2003); Noseworthy and Trudel (2011); Katrin and Gina (2011)	
	Attribute Associative Learning	RNP vs. INP	Helps consumers to better understand the new product's attributes	Thompson, Hamilton, and Rust (2005); Cunha, Janiszewski, and Laran (2008); Wood and Lynch (2002); Mukherjee and Hoyer (2001)	
	Signaling:				
	Symbolic meanings	Product's ability to communicate something about the person who owns them	RNP vs. INP	Increase consumers' perceived benefits of a new product	Levy (1959); Berger and Heath (2007); Ma, Yang, and Mourali (2014); Thompson and Norton (2011); Escalas and Bettman (2005)
Skill-Match:					
Procedural Learning	Skill-based habits	INP	Consumers rely on perceptions of skills rather than preferences of a product	Johnson, Bellman, and Lohse (2003); Wernerfelt (1985); Burson (2007); Murray and Häubl (2007)	
	Upskilling:				
	New skill acquisition	INP	Increase consumers' evaluation of a new product and brand	Lakshmanan, Lindsey, and Krish (2010); Mathur, Chun, and Maheswaran (2016); Park and John (2012)	

The underlying assumption of declarative learning is that people know how to use the new product; that is, they have procedural knowledge. However, literature review suggests that this is not the case when the product is radical. Based on this discussion, I propose that the lack of procedural knowledge inhibits declarative learning and that procedural learning is needed in order to create an understanding of and an interest in a RNPs. Accordingly, I introduce the concept of “upskilling communication” to refer to messages related to learning how skills can be improved with the new product. Such learning of new skills is referred to as the procedural knowledge (Cohen and Squire, 1980) necessary for learning

about new products (Mick and Fournier, 1998; Lakshmanan and Krishnan, 2011). The following section will address the underlying assumptions of how upskilling communication has a positive effect on consumer learning of RNPs.

2.3 Proposition 1

An important assumption is that consumers are inherently positively inclined to learn about new products if they see them as relevant. Consumers are willing to change, especially if they think a change will improve their lives in one way or another (Price et al., 2017). At the heart of much research in consumer behavior is the question of what may change in peoples' lives so they desire a more positive future (Devezer et al., 2014; Mende and Doorn, 2015). New products can be communicated as "self-improvement" and motivate consumers to learn and adopt (Mathur, Chun, and Maheswaran, 2016; Price et al., 2017). Thus, people are assumed to be inherently motivated and flexible to acquire relevant skills (Park and John, 2012; Sugarman, 2015; Mathur, Chun, and Maheswaran, 2016; Bardhi and Eckhardt, 2017). Consumers form expectations about future technological development (Holak, Lehmann, and Sultan, 1987), and these expectations are likely to influence their motivation to learn about new products (Bridges, Chi Kin, and Briesch, 1995). When consumers expect products to become more radical and contain many new features in future generations, they might fear losing track of advancements in the market. Adoption of radically new products provides learning opportunities and thus helps prevent potential skill gaps in the future. Upskilling communication may allow consumers to focus on the opportunity the new product gives them in terms of raising their skill levels, thereby making it easier for the consumer to comprehend the benefits of the new product.

The idea of a simple link between upskilling communication and new product learning may also be inferred from other findings in the literature. For example, RNPs often imply novel tasks (Veryzer, 1998) and, in turn, require consumer to learn new skills and behaviors in order to take advantage of the features of a new product (Urban, Weinberg, and Hauser, 1996; Moreau, Lehmann, and Markman, 2001; Gourville, 2006; Castaño et al., 2008; Lakshmanan and Krishnan, 2011). Common examples of products that require such consideration are technological devices and sports-related products. For example, the Segway involved self-balancing technology that enabled pedestrians to move faster and required them to perform a novel task, such as balancing the body, thereby requiring them to learn new lifelong skills relating to "stability and balance" (Hoeffler and Herzstein, 2011). Consumers may perceive such new skills to be valuable and believe

that they cannot be obtained, at least as efficiently, in any other way than learning to use the new product. The skills may also be applied many other related products, categories, or behaviors (Hippel, 1986; Capon and Glazer, 1987; Jolly, 1997). It has been suggested that messages emphasizing improved skills that a new product can provide will motivate consumer learning about the new product (Mukherjee and Hoyer, 2001; Lakshmanan and Krishnan, 2011) and brand (Mathur, Chun, and Maheswaran, 2016). By addressing self-improvement in skills that can be achieved with RNPs, advertisers can enhance procedural learning and thereby enable consumers to interpret the communicated skills as a relative advantage compared to existing products. A perception of higher relative advantage will lead to higher consumer adoption of RNPs. Therefore, I propose:

Proposition 1: Upskilling communication has a positive effect on the likelihood that consumers will adopt an RNP.

2.4 Proposition 2

Not all people at all times will react to upskilling communication with the same desire to learn new skills. In order to learn, people need to be open to change. Openness to change and learning should therefore enhance the effect of upskilling communication on new product learning. An open mindset influences the extent to which people seek or shun effort to learn new skills (Dweck and Leggett, 1988). That is, upskilling communication's effect on consumer learning of RNPs should be stronger when a thirst for change and learning is amplified.

The existing literature suggests that the extent to which people seek learning and change is determined by implicit self-theories or a growth mindset (Dweck and Leggett, 1988). Implicit self-theories are lay beliefs about the malleability of personality traits (Park and John, 2010). Two distinct self-theories are those held by entity theorists who believe in relatively fixed traits of personality and those among incremental theorists who believe that traits are dynamic and malleable (McConnell, 2001). The mindsets related to implicit theories can be situationally induced: A situational growth mindset is the belief that peoples' basic intellectual characteristics and abilities can be developed (i.e., they are not "fixed") or can (un)change through learning, dedication, and effort (Dweck and Leggett, 1988).

Prior research shows that, when people have a situational growth (vs. fixed) mindset, they set learning goals to extend their abilities (Molden, Plaks, and Dweck, 2006; Jain, Mathur, and Maheswaran, 2009; Robins and Pals, 2002), and

they are willing to expend more effort to learn new skills (Mathur, Jain, and Maheswaran, 2012; Dweck and Leggett, 1988), attribute their failure to their lack of effort (Jain, Mathur, and Maheswaran, 2009; Molden, Plaks, and Dweck, 2006), and enjoy novel tasks more (Dweck and Bempechat, 1983). Of special interest to my work is that, when consumers in a situational growth (vs. fixed) mindset face novel and difficult tasks, they value the learning opportunities associated with those novel tasks (Hong et al., 1997). This finding has implications for consumers' openness to learning about an RNP (Veryzer, 1998). When people are in situations that stimulate their growth (vs. fixed) mindsets, they are likely to exhibit increased consideration of novel tasks (Dweck and Bempechat, 1983), acceptance of persuasive messages (Jain, Mathur, and Maheswaran, 2009), effort in information processing (Kwon and Nayakankuppam, 2015), and desire to improve their future self (Mathur, Chun, and Maheswaran, 2016); these are all signs of greater openness to learning.

If upskilling communication elicits a need for learning of new skills and stimulates people's behavior change in their existing mental structures, and people with a situational growth (vs. fixed) mindset are motivated to resolve such feelings of behavior change by expending effort to learn new skills (Dweck, 1999; Mathur, Jain, and Maheswaran, 2012; Murphy and Dweck, 2016), I predict that people with a situational growth (vs. fixed) mindset respond to upskilling communication with a greater openness to learn new skills. In other words, consumers become more attentive to upskilling communication when their situational growth mindset is activated. The idea is that, as a situational growth mindset is activated in facing a novel task, people will appreciate learning opportunities associated with that novel task (Hong et al., 1997). In turn, this will enhance their learning of RNPs (Veryzer, 1998). Learning about INPs is likely to be perceived as an existing task for which minor effort and behavior changes are required (Zhao, Hoeffler, and Dahl, 2009; Veryzer, 1998). Building on this discussion, when consumers' situational growth mindset is activated, they are likely to invest more effort in processing the information and become more interested in raising skill levels. In turn, they will perceive benefits offered by the new products and see this as a relative advantage compared to the existing products. Thus, the positive effect of upskilling communication on consumers' adoption intentions of RNPs will be stronger when consumers have a situational growth rather than a fixed mindset. More formally:

Proposition 2: When consumers adopt a growth mindset, they become more receptive to upskilling communication. In turn, this will lead to a stronger effect of upskilling communication on consumers' adoption of RNPs.

2.5 Proposed conceptual framework

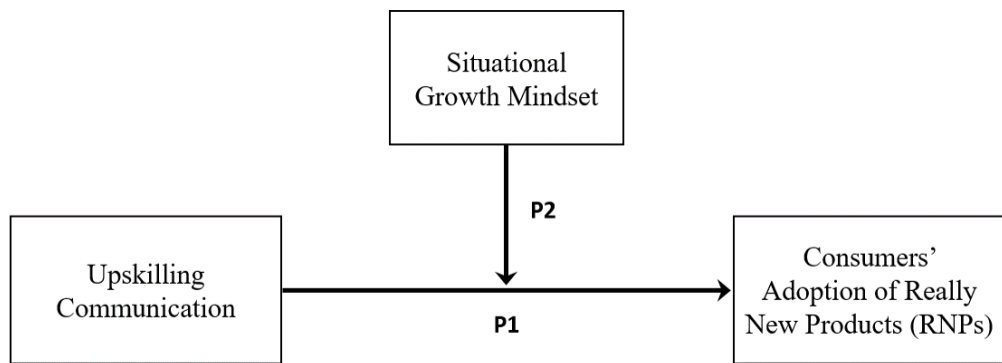


FIGURE 2.1: Proposed conceptual framework

In order to test these propositions, the research hypotheses of interest are developed, and a logical grounding for the overall dissertation is presented in Chapter 3.

Chapter 3

Empirical Investigation of Proposed Conceptual Framework

The proposed conceptual framework will be tested through six studies. Proposition 1, which asserts that upskilling communication has a positive effect on consumers' adoption of new products, will be tested through two experiments. Inherent in these two studies is the development of an empirical operationalization of how upskilling communication can be manipulated and measured. I will also investigate how this effect increases with the level of product newness, which is incremental in contrast to really new products. In the second study, I will investigate the mediating role of consumer cognitive effort in learning about new products and the perceived relative advantage of the new product. Proposition 2, which surmises that a situational growth mindset enhances the effect of upskilling communication on consumers' adoption of new products, will be tested in four experiments. Inherent in these studies is the development of how a situational growth mindset can be manipulated and measured. I will also investigate the robustness of the proposed model across different types of new products.

TABLE 3.1: Overview of the empirical studies

Study	Propositions	Dependent variables	Independent variables	Moderators	Products
1	P 1	Evaluation	Upskilling communication	Product newness	HalfBike
2	P 1	Adoption intentions, WTP	Upskilling communication	Product newness	Camera
3	P 2	Adoption intentions	Upskilling communication	Product newness, Situational growth mindset	HalfBike
4	P 2	Adoption intentions	Upskilling communication	Situational growth mindset	Camera
5	P 2	Adoption intentions	Upskilling communication	Situational growth mindset	Tefal
6	P 2	Adoption intentions	Upskilling communication	Situational growth mindset	Skincare

3.1 Study 1: The effect of upskilling communication on consumer adoption

In the first study, I will investigate the relationship between upskilling communication versus functional communication and new product evaluation. A common approach in launching new products is to communicate the functional benefits of the new product. Functional communication refers to messages related to learning the new benefits of a new product (Card, Newell, and Moran, 1983; Ratneshwar et al., 1999; Ziamou, 2002; Jhang, Grant, and Campbell, 2012). For example, TiVo enabled viewers to pause live TV, digital cameras enabled consumers to take digital photographs, and Segway enabled pedestrians to move faster with little effort. Marketing communication theory suggests that, when consumers encounter communication about new products, they encode functionality to understand their benefits (Hackos and Redish, 1983) and value (Mukherjee and Hoyer, 2001; Gourville, 2006). Typically, marketing communication employs explicit comparisons of new functional benefits with the existing functional benefits in a new product launch (Ziamou and Ratneshwar, 2003). This focus on functional benefits is largely based on prior knowledge of functional benefits provided by other products (Ziamou, Gould, and Venkatesh, 2012). That is to

3.1. Study 1: The effect of upskilling communication on consumer adoption

say, when interacting with new products, consumers access information on prior functional practices. For example, when consumers encountered a digital camera for the first time, they accessed their functional knowledge of film-based camera, because the digital cameras and film-based cameras are similar in appearance (Moreau, Lehmann, and Markman, 2001), and access can be cued by marketing communication (Moreau, Markman, and Lehmann, 2001; Ziamou and Ratneshwar, 2003; Stephanie, Veronica, and Amanda, 2008).

Upskilling communication is an alternative approach to advertise new products. By upskilling communication, I refer to messages related to learning how skills can be improved with the new product. Upskilling communication allows consumers to focus on the opportunity the new product gives them in terms of raising their skill levels. Memories about behaviors and prior consumption routines are usually easily accessible (Zhao, Hoeffler, and Dahl, 2009). Communicating the improved skills that a new product can provide in performing relevant behaviors is believed to motivate learning about the new product (Mukherjee and Hoyer, 2001; Thompson and Norton, 2011).

An important difference in upskilling and functional communication is how the message is encoded in existing memory. In functional communication, consumers assimilate the new functional features or benefits to the existing features or benefits (Ziamou and Ratneshwar, 2003; Moreau, Lehmann, and Markman, 2001; Moreau, Markman, and Lehmann, 2001; Urban, Weinberg, and Hauser, 1996). A problem occurs when the new products have features or benefits that are not already stored in memory. Assimilation will then fail, and a likely consequence is the generation of more scenarios in which the new product might fail (Ziamou, Gould, and Venkatesh, 2012). This is particularly a problem with RNPs, because consumers look for functional elements that are not there in the new product or that work differently from what they were accustomed to with existing products (Ziamou and Ratneshwar, 2003). Thus, prior knowledge can be an impediment to the learning process, whereas the process of learning with respect to upskilling communication involves the activation of consumers' past behaviours and applying their skills to performing the behaviour. For example, upskilling communication for a new type of camera activates consumers' memory of taking pictures (i.e. the behavior) and associations related to the skill in doing this behavior (i.e. taking good pictures). Upskilling communication triggers different cognitive processes to counter the above mismatch between functional benefits and consumers' learning. In this context, consumers relate to their past behaviors and will interpret the communicated skill benefits relative to this. Memory related to behaviour and skills may also map to many other related products. It has been suggested that a RNP essentially offers the opportunity to develop new

skills that can be used with a variety of products, and its ultimate value lies in the applications in which it gets incorporated (Capon and Glazer, 1987; Jolly, 1997).

In sum, upskilling communication encourages consumers to learn new skills and allows them to focus on past behaviours. This is likely to enable them to interpret the communicated skills as a relative advantage compared to existing products. A perception of higher relative advantage will lead to higher evaluations of the new product. The consumer does not need prior knowledge of the product's functional benefits. The proposed positive effect of upskilling communication on new product evaluation is likely to occur, because it facilitates easier processing of the perceived advantage when the new product is difficult to understand. Since INPs and moderately new products (MNPs) represent less radical changes (Jhang, Grant, and Campbell, 2012), upskilling communication is not likely to provide a stronger effect over and beyond traditional functional communication. Thus, I hypothesize the following:

H1: For RNPs, upskilling communication leads to higher evaluation of a new product than functional communication. For MNPs and INPs, this effect is attenuated.


3.1.1 Procedure

One hundred twenty-one Norwegian students (54 men; $M_{\text{age}} = 24$ years) participated in this study. Participants were randomly assigned to one of six experimental conditions featuring a 2 (upskilling vs. functional communication) x 3 (product newness: INP vs. MNP vs. RNP) between-subjects design. The upskilling versus functional communication was manipulated by changing the focus in the ad. In the upskilling condition, participants were told that the new product – a bike – would give them the "opportunity to learn lifelong skills," whereas those in the functional communication condition were told that the new bike would "improve your commuting." Following previous research, I manipulated product newness in INPs, MNPs, and RNPs by using the conceptualization employed by Jhang, Grant, and Campbell (2012). This conceptualization fits with consistent findings that novel products are often difficult to understand (Hoeffler, 2003; Moreau, Lehmann, and Markman, 2001). Participants in the RNP condition were shown a picture of half of a bike. In the MNP, they were shown a picture of a bike with a smart device. In the INP condition, they were shown a picture of an existing bike. The advertisements are presented in Figure 3.1. After reading the manipulations, the participants completed a survey measuring how they perceived the new product as well as questions measuring potential covariates.

FIGURE 3.1: Manipulations for Study 1

New Transport in Town

DX5 bike is a great new way of commuting and transforms it from a monotonous task into a vibrant part of our everyday life. With a movement somewhere between walking and biking, the DX5 bike becomes a great extension of your personal transport and allows you to commute faster on the go—work, school, or out on the town. It is suitable for short distances and in conjunction with public transport; it enables you to **improve your commuting** (e.g., *save time*). While the DX5 bike is smaller size and lightweight frame means it can be carried on board a car, bus or train for longer trips. This DX5 bike as an improve version of transportation will never let you down!




What makes bike amazing:

- Sizes: small, medium and large
- Weight: 30 kg
- Frame: high tensile steel
- Brakes: Alloy front and rear linear pull brakes

(A) Functional communication, INP Bike

New Sport in Town

DX5 bike is an exciting new way of awakening your natural instinct to move. With a movement somewhere between walking and biking, the DX5 bike becomes a natural extension of your body, allows you to control the vehicle with your entire body, improving your balance, and reflexes in a new way. Not only on a physical level but it also affects the way you perceive movement and enhances your senses. A DX5 bike gives you an **opportunity to learn lifelong skills** (e.g., *sense of balance*) for many other kinds of sports, from indoor to outdoor, for example, Segway, Hoverboard and many more. This DX5 bike provides you with tremendous learning opportunities to master the self-balancing technology of tomorrow!




What makes bike amazing:

- Sizes: small, medium and large
- Weight: 30 kg
- Frame: high tensile steel
- Brakes: Alloy front and rear linear pull brakes

(B) Upskilling communication, INP Bike

New Transport in Town

DX5 bike is a great new way of commuting and transforms it from a monotonous task into a vibrant part of our everyday life. With a movement somewhere between walking and biking, the DX5 bike becomes a great extension of your personal transport and allows you to commute faster on the go—work, school, or out on the town. It is suitable for short distances and in conjunction with public transport; it enables you to **improve your commuting** (e.g., *save time*). While the DX5 bike is smaller size and lightweight frame means it can be carried on board a car, bus or train for longer trips. This DX5 bike as an improve version of transportation will never let you down!




What makes DX5-bike amazing:

- Sizes: small, medium and large
- Weight: 12 kg
- Frame: aluminum
- Smart device: GPS, wheel speed, distance, time and heart rate.

(C) Functional communication, MNP Bike

New Sport in Town

DX5 bike is an exciting new way of awakening your natural instinct to move. With a movement somewhere between walking and biking, the DX5 bike becomes a natural extension of your body, allows you to control the vehicle with your entire body, improving your sense of balance, and reflexes in a new way. Not only on a physical level but it also affects the way you perceive movement and enhances your senses. A DX5 bike gives you an **opportunity to learn lifelong skills** (e.g., *sense of balance*) for many other kinds of sports, from indoor to outdoor, for example, Segway, Hoverboard and many more. This DX5 bike provides you with tremendous learning opportunities to master the self-balancing technology of tomorrow!




What makes DX5-bike amazing:

- Sizes: small, medium and large
- Weight: 12 kg
- Frame: aluminum
- Smart device: GPS, wheel speed, distance, time and heart rate.

(D) Upskilling communication, MNP Bike

New Transport in Town

DX5 bike is a great new way of commuting and transforms it from a monotonous task into a vibrant part of our everyday life. With a movement somewhere between walking and biking, the DX5 bike becomes a great extension of your personal transport and allows you to commute faster on the go—work, school, or out on the town. It is suitable for short distances and in conjunction with public transport; it enables you to **improve your commuting** (e.g., *save time*). While the DX5 bike is smaller size and lightweight frame means it can be carried on board a car, bus or train for longer trips. This DX5 bike as an improve version of transportation will never let you down!




What makes DX5-bike amazing:

- Size: 40 x 16 x 44 in.
- Folded Size: 40 x 16 x 21 in.
- Weight: 8.2 kg
- Frame: aluminum

(E) Functional communication, RNP Bike

New Sport in Town

DX5 bike is an exciting new way of awakening your natural instinct to move. With a movement somewhere between walking and biking, the DX5 bike becomes a natural extension of your body, allows you to control the vehicle with your entire body, improving your sense of balance, and reflexes in a new way. Not only on a physical level but it also affects the way you perceive movement and enhances your senses. A DX5 bike gives you an **opportunity to learn lifelong skills** (e.g., *sense of balance*) for many other kinds of sports, from indoor to outdoor, for example, Segway, Hoverboard and many more. This DX5 bike provides you with tremendous learning opportunities to master the self-balancing technology of tomorrow!



What makes DX5-bike amazing:

- Size: 40 x 16 x 44 in.
- Folded Size: 40 x 16 x 21 in.
- Weight: 8.2 kg
- Frame: aluminum

(F) Upskilling communication, RNP Bike

Consumer evaluation of the new product was measured with five items on a 9-point scale, ranging from 1 ("bad, poor, uninteresting, dislike, undesirable") to 9 ("good, excellent, interesting, like, desirable") (Zhao, Hoeffler, and Dahl, 2009). These five items were averaged to form a composite consumer evaluation ($\alpha = .87$). To provide manipulation checks for the upskilling communication, participants rated their agreement with three statements, "1) this DX5 bike will give me the opportunity to learn something new," "2) this DX5 bike will allow me to update myself/my knowledge," and "3) if I'm in the mood to learn something new, this DX5 is ideal" (1 = strongly disagree, 7 = strongly agree; $\alpha = .90$). To provide manipulation checks for the level of product newness, participants rated the focal product from 1 ("not at all innovative," "not at all novel," "not at all original") to 9 ("very innovative," "very novel," "very original") (Zhao, Hoeffler, and Dahl, 2009, $\alpha = .84$).

Since this study aims to explore innovation adoption behaviour, it is deemed necessary to control for potential effects due to individual differences (Moreau, Lehmann, and Markman, 2001; Parasuraman, 2000). Prior research on these individual differences has shown that trait innovativeness, innate discomfort with technology, and need for cognition (NFC) are major psychological contributing factors to consumers' adoption of new products (Wood and Swait, 2002; Parasuraman, 2000; Roehrich, 2004). Therefore, to rule out any trait-based alternative explanation, measures of these constructs were included in the survey. I adopted the four-item scale used by Parasuraman (2000) to measure the trait innovativeness ($\alpha = .72$). Innate discomfort was measured with two items adopted from Parasuraman (2000, $\alpha = .70$). The NFC scale was adopted from Cacioppo (1982, $\alpha = .86$). All scales reflected the seven items rated from strongly disagree to strongly agree. Items are presented in Appendix A.

3.1.2 Manipulation tests

Upskilling communication manipulation check. I conducted a one-way analysis of variance (ANOVAs) on upskilling communication items. As predicted, participants in the upskilling condition perceived the upskilling level as higher than those in the functional communication condition ($M_{\text{upskilling}} = 4.47$, $M_{\text{functional}} = 3.20$; $F(1, 119) = 34.33$, $p < .001$). This result indicates that the manipulation of upskilling communication was successful.

Product newness manipulation check. I conducted a one-way ANOVA on product newness. As predicted, the result revealed the main effect of product newness ($F(2, 118) = 23.17$, $p < .001$). Pairwise comparisons indicated that the incremental new bike was perceived as less innovative ($M = 4.25$) than the moderately new

3.1. Study 1: The effect of upskilling communication on consumer adoption

bike ($M = 5.36$; $F(2, 118) = 11.15$, $p < .001$), which in turn was perceived as less innovative than the really new bike ($M = 6.30$; $F(2, 118) = 10.97$, $p < .001$). This result indicates that the manipulation of product newness was successful.

3.1.3 Testing of hypothesized effect

H1 predicts that upskilling (vs. functional) communication will lead to higher (vs. lower) consumer evaluation for RNPs but not for INPs and MNPs. To test this hypothesis, I performed a 2 (upskilling vs. functional communication) \times 3 (product newness: INP vs. MNP vs. RNP) between-subject ANCOVA on consumers' evaluation of the advertised product, controlling for innate innovativeness, innate discomfort, and NFC. The results revealed that innate discomfort and NFC had no main or interaction effect ($p > .10$) and therefore were excluded from the final analysis. Trait innovativeness had a positive main effect ($F(1, 110) = 4.59$, $p < .03$) but did not interact with upskilling communication and product newness ($p > .20$). As predicted in H1, the results revealed a significant interaction between upskilling communication and product newness on evaluation ($F(2, 113) = 3.56$, $p < .03$), along with a main effect of upskilling communication ($M_{\text{upskilling}} = 5.63$, $M_{\text{functional}} = 5.24$; $F(1, 113) = 3.05$, $p < .08$). The interaction effect is illustrated in Figure 3.2.

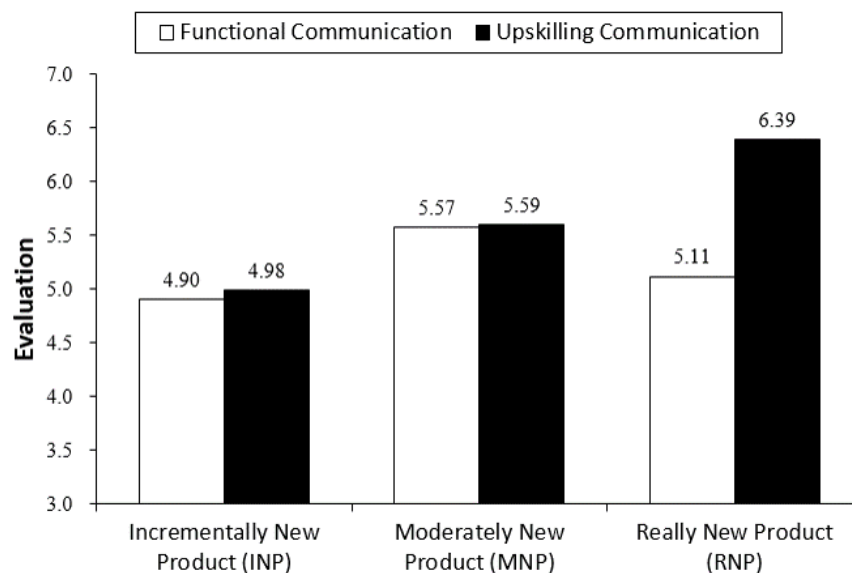


FIGURE 3.2: Study 1: Consumers' evaluation of new products as a function of upskilling (vs. functional) communication and product newness (INP vs. MNP vs. RNP)

The follow-up, planned comparisons for RNP condition revealed that participants in the upskilling condition had a more favorable evaluation towards

the advertised product than did those in the functional communication condition ($M_{\text{upskilling}} = 6.35$, $M_{\text{functional}} = 5.14$; $F(1, 113) = 10.48$, $p < .001$); specifically, when incorporating the upskilling communication with the INP and MNP conditions, participants showed no significant difference in their evaluation toward the advertised product ($p > .20$). These results indicate support for H1.

To assess the stability of the estimates, I also ran an upskilling communication \times product newness ANOVA, excluding trait innovativeness. The upskilling communication \times product newness interaction remained virtually unchanged ($F(2, 115) = 3.47$, $p < .03$), along with the main effect of upskilling communication ($M_{\text{upskilling}} = 5.65$, $M_{\text{functional}} = 5.19$; $F(1, 115) = 4.24$, $p < .04$). For the RNP, participants in the upskilling (vs. functional) communication condition reported more favorable evaluation toward the advertised product ($M_{\text{upskilling}} = 6.39$ vs. $M_{\text{functional}} = 5.11$; $F(1, 115) = 11.51$, $p < .001$). Thus, the effect of upskilling communication \times product newness on consumers' evaluation of RNP was robust, regardless of whether trait innovativeness was controlled.

3.1.4 Discussion

Study 1 provides initial evidence that upskilling communication leads to more favorable evaluation of RNP than functional communication. Notably, this difference in effects was not found for INP and MNP. This finding is consistent with previous research, suggesting that, since RNPs are often difficult to understand (Moreau, Lehmann, and Markman, 2001; Hoeffler, 2003; Jhang, Grant, and Campbell, 2012), upskilling communication leads to be favored within consumers' evaluation over functional communication. Thus, H1 is supported. Study 2 will discuss the underlying mechanism of this effect.

3.2 Study 2: The mediating effect of cognitive effort and perceived relative advantage

The primary objective of Study 2 is to test the mediating role of consumer cognitive effort in learning about new products and their perceived relative advantage. Specifically, I test whether upskilling communication motivates people to spend more time (cognitive effort) learning about the new product benefits and if this greater effort toward learning in turn drives the effect of upskilling communication on new product evaluation, including adoption intention and willingness to pay. The second objective of Study 2 is to replicate the findings in Study 1 using a different product and a different operationalization of upskilling communication.

Cognitive effort: As discussed in Study 1, in the case of RNPs, functional communication requires more cognitive effort than upskilling communication. The main explanation is that, in learning about RNPs, there is a mismatch between the existing cognitive structures and the functional communication. Research on the resource-matching perspective (Peracchio and Meyers-Levy, 1997; Keller and Block, 1997) and cognitive effort (Cacioppo, 1983) indicates that people become more sensitive to cognitive effort, thus requiring them to process marketing communication when there is a mismatch between their cognitive resources and functional features or benefits (Keller and Staelin, 1987). Thus, I predict that communication focusing on upskilling opportunities is likely to motivate consumers to invest more cognitive effort in understanding the new products than when the communication focuses on functional features. This proposed positive effect of cognitive effort towards understanding the new products is likely to work better when the product is an RNP. For INPs or MNPs, consumers can draw on prior knowledge and experience to understand the benefits of such products (Zhao, Hoeffler, and Dahl, 2012; Veryzer, 1998), and the focus of communication is therefore unlikely to influence consumer willingness to invest effort in understanding the new product. Thus, I hypothesize the following:

H2a: For RNPs, upskilling communication motivates consumers to spend more time learning about the new product as compared to functional communication. For MNPs and INPs, this effect is attenuated.

Perceived relative advantage: As discussed in Study 1, upskilling communication leads to higher perceived relative advantages of the RNP than functional communication. The main explanation is that upskilling and functional communication trigger different cognitive processes for consumers to learn about the perceived advantage of the RNP relative to competing products. In functional communication, consumers have difficulty making sense of the relative advantages of the new products (Jhang, Grant, and Campbell, 2012), since prior knowledge is likely to hinder the consumers' learning about the relative advantages of the new products (Zhao, Hoeffler, and Dahl, 2012; Ziamou, Gould, and Venkatesh, 2012). Upskilling communication on the other hand distracts consumers' focus from prior knowledge, rather allowing the consumer to focus on the opportunity the new product gives them in terms of increasing their skill levels. Thus, they will perceive that the benefits offered by the new product have a relative advantage compared to existing products. This positive perception of advantage is likely to occur because upskilling communication facilitates easier processing of the relative advantage when the product is an RNP. For INPs or MNPs,

however, upskilling and functional communication is unlikely to influence consumers' perceived relative advantage. Since consumers can draw on prior knowledge and experience to understand the benefits of such products (Zhao, Hoeffler, and Dahl, 2012; Veryzer, 1998), I hypothesize the following:

H2b: In the case of RNPs, upskilling communication leads to higher perceived relative advantage than functional communication. For MNPs and INPs, this effect is attenuated.

If this is the mechanism, I should find that cognitive effort and perceived relative advantage mediate the effect of upskilling communication on consumers' adoption intentions and willingness to pay for RNPs.

Prior research on innovation adoption has shown that the relative advantage offered by the new product compared to that of the existing products is particularly influential and that positive relative advantage perceptions directly enhance the adoption likelihood (Moreau, Lehmann, and Markman, 2001; Rogers, 2003; Jhang, Grant, and Campbell, 2012). As I discussed previously, for an RNP, higher perceived relative advantage of an upskilling communication emerges from two routes: (1) indirectly through the cognitive effort towards understanding the new products and (2) directly through the lower disruptions of prior knowledge of functional practices. Prior research has shown that cognitive effort is a major psychological barrier to consumers' adoption of new products (Cacioppo, 1983; Keller and Staelin, 1987; Mukherjee and Hoyer, 2001) and that positive cognitive effort perception directly enhances the adoption likelihood (Sharifi and Palmeira, 2017). Research has shown that the greater consumers perceive their relative advantage, the more favorable their evaluations and adoption intentions of RNP are (Jhang, Grant, and Campbell, 2012). Therefore, I propose the following hypotheses:

H3a: The effect of upskilling communication on adoption intentions and willingness to pay is directly mediated by consumer motivation to spend more time learning about the RNP.

H3b: The effect of upskilling communication on adoption intentions and willingness to pay is directly mediated by the higher perceived relative advantage of the RNP.

H3c: The effect of upskilling communication on adoption intentions and willingness to pay is serially mediated by consumer motivation to spend more time learning about the RNP and the higher perceived relative advantage of the RNP.

3.2.1 Procedure


One hundred twenty-six U.S. residents on MTurk (45 men; $M_{\text{age}} = 32$ years) were randomly assigned to one of the six conditions featuring a 2 (upskilling vs. functional communication) \times 3 (product newness: INP vs. MNP vs. RNP) between-subjects design. In the upskilling condition, participants were told that the new product – a camera – would provide them “tremendous learning opportunities to master the photo-shooting technology of tomorrow.” Those in the functional communication condition were told that the new camera would enable them to “capture precious moments on the go and keep your memories.” As in Study 1, the conceptualization of different degrees of product newness offered by Jhang, Grant, and Campbell (2012) was employed. Participants in the RNP condition were shown a picture of a really new camera that can record “photos, video, and the sense of touch and smell.” In the MNP condition, they were shown a picture of a moderately new camera that can record “photo and video.” In the INP condition, they were shown a picture of an existing camera that can record “photo and video.” The advertisement formats are provided in Figure 3.3. After reading the manipulations, the participants completed a survey measuring how they perceived the new product as well as questions measuring potential covariates.

Consumer adoption intention for new products was measured with four items on an eleven-point scale ranging from 1 = “not at all likely” to 9 = “extremely likely” (“likely to purchase,” “likely to try,” “likely to recommend to another,” “likely to share on social media”) (Ma, Gill, and Jiang, 2015, $\alpha = .90$). Consumer willingness to pay for a new product was measured by asking participants, “You are going to buy a new camera. A typical camera costs about 500 US dollars. How much would you be willing to pay for a DX5 camera?” The consumer-perceived relative advantage was measured with a two-item scaled adoption from Meuter et al. (2005) and Müller-Stewens et al. (2017, $\alpha = .94$) (nine-point scale ranging from 1 = “strongly disagree” to 9 = “strongly agree”): (1) “using this DX5 camera improves my learning experience”; (4) “overall, I believe using this DX5 camera is advantageous.” I measured cognitive effort by capturing the participants’ total time spend on the survey. This way of measuring cognitive effort was used in prior research by Perry-Smith (2014).

FIGURE 3.3: Manipulation for Study 2

Introducing DX5 Camera

Capture precious moments on the go and keep your memories with this new beautifully designed digital camera. This DX5 camera has features that enable you to store memories using specially developed software and to automatically store it in our cloud. This DX5 camera will never let you down.




What makes DX5 Camera amazing:

- **Record photo & video**
- Edit your content right on your camera
- Memories can be shared on a network of devices
- Touch screen display
- Fast battery recharge
- Wireless

(A) Functional communication, INP

Introducing DX5 Camera

Stay abreast of future technological developments with a product that allows you to know where the world is heading! Technology is changing fast and you need to stay on top of the game. This DX5 camera provides you with tremendous learning opportunities to master the photo-shooting technology of tomorrow!




What makes DX5 Camera amazing:

- **Record photo & video**
- Edit your content right on your camera
- Memories can be shared on a network of devices
- Touch screen display
- Fast battery recharge
- Wireless

(B) Upskilling communication, INP

Introducing DX5 Camera

Capture precious moments on the go and keep your memories with this new beautifully designed digital camera. This DX5 camera has features that enable you to store memories using specially developed software and to automatically store it in our cloud. This DX5 camera will never let you down.




What makes DX5 Camera amazing:

- **Record photo & video**
- Flexible roll-up display and a secondary curved coming gorilla-glass display
- Fast battery solar recharge
- Memories can be shared on a network of devices
- Wireless

(C) Functional communication, MNP

Introducing DX5 Camera

Stay abreast of future technological developments with a product that allows you to know where the world is heading! Technology is changing fast and you need to stay on top of the game. This DX5 camera provides you with tremendous learning opportunities to master the photo-shooting technology of tomorrow!




What makes DX5 Camera amazing:

- **Record photo & video**
- Flexible roll-up display and a secondary curved coming gorilla-glass display
- Fast battery solar recharge
- Memories can be shared on a network of devices
- Wireless

(D) Upskilling communication, MNP

Introducing DX5 Camera

Capture precious moments on the go and keep your memories with this new beautifully designed digital camera. This DX5 camera has features that enable you to store memories using specially developed software and to automatically store it in our cloud. This DX5 camera will never let you down.




What makes DX5 Camera amazing:

- **Record photo, video & sound + sense of touch & smell**
- Touch screen is made out of bio particles
- Hologram ICON 3D rotation
- Download apps and effects
- Wireless

(E) Functional communication, RNP

Introducing DX5 Camera

Stay abreast of future technological developments with a product that allows you to know where the world is heading! Technology is changing fast and you need to stay on top of the game. This DX5 camera provides you with tremendous learning opportunities to master the photo-shooting technology of tomorrow!



What makes DX5 Camera amazing:

- **Record photo, video & sound + sense of touch & smell**
- Touch screen is made out of bio particles
- Hologram ICON 3D rotation
- Download apps and effects
- Wireless

(F) Upskilling communication, RNP

As manipulation checks for upskilling communication ($\alpha = .95$) and product newness (Zhao, Hoeffler, and Dahl, 2009, $\alpha = .88$), I used the same measures as in Study 1. Next, the following measures were included to rule out any trait-based alternative explanation. I measured NFC using the six-item scale adopted from Cacioppo (1982). Trait innovativeness and trait discomfort were adopted from Parasuraman (2000), and I used the same measures as in Study 1. I also measured ambiguity with the two items adopted from Moreau and Engeset (2016, $\alpha = .68$). All scales were seven-item scales, from strongly disagree to strongly agree. Items are presented in Appendix A.

3.2.2 Manipulation tests

Upskilling communication manipulation check. I conducted a one-way ANOVA on the upskilling communication items. The findings confirmed that participants in the upskilling communication condition perceived upskilling as more than those in the functional communication condition ($M_{\text{upskilling}} = 5.66$, $M_{\text{functional}} = 4.89$; $F(1, 124) = 10.54$, $p < .001$). This result indicates that the manipulation of upskilling communication was successful.

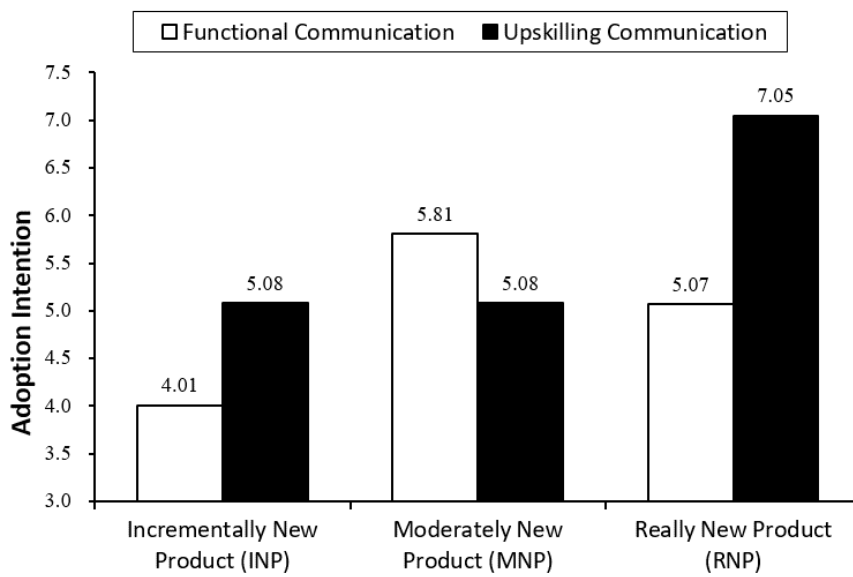
Product newness manipulation check. I conducted a one-way ANOVA on product newness items. As predicted, the result revealed a main effect of product newness ($F(2, 123) = 24.35$, $p < .001$). Pairwise comparisons reported that the incremental new camera was perceived as less innovative ($M = 5.48$) than the moderately new camera ($M = 6.67$; $F(1, 123) = 9.70$, $p < .001$), which in turn was perceived as less innovative than the really new camera ($M = 7.92$; $F(1, 120) = 17.23$, $p < .001$). The result indicates that the manipulation of product newness was successful.

3.2.3 Testing of hypothesized effect

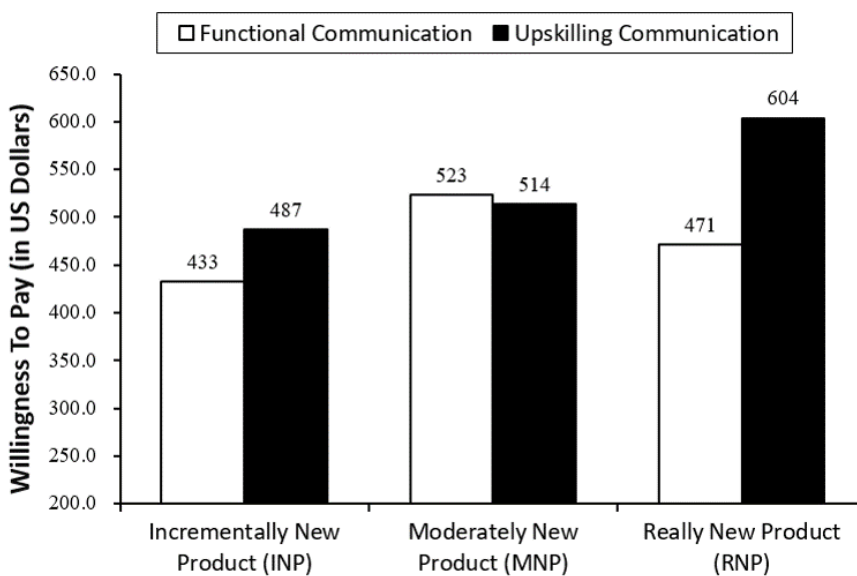
Main results. H1 predicts that upskilling (vs. functional) communication leads to higher (vs. lower) consumer adoption intention and willingness to pay for RNPs but not for INPs and MNPs. To test this hypothesis, I performed a 2 (upskilling vs. functional communication) \times 3 (product newness: INP vs. MNP vs. RNP) between-subject ANCOVA on consumers' adoption intentions and willingness to pay for the advertised product, controlling for the need for cognition, ambiguity, trait innovativeness, and trait discomfort. The results revealed that none of control variables had main or interaction effects ($p > .2$), and therefore they were excluded from the final analysis. As predicted in H1, the results revealed the significant main effect of upskilling communication on adoption intentions:

upskilling condition evoked higher adoption intentions than the functional condition ($M_{\text{upskilling}} = 5.73$, $M_{\text{functional}} = 4.96$; $F(1, 120) = 4.04$, $p < .04$). Critically, the interaction between upskilling communication and product newness on adoption intentions was significant ($F(2, 120) = 4.34$, $p < .01$), as illustrated in Figure 3.4.

FIGURE 3.4: Study 2: The effect of upskilling (vs. functional) communication and product newness on adoption intention, willingness-to-pay, cognitive effort, and perceived relative advantage



(A) Adoption Intention



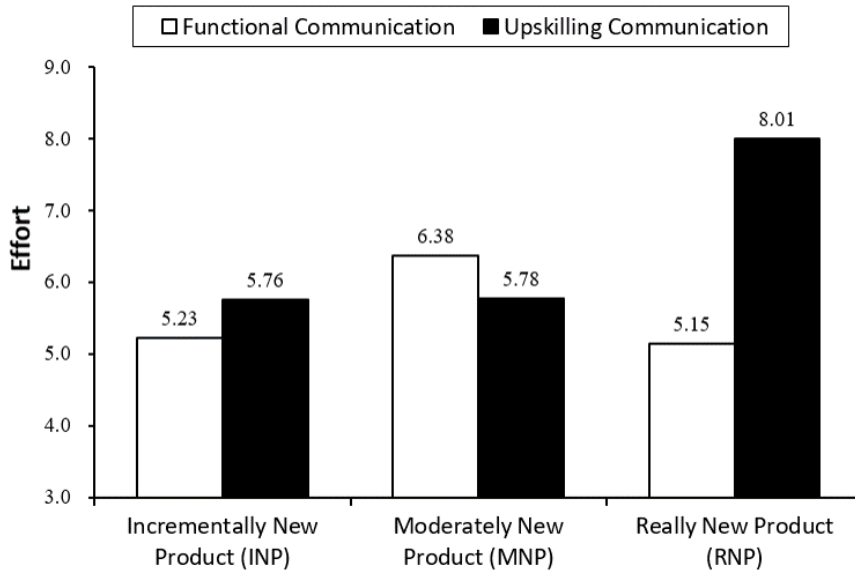
(B) Willingness-To-Pay

Similarly, the interaction between upskilling communication and product newness on willingness to pay was significant ($F(2, 120) = 5.39, p < .001$), as well as the main effect of upskilling communication on willingness to pay: the upskilling condition evoked higher willingness to pay than the functional condition ($M_{\text{upskilling}} = 534.88, M_{\text{functional}} = 475.71; F(1, 120) = 11.23, p < .001$).

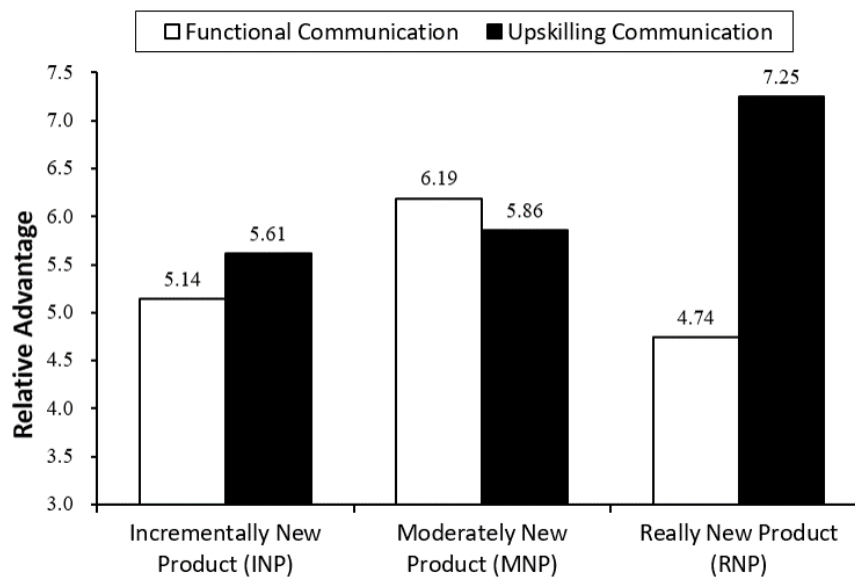
I conducted follow-up planned comparisons for product newness (RNP, MNP, and INP). In the RNP condition, participants in the upskilling communication condition had higher adoption intentions than did those in the functional communication condition ($F(1, 120) = 8.23, p < .001$). Similarly, planned analysis showed that participants in the RNP condition reported higher willingness to pay for the upskilling communication than the functional communication ($F(1, 120) = 18.05, p < .001$). In the MNP and INP conditions, the communication focus did not attain significance for adoption intentions or willingness to pay ($p < .1$). These results indicate support for H1. Overall, these results replicate the findings from Study 1.

Cognitive effort. H2a predicts that upskilling (vs. functional) communication will lead to higher (vs. lower) consumer willingness to spend more time learning about the RNP, but not for INP and MNP. To test this hypothesis, I performed a 2 (upskilling vs. functional communication) \times 3 (product newness: INP vs. MNP vs. RNP) between-subject ANOVA on consumers' cognitive effort (total time spend on a survey) in understanding the new product. As predicted in H2a, the results revealed a significant interaction between upskilling communication and product newness on consumer cognitive effort ($F(2, 120) = 10.54, p < .001$). The main effect of upskilling communication on consumer cognitive effort was also significant; the upskilling condition evoked higher consumer cognitive effort than the functional communication condition ($M_{\text{upskilling}} = 6.52, M_{\text{functional}} = 5.59; F(1, 120) = 8.88, p > .001$). Follow-up planned comparisons for the RNP condition revealed that participants in the upskilling communication condition reported more cognitive effort towards the advertised product than did those in the functional communication condition ($M_{\text{upskilling}} = 8.01, M_{\text{functional}} = 5.15; F(1, 120) = 26.91, p < .001$). Specifically, when the product was MNP, the upskilling communication did not differ in cognitive effort $M_{\text{upskilling}} = 5.78, M_{\text{functional}} = 6.37; F(1, 120) = 1.23, p > .27$). Similarly, in the case that the product was an INP, the upskilling communication did not differ in cognitive effort $M_{\text{upskilling}} = 5.75, M_{\text{functional}} = 5.23; F(1, 120) = .88, p > .35$), as illustrated in Figure 3.5. This finding supports my prediction that upskilling (vs. functional) communication leads to greater openness to cognitive effort in the learning of new products.

FIGURE 3.5: Study 2: The effect of upskilling (vs. functional) communication and product newness on cognitive effort, and perceived relative advantage



(A) Cognitive Effort



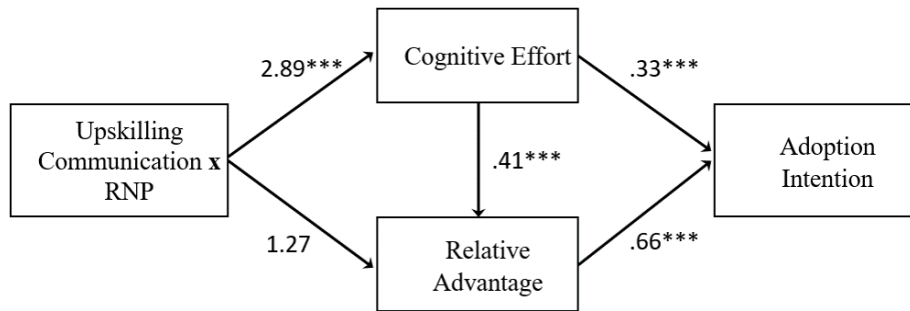
(B) Perceived Relative Advantage

Perceived relative advantage. H2b predicts that upskilling (vs. functional) communication will lead to higher (vs. lower) perceived relative advantage for RNPs but not for INPs and MNPs. To test this hypothesis, I performed a 2 (upskilling vs. functional communication) \times 3 (product newness: INP vs. MNP vs. RNP) between-subject ANOVA on perceived relative advantage. As predicted in H2b, the results revealed a significant interaction between upskilling communication

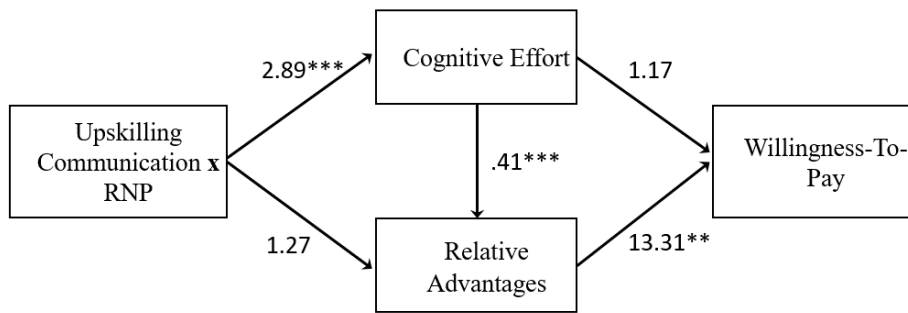
and product newness on perceived relative advantage ($F(2, 120) = 5.01, p < .001$). The main effect of upskilling communication was also significant: the upskilling condition evoked higher perceived relative advantage than the functional communication condition ($M_{\text{upskilling}} = 6.24, M_{\text{functional}} = 5.36; F(1, 120) = 5.52, p > .02$). Follow-up planned comparisons for the RNP condition revealed that participants in the upskilling communication condition reported more relative advantages towards the advertised product than did those in the functional communication condition ($M_{\text{upskilling}} = 7.25, M_{\text{functional}} = 4.74; F(1, 120) = 14.43, p < .001$). When the product was an MNP, however, the upskilling communication did not differ in relative advantage ($M_{\text{upskilling}} = 5.86, M_{\text{functional}} = 6.19; F(1, 120) = .26, p > .60$). Similarly, when the product was an INP, the upskilling communication did not differ in relative advantage ($M_{\text{upskilling}} = 5.61, M_{\text{functional}} = 5.14; F(1, 120) = .49, p > .48$), as illustrated in Figure 3.5. This finding supports my prediction that, for RNPs, upskilling communication leads to higher perceived relative advantage than functional communication.

Mediation analysis. H3a and H3b predict that high (vs. low) cognitive effort in understanding the RNP and high (vs. low) perceived relative advantage directly mediates the effect of upskilling (vs. functional) communication on adoption intentions and willingness to pay. In addition, H3c predicts that consumer cognitive effort and perceived relative advantage serially mediate the effect of upskilling (vs. functional) communication on consumers' adoption intentions and willingness to pay. To test these hypotheses, I used mediated moderation analysis in which I treated the product of upskilling communication and product newness (i.e., upskilling communication \times product newness) as the main independent variables, while keeping their main effect as statistical controls (Hayes, 2013). Because product newness has three levels, I tested two serial mediation models by recording product newness into two dummy variables, namely RNP (1 if the product is RNP and 0 otherwise), and MNP (1 if the product is MNP and 0 otherwise) (Hayes, 2012). In the first model tested, I specified upskilling communication \times RNP as the independent variable while keeping the main effect as the control variable, effort and relative advantages as the mediator, adoption intention as the dependent variable, and MNP as the covariate. The second model is the same as the first model, except that I treated willingness to pay as the dependent variable. I tested these models using the PROCESS macro, a bootstrapping method for mediation analysis Model 6 (Hayes, 2013). Figure 3.6 summarizes the final estimation results for the four models.

FIGURE 3.6: Study 2, Estimates of path coefficients and bootstrapping mediation analysis



(A) Model 1: Adoption Intentions



(B) Model 2: Willingness-To-Pay

Indirect Effects or Paths

* $p < .05$, ** $p < .01$, *** $p < .001$

Model 1: Adoption Intention (MNP as covariate)

Ind1 : Upskilling Communication x RNP -> CE -> AI: (.3999, 1.7722)*

Ind2 : Upskilling Communication x RNP -> CE -> RA -> AI: (.3541, .1.4532)*

Ind3 : Upskilling Communication x RNP -> RA -> AI: (-.2164, 2.1131)

Model 2: Willingness-To-Pay (MNP as covariate)

Ind1 : Upskilling Communication x RNP -> CE -> WTP: (-29.7284, 40.0098)

Ind2 : Upskilling Communication x RNP -> CE -> RA -> WTP: (4.7712, .38.4716)*

Ind3 : Upskilling Communication x RNP -> RA -> WTP: (-2.5076, 53.0388)

Bias-corrected and accelerated estimates of 95 % CI for the indirect effects are as follows (the asterisk indicates statistically significant effects): Notes: Upskilling Communication: 1 = upskilling and 0 = functional communication, MNP: 1 = MNP, and 0 otherwise; RNP: 1 = RNP, and 0 otherwise, CE = cognitive effort, RA = relative advantages, AI = adoption intention, WTP = willingness-to-pay

The upskilling communication \times RNP had a significant effect on effort ($\beta = 2.89$, $t(121) = 4.32$, $p < .001$) and had a non-significant effect on the relative advantages ($\beta = 1.27$, $t(120) = 1.55$, $p < .12$). The effect of cognitive effort on adoption intentions was significant ($\beta = .33$, $t(119) = 4.12$, $p < .001$) but was non-significant for willingness to pay ($\beta = 1.17$, $t(119) = .22$, $p < .83$). In addition, the effect of cognitive effort on relative advantages was significant ($\beta = .41$, $t(120) = 3.93$, $p < .001$). Finally, the effect of relative advantage on adoption intention ($\beta = .66$, $t(119) = 10.04$, $p < .001$) and willingness to pay ($\beta = .1331$, $t(119) = 3.02$, $p < .001$) was significant.

As predicted, the results indicate that consumer cognitive effort to understand the RNP mediated the effect of upskilling communication of RNP on adoption intention, as the 95% bias-corrected and accelerated bootstrap confidence interval did not contain zero (95% CI = .3999, 1.7722), but the cognitive effort did not mediate the effect of upskilling communication of RNP on willingness to pay (95% CI = -29.7284, 40.0098). Thus, H3a is supported for adoption intention, but not willingness to pay. In addition, relative advantage did not mediate the effect of upskilling communication of RNP on either adoption intention (95% CI = -.2164, 2.1131) or on willingness to pay (95% CI = -2.5076, 53.0388). Hence, H3b is not supported. Importantly, cognitive effort and perceived relative advantages serially mediated the effect of upskilling communication of RNP on adoption intention (95% CI = .3541, .1.4532) and willingness to pay (95% CI = 4.7712, .38.4716). Thus, H3c is supported.

3.2.4 Discussion

Three main implications can be derived from Study 2. First, Study 2 provides initial evidence for the underlying mechanism that I predicted for upskilling communication to enhance consumers' openness to make a cognitive effort: time spent in understanding the new product. The consumers who viewed the upskilling communication ad spent more time completing the survey in order to understand the new products than those who viewed the functional communication ad. In turn, consumers interpreted the communicated skills as a relative advantage compared to the existing products. Second, Study 2 sought to conceptually replicate the findings of Study 1 in a relatively more externally valid manner to show that upskilling communication exerts the same effect on adoption intentions and willingness to pay. Accordingly, I provide further support for H1 by extending the findings from Study 1. Third, as predicted, I found that the effect of upskilling communication did not vary for RNPs, regardless of whether the product was a bike or camera.

Overall, the results suggest that, when the product was really new, the participants were more responsive to upskilling communication than to functional communication. However, the communication focus did not differ in their persuasiveness for incremental new and moderately new products. It seems plausible that the upskilling communication made it easier for consumers to comprehend the benefits of new products. For upskilling communication to be effective, the consumer must appreciate the effort to learn and grow. This line of reasoning fits the idea that consumers with a situational growth mindset appreciate the cognitive effort (Sharifi and Palmeira, 2017) and seek self-improvement opportunities (Mathur, Chun, and Maheswaran, 2016; Dweck and Molden, 2008). Following previous research, I predict that, when consumers are in a growth mindset, their openness to cognitive effort and change will enable them to appreciate the benefits presented in the upskilling communication. If this is so, I should be able to identify the same pattern of findings in how consumers with a situational growth mindset respond to product newness, depending on how it is advertised. Specifically, consumers with a situational growth mindset might be more responsive to upskilling versus functional communication. Thus, in the next step, I aim to test the findings of Studies 1 and 2 by situationally activating the growth mindset and its consumers' adoption intentions towards the new products.

3.3 Study 3: The moderating role of situational growth mindset

Focusing on proposition 2, the primary objective of Study 3 is to test the moderating role of a situational growth mindset. The proposition is that consumers become more attentive to upskilling communication when their situational growth mindset is activated. This effect is expected to be present for RNPs, but not MNPs or INPs. For RNPs, learning about a new product is a novel task among consumers, and research has indicated that people with a situational growth mindset enjoy novel tasks (Dweck and Bempechat, 1983) and that they value the learning opportunities associated with those novel tasks (Hong et al., 1997). Conversely, people with a situational fixed mindset tend to steer away from difficult tasks and choose easier ones (Ehrlinger, Mitchum, and Dweck, 2016). Learning about INPs or MNPs is likely to be perceived as an existing task in which minor effort is required (Veryzer, 1998; Zhao, Hoeffler, and Dahl, 2009). Therefore, I expect the situational growth mindset to only have an effect for RNP.

Drawing on the prior discussion, when consumers' situational growth mindset is activated, they are likely to invest more effort in processing the information

and become more interested in raising their skill levels. In turn, they will perceive that the benefits offered by the new products have a relative advantage compared to the existing products, thus increasing the response to upskilling communication on the consumers' adoption intentions for the new products. At the same time, building on the prior discussion, I argue that, when consumers' situational fixed mindset is activated, they are less likely to expend effort processing the information and become less interested in raising skill levels, thus decreasing the response to upskilling communication on consumers' adoption intentions toward the new products.

In order to test the premise that upskilling communication is particularly useful for RNP, but not for INP and RNP, as discussed in chapter 2.3, and hypothesized and tested in Study 1 and study 2. Thus, I hypothesize the following:

H4: For RNP, upskilling (vs. functional) communication leads to higher adoption intentions. The positive effect of upskilling communication on adoption intention is intensified when people are in a situational growth (vs. fixed) mindset. For MNPs and INPs, this effect is attenuated.

3.3.1 Procedure

Nine hundred fifty-four U.S. residents on MTurk were recruited (401 men; $M_{\text{age}} = 33$ years) who participated in a 2 (situational growth mindset vs. situational fixed mindset) \times 2 (upskilling vs. functional communication) \times 3 (product newness: INP vs. MNP vs. RNP) between-subjects design. In the first part, I situationally activated the growth versus fixed mindset orientation using the general trait manipulation employed in Chiu, Hong, and Dweck (1997). Participants were told that they were being tested regarding reading comprehension and memory. They were instructed to read a paragraph containing concepts about which they would be tested on later in the session. In the situational growth mindset condition, participants were told that "people's personality characteristics can change, even in their late sixties." Conversely, those in the situational fixed mindset condition were told that, "people's personality characteristics are fixed and cannot be changed." The presentation formats are provided in Figure 3.7. In the second part, using the same product stimulus as in Study 1, I randomly assigned participants to one of the six experimental conditions and instructed them to read an advertisement about a new DX5 bike being introduced; see Figure 3.1. They then completed a survey measuring how they perceived the new product. Consumer adoption intentions of the new product was measured the same way as in Study 2 (Ma, Gill, and Jiang, 2015, $\alpha = .93$)

FIGURE 3.7: Mindset manipulation

In his talk at the American Psychological Association's annual convention held at Washington D.C. in August, Dr. George Medin argued that "no one's character is as 'hard as a rock' so that it cannot be changed. Only for some, greater effort and determination are needed to effect changes." He reported numerous large longitudinal studies showing that people can mature and change their character. He also reported research findings showing that people's personality characteristics can change, even in their late sixties.

(A) Situational Growth Mindset

In his talk at the American Psychological Association's annual convention held at Washington D.C. in August, Dr. George Medin argued that "in most of us, by the age of ten, our character has set like plaster and will never soften again." He reported numerous large longitudinal studies showing that people "age and develop, but they do so on the foundation of enduring dispositions." He also reported research findings showing that people's personality characteristics are fixed and cannot be changed.

(B) Situational Fixed Mindset

As manipulation checks for the situational growth mindset, participants rated their agreement with eight statements on a seven-point scale, adopted from Levy, Stroessner, and Dweck (1998, $\alpha = .92$). In addition, participants expressed their agreement with the statement, "I think this article makes me believe that situations and things can change," adopted from Jain, Mathur, and Maheswaran (2009). All scales were seven items ranging from strongly disagree to strongly agree. Items are presented in Appendix A. As manipulation checks for upskilling communication ($\alpha = .93$) and product newness (Zhao, Hoeffler, and Dahl, 2009, $\alpha = .92$), I used the same measures as in Studies 1 and 2. All scales were seven items ranging from strongly disagree to strongly agree. Items are presented in Appendix A.

3.3.2 Manipulation tests

Growth mindset manipulation check. I conducted a one-way ANOVA on the growth mindset items. The results confirmed that participants who read an article containing concepts about how personality characteristics can be changed scored higher regarding growth mindset than those who read an article emphasizing that personality traits are fixed and cannot be changed ($M_{\text{growth}} = 4.44$, $M_{\text{fixed}} = 4.03$; $F(1, 952) = 25.53$, $p < .001$). This result indicates that the manipulation of growth mindset was successful.

Upskilling communication manipulation check. I conducted a one-way ANOVA on the upskilling communication items. The findings confirmed that participants in the upskilling communication condition perceived upskilling as more positive than those in the functional communication condition ($M_{\text{upskilling}} = 4.79$, $M_{\text{functional}} = 3.97$; $F(1, 950) = 66.47$, $p < .001$). This result indicated that the manipulation of the growth mindset was successful.

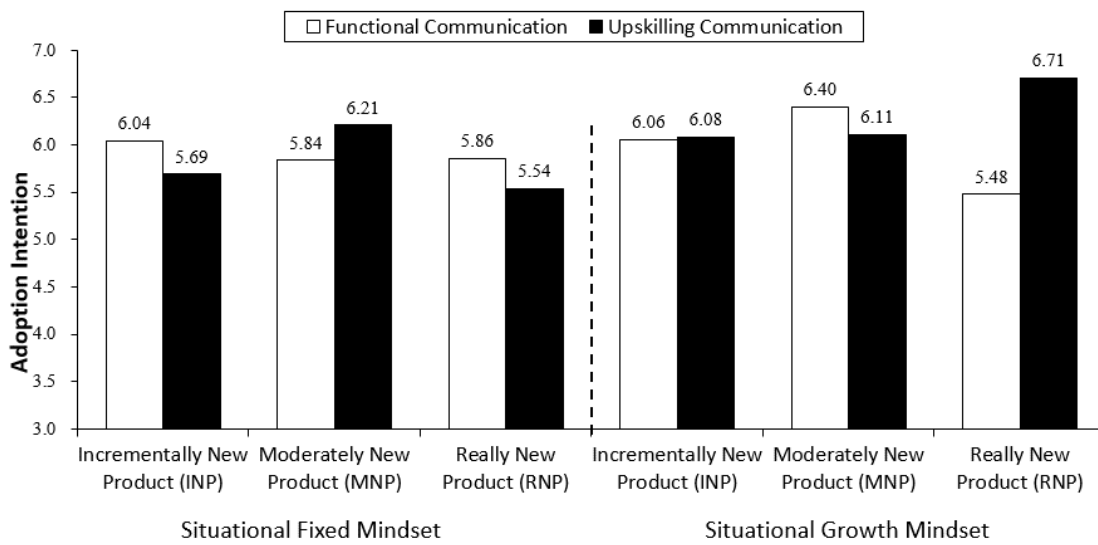
Product newness manipulation check. I conducted a one-way ANOVA on product newness items. As predicted, the results revealed the main effect of product newness ($F(2, 949) = 23.51$, $p < .001$). Pairwise comparisons indicated that the incremental new bike was perceived as less innovative ($M = 5.95$) than the moderately new bike ($M = 6.45$; $F(2, 949) = 10.04$, $p < .001$), which in turn was perceived as less innovative than the really new bike ($M = 7.01$; $F(2, 940) = 14.46$, $p < .001$). The result indicates that the manipulation of product newness was successful.

3.3.3 Testing of hypothesized effect

H4 predicts that, when consumers are in a growth (vs. fixed) mindset, they become more accepting of the upskilling (vs. functional) communication of new products. This positive effect of upskilling communication on consumer adoption intention is stronger for RNPs than for INPs or MNPs. To test these predictions, I performed a 2 (situational growth vs. situational fixed mindset) \times 2 (upskilling vs. functional communication) \times 3 (product newness: INP vs. MNP vs. RNP) between-subjects ANCOVA on consumers' adoption intentions for the advertised product. As predicted in H4, a 2 \times 2 \times 3 ANCOVA on the adoption intention revealed the three-way interaction among mindset, upskilling communication, and product newness ($F(2, 942) = 3.10$, $p < .04$). This interaction effect is illustrated in Figure 3.8. I conducted follow-up analyses for RNP, MNP, and INP conditions. In the RNP condition, the interaction between the mindset and upskilling communication was significant ($F(1, 942) = 5.45$, $p < .02$). In support of H4, a growth mindset demonstrated greater preference for upskilling communication ($M_{\text{upskilling}} = 6.71$, $M_{\text{functional}} = 5.48$; $F(1, 942) = 5.63$, $p < .01$), whereas those with

a fixed mindset were insensitive to upskilling communication ($M_{\text{upskilling}} = 5.54$, $M_{\text{functional}} = 5.86$; $F(1, 942) = .80, p > .37$). Finally, in the INP and MNP condition, no significant main or interaction effects emerged ($p > .19$). Therefore, consistent with my prediction, a consumer situational growth mindset increases the effect of upskilling communication on consumers' adoption intentions for RNPs but not for INPs and MNPs. Thus, H4 is supported.

FIGURE 3.8: Study 3: The effect of upskilling (vs. functional) communication and situational growth (vs. fixed) mindset on adoption intention for INP, MNP, and RNP



3.3.4 Discussion

In this study, I identified the situational growth mindset as an important moderator of the effect of upskilling communication on consumers' adoption intentions toward RNP. In particular, Study 3 provides initial evidence that consumers with a situational growth mindset were more responsive to upskilling versus functional communication. In turn, they reported more adoption intentions for RNPs. At the same time, consumers' situational fixed mindsets were equally responsive to upskilling versus functional communication. As a result, they reported equal adoption intention for RNPs. Thus, as follows, Study 4 will discuss the underlying mechanism of this effect.

3.4 Study 4

The objective of Study 4 is to replicate the findings in Study 3 by using a different product and a different operationalization of upskilling communication. Furthermore, the objective of Study 4 is to test the mediating role of perceived relative advantage. Study 3 was conducted under the assumption that, when consumers' situational growth mindset is activated, they become more attentive to upskilling communication relative to functional communication. In turn, they will perceive the benefits offered by RNPs as providing a relative advantage compared to the existing products. Thus, this perception of relative advantage will lead to higher consumer adoption intention of RNPs. Research has shown that the greater consumers perceive the relative advantage, the more favorable their evaluations and adoption intentions of RNPs are (Rogers, 2003; Jhang, Grant, and Campbell, 2012). Hence, I hypothesize the following:

H5a: Upskilling (vs. functional) communication leads to higher perceived relative advantage for the RNP. This effect is stronger (vs. weaker) when a situational growth (vs. fixed) mindset is activated.

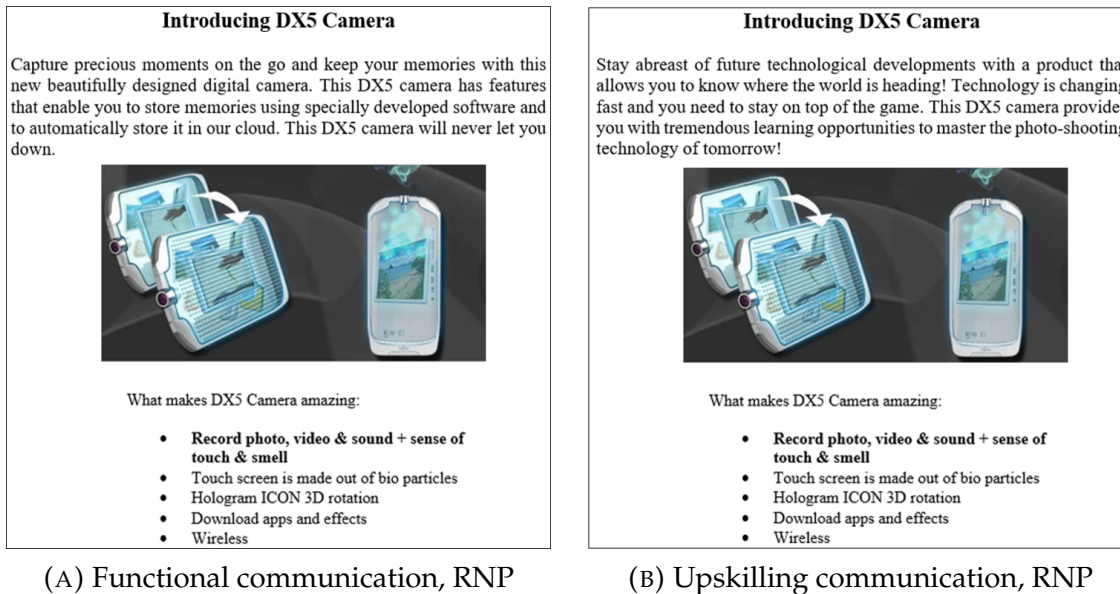
H5b: The positive effect of upskilling communication on consumer adoption intentions is mediated by perceived relative advantage. This effect is stronger (vs. weaker) when a situational growth (vs. fixed) mindset is activated.

3.4.1 Procedure

One hundred four U.S. residents on MTurk were recruited (58 men; $M_{\text{age}} = 38$ years) who participated in a 2 (situational growth mindset vs. situational fixed mindset) \times 2 (upskilling vs. functional communication) between-subjects design. Similar to Study 3, in the first part, I situationally activated the participants' growth versus fixed mindset orientation using the general trait manipulation employed in Chiu, Hong, and Dweck (1997). The mindset manipulations were identical to those of Study 3. The manipulation formats are provided in Figure 3.7. In the second part, I manipulated the upskilling versus functional communication by changing the focus in the ad. The manipulations were identical to those of Study 2. In the upskilling condition, participants were told that the new product – a camera – would provide them “tremendous learning opportunities to master the photo-shooting technology of tomorrow,” whereas those in the functional condition were told that the new camera would enable them to “capture precious moments on the go and keep your memories.” The advertisement formats are

provided in Figure 3.9. I randomly assigned participants to one of the two experimental conditions and instructed them to read an advertisement about a new DX5 camera being introduced. After reading the manipulations, they completed a survey measuring how they perceived the RNP as well as questions measuring potential covariates.

FIGURE 3.9: Manipulation for Study 4



I measured adoption intention (Ma, Gill, and Jiang, 2015, $\alpha = .95$), perceived relative advantage (Meuter et al., 2005; Müller-Stewens et al., 2017, $\alpha = .90$), growth mindset (Levy, Stroessner, and Dweck, 1998, $\alpha = .86$), NFC (Cacioppo, 1982, $\alpha = .82$), and ambiguity (Moreau and Engeset, 2016; Stanley Budner, 1962, $\alpha = .71$) in the same way as done previously. I measured trait innovativeness with two items adopted from Roehrich (2004, $\alpha = .80$). I measured emotions with nine items adopted from Mehta, Zhu, and Meyers-Levy (2014); three items related to positive feelings ("happy," "upbeat," "excited"; $\alpha = .88$), three items related to negative feelings ("sad," "depressed," "upset"; $\alpha = .95$), and the remaining three items were concerned with nervousness ("anxious," "tense," "tight"; $\alpha = .96$). I measured the regularity focus with a ten-item scale adopted from Haws, Dhoklaka, and Bearden (2010, $\alpha = .76$). Finally, I measured construal level using the behavior identification form (BIF) adopted from prior research (Fujita et al., 2006; Aggarwal and Zhao, 2015; Trope, Liberman, and Wakslak, 2007). Items are presented in Appendix A.

3.4.2 Pretest

I pretested the upskilling versus functional communication among 48 U.S. residents recruited on MTurk 48 (upskilling communication = 25; functional communication = 24). Participants rated their agreement with one statement, "this ad focuses on learning opportunities if people choose the advertised product" (1 = strongly disagree, 7 = strongly agree). Participants in the upskilling communication condition perceived more learning opportunities than those in the functional communication condition ($M_{\text{upskilling communication}} = 4.60$ vs. $M_{\text{functional communication}} = 3.04$; $F(1, 47) = 9.25, p < .001$).

3.4.3 Manipulation tests

Growth mindset manipulation check. I conducted a one-way ANOVA on the growth mindset items. The results confirmed that participants who read an article stating that personality characteristics can be changed scored higher on the growth mindset than those who read an article emphasizing that personality traits are fixed and cannot be changed ($M_{\text{growth}} = 4.55, M_{\text{fixed}} = 3.87$; $F(1, 102) = 10.38, p < .001$). This result indicates that the manipulation of growth mindset was successful.

3.4.4 Testing of hypothesized effect

To test whether situational growth mindset increases the positive effect of upskilling communication on RNP adoption, I performed a 2 (situational growth mindset vs. situational fixed mindset) \times 2 (upskilling vs. functional communication) between-subject ANCOVA on consumers' adoption intentions for the advertised RNP, controlling for trait innovativeness, emotions, regularity focus, construal level, NFC, and ambiguity. The results revealed that emotions, regularity focus, construal level, NFC, and ambiguity had no main or interaction effect ($p > .20$) and therefore were excluded from the final analysis. Trait innovativeness had a positive main effect ($F(1, 91) = 17.30, p < .001$) but did not interact with the situational growth mindset or upskilling communication ($p > .20$). Mindset had a main effect ($F(1, 98) = 6.63, p < .01$); participants with the situational growth mindset condition reported higher adoption intention than the fixed-mindset condition ($M_{\text{growth}} = 6.20$ vs. $M_{\text{fixed}} = 5.36$). The main effect of upskilling communication was not significant ($p > .20$). As predicted in H4, a 2 \times 2 ANCOVA on the adoption intention revealed the two-way interaction among

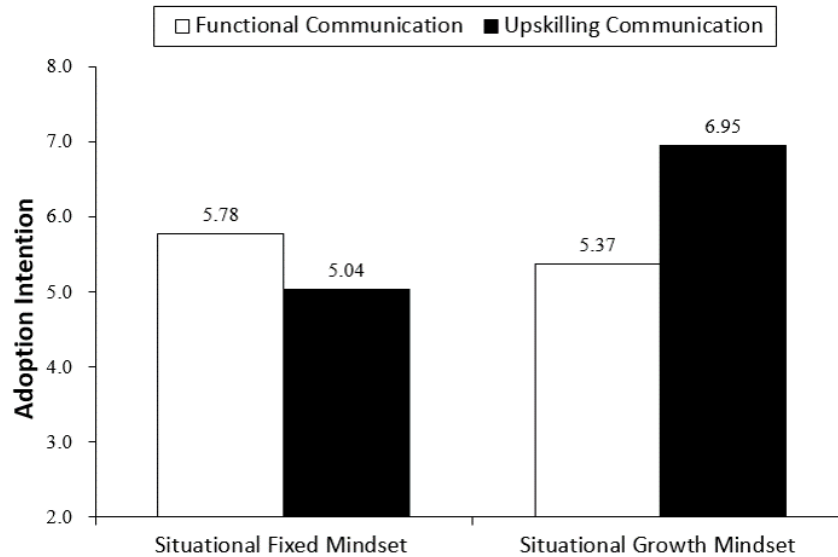
mindset and upskilling communication ($F(1, 98) = 10.78, p < .001$). For the situational growth mindset condition, participants who were exposed to the upskilling condition reported higher adoption intention than those in the functional communication condition ($M_{\text{upskilling}} = 6.88$ vs. $M_{\text{functional}} = 5.53; F(1, 98) = 7.33, p < .001$). For situational fixed mindset condition, adoption intentions did not differ between upskilling and functional communication ($M_{\text{upskilling}} = 4.95$ vs. $M_{\text{functional}} = 5.76; F(1, 98) = 2.58, p > .11$). The findings are consistent with my prediction that consumer situational growth mindset increases the effect of upskilling communication on consumers' adoption intentions for RNP. Thus, H4 is supported.

To assess the stability of the estimates, I also ran a 2 x 2 ANOVA, excluding trait innovativeness. The 2 x 2 ANCOVA on the adoption intention remained virtually unchanged ($F(1, 100) = 9.76, p < .001$), as illustrated in Figure 3.10. For the situational fixed mindset condition, adoption intention did not differ between upskilling and functional communication ($M_{\text{upskilling}} = 6.95$ vs. $M_{\text{functional}} = 5.37; F(1, 100) = 8.06, p < .001$). For the situational fixed mindset condition, adoption intention did not differ between upskilling (vs. functional) communication ($M_{\text{upskilling}} = 5.04$ vs. $M_{\text{functional}} = 5.78; F(1, 100) = 1.79, p > .18$). Thus, the effect of situational growth mindset and upskilling communication on adoption intention was robust regardless of whether trait innovativeness was controlled.

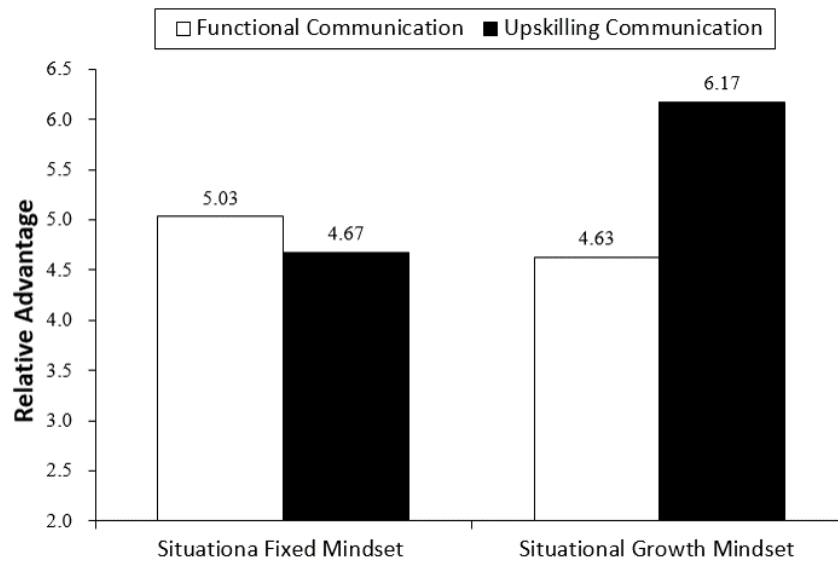
Perceived relative advantage. H5a predicts that upskilling (vs. functional) communication leads to higher (vs. lower) perceived relative advantage for RNP. This perception of relative advantage is stronger (vs. weaker) when a situational growth (vs. fixed) mindset is activated. To test this hypothesis, I performed 2 (situational growth mindset vs. situational fixed mindset) x 2 (upskilling vs. functional communication) between-subject ANOVA on perceived relative advantage. As predicted in H5a, the results showed a main effect of upskilling communication on perceived relative advantage ($F(1, 100) = 5.82, p < .01$); participants in the upskilling condition reported more relative advantages than those in the functional communication condition ($M_{\text{upskilling}} = 5.42$ vs. $M_{\text{functional}} = 4.82$). The main effect of the mindset manipulation was also significant ($F(1, 100) = 5.06, p < .02$); participants in the situational growth mindset condition reported more relative advantages than those in the situational fixed mindset condition ($M_{\text{growth}} = 5.40$ vs. $M_{\text{fixed}} = 4.84$). More importantly, the two-way interaction between situational mindset and upskilling communication was significant ($F(1, 100) = 14.89, p < .001$). In the follow-up contrast, participant reported more relative advantages associated with upskilling (vs. functional) communication under the situational growth mindset condition ($M_{\text{upskilling}} = 6.17$ vs. $M_{\text{functional}} = 4.63; F(1, 100) = 17.89, p < .001$) but not for the situational fixed mindset condition, ($M_{\text{upskilling}} = 4.67$ vs. $M_{\text{functional}} = 5.03; F(1, 100) = .86, p > .35$). The interaction is illustrated in Figure 3.10.

These results support H5a.

FIGURE 3.10: Study 4: The effect of upskilling (vs. functional) communication and situational growth (vs. fixed) mindset on adoption intention, and perceived relative advantage



(A) Adoption Intentions



(B) Perceived Relative Advantages

Moderated mediation. H5b predicts that high (vs. low) perceived relative advantage mediates the effect of upskilling (vs. functional) communication on adoption intentions. This effect is stronger (vs. weaker) when a situational growth (vs. fixed) mindset is activated. To test this hypothesis, I used mediated moderation

analysis (Hayes, 2013, Model 7). The mediated moderation analysis included upskilling communication as the independent variable (functional = 0, upskilling = 1), situational growth mindset as the moderator (situational fixed mindset = 0, situational growth mindset = 1), perceived relative advantage as the mediator, and adoption intention as the dependent variable.

The upskilling communication x situational growth mindset had a significant effect on perceived relative advantage ($\beta = 1.90, t(100) = 3.85, p < .001$). The effect of relative advantages on adoption intention was significant ($\beta = .95, t(101) = 8.56, p < .001$). As predicted in H5b, perceived relative advantages mediated the joint effect of upskilling communication x situational growth mindset on adoption intention, as the 95% bias-corrected and accelerated bootstrap confidence interval (CI) excluded zero (95% CI = .8635, 2.9763). Follow-up analyses of conditional indirect effect of upskilling communication through perceived relative advantage was significantly positive for the situational growth mindset ($\beta = 1.48, SE = .41, 95\% CI: .7584, 2.3898$). In contrast, within the situational fixed mindset, the condition indirect effect of upskilling communication through perceived relative advantages was non-significant ($\beta = -.34, SE = .29, 95\% CI: -.98096, .1966$). Moreover, the direct effect of upskilling communication x situational growth mindset on adoption intention was ($\beta = -.15, t(101) = -.52, p < .60$). After controlling for the perceived relative advantage, the direct effect of upskilling communication x situational growth mindset on adoption intention was reduced (from $\beta = 2.33$ to $\beta = .90$) but remained significant ($\beta = .90, t(99) = 7.37, p < .001$). Thus, H5b is partially supported.

3.4.5 Discussion

Two main implications can be derived from Study 4. First, Study 4 sought to conceptually replicate the findings of Study 3 in a relatively more externally valid manner that show that the effect of upskilling communication would not vary for RNP, regardless of whether the product is a bike or a camera. Second, I showed that the consumer-perceived advantage of RNP relative to the existing products is the mediating mechanism of these effects. As follows, Study 5 will investigate the robustness of these effects.

3.5 Study 5

The primary objective of Study 5 is the development of the new operationalization of upskilling communication and the use of different product. Specifically, the objective of Study 5 is to replicate the findings in previous studies.

3.5.1 Procedure

One-hundred-one U.S. residents on MTurk were recruited (48 men; $M_{\text{age}} = 37$ years) who participated in a 2 (situational growth mindset vs. situational fixed mindset) \times 2 (upskilling vs. functional communication) between-subjects design. Similar to previous studies, in the first part, I situationally activated growth versus fixed mindset orientation using the general trait manipulation employed in Chiu, Hong, and Dweck (1997). The mindset manipulations were identical to those in Study 3. The manipulation formats are provided in Figure 3.7. In the second part, the upskilling versus functional communication was manipulated by changing the focus in the ad. In the upskilling condition, participants were told that the new product – a Tefal – would provide them “the opportunity to update and improve your cooking skills,” whereas those in the functional communication condition were told that the new Tefal would complete the “cooking process for you at the touch of a button.” The advertisement formats are provided in Figure 3.11.

FIGURE 3.11: Manipulation for Study 5



(A) Functional communication

(B) Upskilling communication

I randomly assigned participants to one of the two experimental conditions and instructed them to read an advertisement about a new Tefal being introduced. After reading the manipulations, they completed a survey measuring how they perceived the RNP as well as questions measuring the potential covariates.

I measured adoption intentions (Ma, Gill, and Jiang, 2015, $\alpha = .95$), perceived relative advantage (Meuter et al., 2005; Müller-Stewens et al., 2017, $\alpha = .90$),

growth mindset (Levy, Stroessner, and Dweck, 1998, $\alpha = .88$), innate innovativeness (Ma, Yang, and Murali, 2014, $\alpha = .70$), openness to experience (Ratner and Kahn, 2002, $\alpha = .78$), regularity focus (Haws, Dholakia, and Bearden, 2010, $\alpha = .68$), NFC (Cacioppo, 1982, $\alpha = .81$), ambiguity (Moreau and Engeset, 2016; Stanley Budner, 1962, $\alpha = .71$), emotions (Mehta, Zhu, and Meyers-Levy, 2014, $\alpha = .86$), and construal level (Trope, Liberman, and Wakslak, 2007, $\alpha = .87$), as in previous studies. Items are presented in Appendix A.

3.5.2 Pretest

I pretested upskilling versus functional communication among 37 U.S. residents recruited on MTurk (upskilling communication = 18; functional communication = 19). Participants rated their agreement with one statement: "this ad focuses on learning opportunities if people choose the advertised product" (1 = strongly disagree, 9 = strongly agree). Participants in the upskilling communication condition perceived more learning opportunities than those in the functional communication condition ($M_{\text{upskilling communication}} = 6.22$ vs. $M_{\text{functional communication}} = 5.37$; $F(1, 35) = 15.18$, $p < .001$).

3.5.3 Manipulation tests

Growth mindset manipulation check. I conducted a one-way ANOVA on the growth mindset items. They confirmed that participants who read an article containing the concepts about personality characteristics can be change score higher on growth mindset than those who read an article emphasizing that personality traits are fixed and cannot be changed ($M_{\text{growth}} = 4.65$, $M_{\text{fixed}} = 4.05$; $F(1, 99) = 6.75$, $p < .01$). This result indicates that the manipulation of the growth mindset was successful.

3.5.4 Testing of hypothesized effect

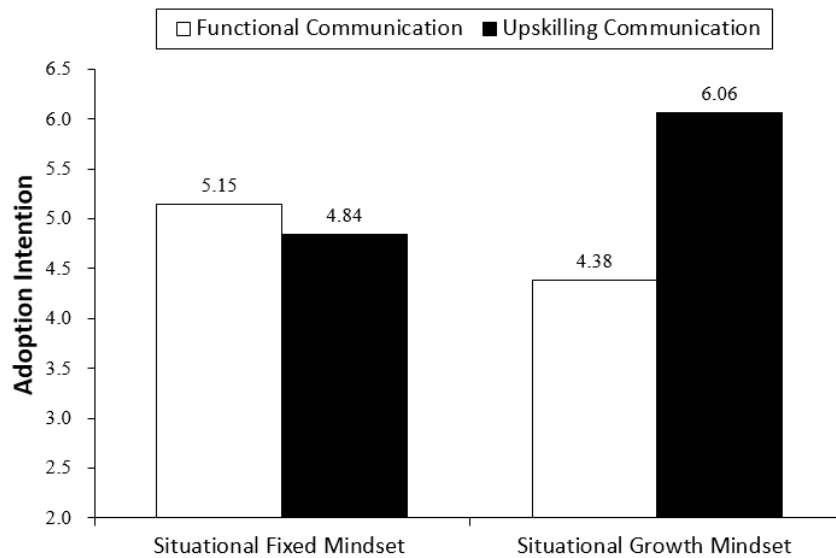
H4 predicts that when consumers are in a growth mindset, they become more attentive to the upskilling communication of the RNP. In turn, this will positively increase the effect of upskilling communication on consumer adoption intentions of the RNP. To test this prediction, I performed a 2 (situational growth mindset vs. situational fixed mindset) \times 2 (upskilling vs. functional communication) between-subjects ANCOVA on consumers' adoption intentions for the advertised RNP, controlling for innate innovativeness, openness to experience, regularity focus, NFC, ambiguity, emotions, and construal level. The results revealed that

openness to experience, regularity focus, NFC, ambiguity, emotions, and construal level had no main or interaction effect ($p > .1$) and therefore were excluded from the final analysis. Innate innovativeness had a positive main effect ($F(1, 93) = 15.56, p < .001$) but did not interact with the situational growth mindset or upskilling communication ($p > .6$). The main effect of situational growth mindset and upskilling communication was not significant ($p > .20$). As predicted in H4, a 2×2 ANCOVA on the adoption of a product revealed the two-way interaction among situational growth mindset and upskilling communication ($F(1, 93) = 3.64, p < .06$), as shown in Figure 3.12. For the situational growth mindset condition, participants who were exposed to the upskilling condition reported higher adoption intention than did those in the situational fixed mindset ($M_{\text{upskilling}} = 6.06$ vs. $M_{\text{functional}} = 4.38; F(1, 93) = 6.39, p < .01$). In contrast, those in the situational fixed mindset were insensitive to upskilling versus functional communication and therefore reported equal adoption intentions ($M_{\text{upskilling}} = 4.84$ vs. $M_{\text{functional}} = 5.15; F(1, 93) = .18, p > .67$). Thus, H4 is supported.

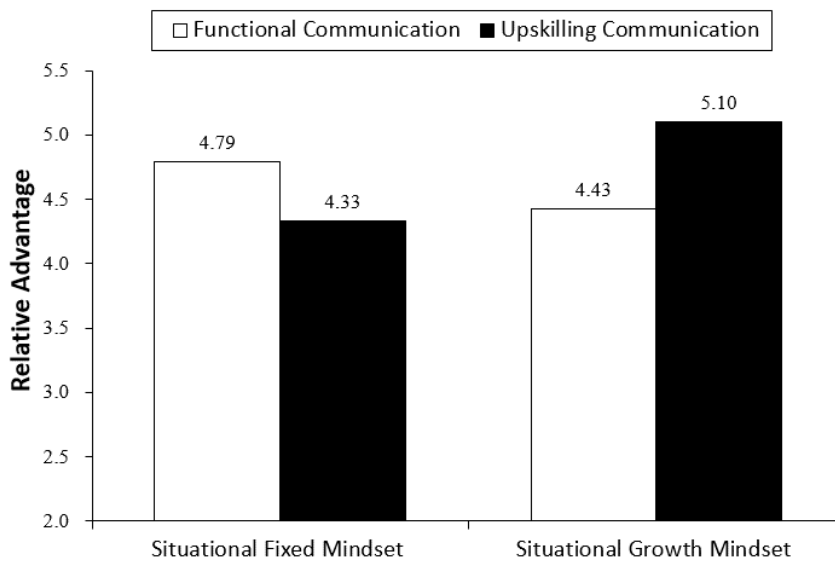
To assess the stability of the estimates, I also ran a situational growth mindset x communication focus ANOVA, excluding innate innovativeness. The situational growth mindset x upskilling communication interaction remained virtually unchanged ($F(1, 97) = 4.23, p < .04$). Thus, the effect of situational growth mindset x upskilling communication on adoption intention was robust, regardless of whether innate innovativeness was controlled.

Perceived relative advantage. H5a predicts that upskilling (vs. functional) communication will lead to higher (vs. lower) perceived relative advantage for RNP. This perception of relative advantage will be stronger (vs. weaker) when a situational growth (vs. fixed) mindset is activated. To test this hypothesis, I performed 2 (situational growth mindset vs. situational fixed mindset) \times 2 (upskilling vs. functional communication) between-subject ANOVA on perceived relative advantage. As predicted in H5a, the results revealed that the two-way interaction between the situational growth mindset and upskilling communication was significant ($F(1, 97) = 4.41, p < .03$). The interaction is illustrated in Figure 3.12. In follow-up contrast, the participants reported more perceived relative advantages associated with upskilling (vs. functional) communication for the situational growth mindset condition ($M_{\text{upskilling}} = 5.10$ vs. $M_{\text{functional}} = 4.43; F(1, 97) = 3.31, p < .07$). In contrast, for the situational fixed mindset condition, participants were insensitive to upskilling (vs. functional) communication ($M_{\text{upskilling}} = 4.33$ vs. $M_{\text{functional}} = 4.79; F(1, 97) = 1.28, p < .26$), indicating equal perceived relative advantages toward the advertised product. These results indicate support for H5a.

FIGURE 3.12: Study 5: The effect of upskilling (vs. functional) communication and situational growth (vs. fixed) mindset on adoption intention, and perceived relative advantage



(A) Adoption Intentions



(B) Perceived Relative Advantages

Moderated mediation. H5b predicts that high (vs. low) perceived relative advantage mediates the effect of upskilling (vs. functional) communication on adoption intentions. This effect is stronger (vs. weaker) when a situational growth (vs. fixed) mindset is activated. To test this hypothesis, I used mediated moderation analysis (Hayes, 2013, Model 7). The mediated moderation analysis included upskilling communication as the independent variable (functional = 0, upskilling = 1), situational growth mindset as the moderator (situational fixed mindset = 0,

situational growth mindset = 1), perceived relative advantage as the mediator, and adoption intention as the dependent variable.

The upskilling communication \times situational growth mindset had a significant effect on perceived relative advantage ($\beta = 1.12$, $t(97) = 2.09$, $p < .03$). The effect of perceived relative advantages on adoption intention was significant ($\beta = 1.33$, $t(98) = 11.04$, $p < .001$). As predicted in H5b, perceived relative advantages mediated the joint effect of upskilling communication \times situational growth mindset on adoption intention, as the 95% bias-corrected and accelerated bootstrap confidence interval (CI) excluded zero (95% CI = .0823, 3.0665). Follow-up analyses of conditional indirect effect of upskilling communication through relative advantage was negative for the situational fixed mindset ($\beta = .61$, SE = .53, 95% CI: -1.7145, .3872). In contrast, for situational growth mindset, the condition indirect effect of upskilling communication through perceived relative advantages was positive ($\beta = .89$, SE = .50, 95% CI: -.0682, 1.8799). Moreover, the direct effect of upskilling communication \times situational growth mindset on adoption intention was ($\beta = .55$, $t(97) = 1.68$, $p > .09$). After controlling for perceived relative advantage, the direct effect of upskilling communication \times situational growth mindset on adoption intention was no longer significant ($\beta = .50$, $t(96) = .74$, $p > .45$). Thus, H5b is supported.

3.5.5 Discussion

Three main implications can be derived from Study 5. First, Study 5 sought to conceptually replicate the findings of Studies 3 and 4 in a relatively more externally valid manner that show new operationalization of upskilling communication that exerts the same effect on adoption intentions. Second, as predicted, I found that the effect of upskilling communication would not vary for RNPs, regardless whether the product is a bike, camera, or cooking machine. Accordingly, I provide further support for H4 by extending the findings from Studies 3 and 4. Third, I showed that consumer-perceived relative advantages are the mediating mechanism of these effects. Consumers with a situational growth mindset were more responsive to upskilling versus functional communication. As a result, they perceived more relative advantages and subsequent adoption intentions of the RNP. At the same time, consumers with a situational fixed mindset were equally responsive to upskilling versus functional communication. In turn, they reported equal perceived relative advantages and subsequent adoption intentions of the RNP. Overall, Study 5 replicates the findings from Studies 3 and 4.

Thus far, I have tested my hypotheses by comparing upskilling communication against functional communication and consumers' situational growth mindset. Nevertheless, I am also interested in encouraging consumers with a situational fixed mindset to adopt RNPs. Research shows that people with situational fixed and growth mindsets aim to demonstrate self-improvement, but they do so differently (Murphy and Dweck, 2016). Mathur, Chun, and Maheswaran (2016) suggest that consumers with a situational growth mindset seek self-improvement through learning opportunities, while consumers with a situational fixed mindset tend to seek self-improvement through signaling opportunities. As follows, Study 6 will discuss how to encourage consumers with a situational fixed mindset to adopt RNPs.

3.6 Study 6

The primary objective of Study 6 is to provide further evidence for the conceptual model by testing the prediction that a situational growth (vs fixed) mindset increases the effect of upskilling (vs. signaling) communication on RNP adoption. Inherent in Study 6 is the development of new operationalization of upskilling communication relative to signaling communication and the use of a different product.

As elaborated in Chapter 2.2, a common approach in launching new products is to communicate the signaling benefits of RNPs (Levy, 1959; Berger and Heath, 2007; Ma, Yang, and Murali, 2014). For example, smart beauty devices may send a signal that the user has good taste in fashion or a lot of discretionary income. Marketing communication theory suggests that self-enhancement motives can drive consumer preferences for products that signal highly positive information about the self (Belk, 1988; Berger and Heath, 2007; Escalas and Bettman, 2005). For instance, there is extensive evidence that people engage in conspicuous consumption of luxury products in order to signal social status and power (Rucker and Galinsky, 2008; Han, Nunes, and Drèze, 2010), maintain or enhance self-esteem (Sivanathan and Pettit, 2010), and signal that they are intelligent by acquiring books, magazines, or writing instruments (Gao, Wheeler, and Shiv, 2009). This line of reasoning fits the idea that consumers with a situational fixed mindset seek self-improvement through signaling opportunities (Mathur, Chun, and Maheswaran, 2016). Building on prior research, I predict that, when consumers are in a fixed mindset, their openness to signaling opportunities will enable them to appreciate the benefits presented in signaling communication relative to functional and upskilling communication. In contrast, when consumers' situational

growth mindset is activated, they become more attentive to upskilling communication relative to signaling and functional communication. This increases the effect of upskilling communication on consumers' adoption of RNPs. More formally, I offer the following hypotheses.

H6: When consumers' situational growth mindset is activated, upskilling (vs. signaling) communication leads to higher (vs. lower) adoption intentions of the RNP. Conversely, when a consumer situational fixed mindset is activated, signaling (vs. upskilling) communication leads to higher (vs. lower) adoption intentions of the RNP. In the case of functional communication, this effect is attenuated.

3.6.1 Procedure

Three hundred four female U.S. residents on MTurk were recruited ($M_{\text{age}} = 38$ years) who participated in a 2 (situational growth mindset vs. situational fixed mindset) \times 3 (upskilling vs. signaling vs. functional communication) between-subjects design. Similar to previous studies, in the first part, I situationally activated a growth versus fixed mindset orientation using the general trait manipulation employed in Chiu, Hong, and Dweck (1997). The mindset manipulations were identical to Study 3. The manipulation formats are provided in Figure 3.7. In the second part, the upskilling versus signaling versus functional communication was manipulated by changing the focus in the ad. In the upskilling condition, participants were told to try new product – a LUMINI – and those in the upskilling condition were told that "there's no better way for you to learn how to have a modern up-to-date sense of beauty." Those in the signaling condition were told that, "there's no better way to show others that you have a modern up-to-date sense of beauty." Those in the functional condition were told that "there is no easier way for you to determine your skin tone before buying face products." The advertisement formats are provided in Figure 3.13. I randomly assigned participants to one of the three experimental conditions and instructed them to read an advertisement about a new LUMINI being introduced. After reading the manipulations, they completed a survey measuring how they perceived the RNP.

I measured adoption intentions in the same manner as in previous studies (Ma, Gill, and Jiang, 2015, $\alpha = .94$). As manipulation checks for the situational growth mindset, participants rated their agreement with the statement, "I think this article makes me believe that situations and things can change," adopted from Jain, Mathur, and Maheswaran (2009).

FIGURE 3.13: Manipulation for Study 6

Your Learning Makes a Difference!

Just imagine taking this gorgeous LUMINI device out of your purse or backpack – there’s no better way for you to **learn** how to have a modern up-to-date sense of beauty.



After taking a picture of the face with Lumini, the device analyses the information with its own algorithm and sends the information to a smartphone app.

Try LUMINI....and, learn how to look your best!

(A) Upskilling communication

Your Look Makes a Difference!

Just imagine taking this gorgeous LUMINI device out of your purse or backpack – there’s no better way to **show** others that you have a modern up-to-date sense of beauty.



After taking a picture of the face with Lumini, the device analyses the information with its own algorithm and sends the information to a smartphone app.

Try LUMINI....and, show you know how to look your best!

(B) Signaling communication

This Product Makes a Difference!

Just imagine taking this gorgeous LUMINI device out of your purse or backpack – there is no **easier** way for you to determine your skin tone before buying face products.



After taking a picture of the face with Lumini, the device analyses the information with its own algorithm and sends the information to a smartphone app.

Try LUMINI....and, it is easy to look your best!

(C) Functional communication

As manipulation checks for the upskilling communication, participants rated their agreement with one statement, "this ad focuses on the learning opportunities if people choose the advertised product." As manipulation checks for the signaling communication, participants rated their agreement with one statement, "this ad focuses on the signaling (show-off) opportunities if people choose the advertised product." As manipulation checks for the functional communication, participants rated their agreement with one statement, "this ad focuses on the functional benefits if people choose the advertised product." All scales were seven items from strongly disagree to strongly agree. Items are presented in Appendix A.

3.6.2 Manipulation tests

Upskilling, signaling, and functional communication manipulation check. I conducted a one-way ANOVA on the perceived upskilling item. The results confirmed that participants in the upskilling communication condition perceived upskilling as more than those in the signaling and functional communication condition ($M_{\text{upskilling}} = 5.05$, $M_{\text{signaling}} = 3.77$, $M_{\text{functional}} = 3.95$; $F(2, 301) = 16.09$, $p < .001$). At the same time, I conducted a one-way ANOVA on the perceived signaling item.

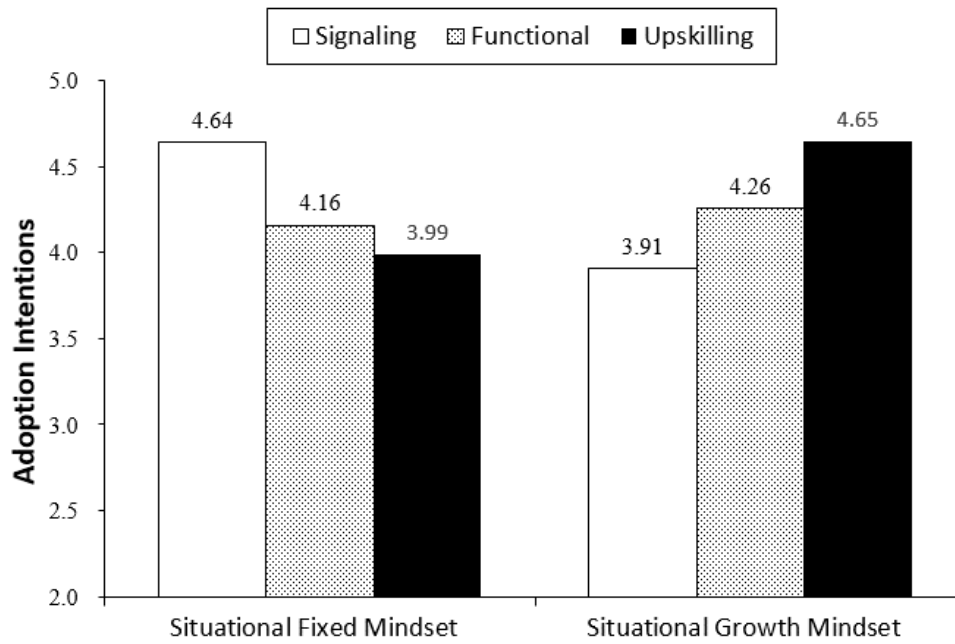
The results confirmed that participants in the signaling communication condition perceived signaling as more than those in the upskilling and functional communication condition ($M_{\text{upskilling}} = 4.38$, $M_{\text{signaling}} = 5.02$, $M_{\text{functional}} = 4.62$; $F(2, 301) = 3.60$, $p < .02$). Also supporting the effectiveness of the manipulation, I conducted one-way ANOVA on the perceived functional item. They confirmed that participants in the functional communication condition perceived functional benefits as more than those in the upskilling and signaling communication condition ($M_{\text{upskilling}} = 4.37$, $M_{\text{signaling}} = 4.20$, $M_{\text{functional}} = 4.74$; $F(2, 301) = 2.58$, $p < .07$). The result indicates that the manipulation of upskilling, signaling, and functional benefits was successful.

Growth mindset manipulation check. I conducted a one-way ANOVA on the growth mindset items. The results confirmed that participants who read an article containing the concepts about personality characteristics can be change score higher on the growth mindset than those who read an article that emphasizes that personality traits are fixed and cannot be changed ($M_{\text{growth}} = 4.74$, $M_{\text{fixed}} = 2.86$; $F(1, 302) = 184.07$, $p < .001$). This result indicates that the manipulation of the growth mindset was successful.

3.6.3 Testing of hypothesized effect

H6 predicts that, when consumers are in a growth (vs. fixed) mindset, they become more attentive to the upskilling (vs. signaling) communication of the RNP. In turn, this will positively increase the effect of upskilling (vs. signaling) communication on the consumer adoption intentions of the RNP. In the case of functional communication, this effect is attenuated. To test these predictions, I performed a 2 (situational growth vs. situational fixed mindset) \times 3 (upskilling vs. signaling vs. functional communication) between-subjects ANOVA on consumers' adoption intentions for the advertised product. As predicted, a 2 \times 3 ANOVA on the adoption revealed the two-way interaction among situational growth mindset and upskilling communication ($F(2, 298) = 4.87$, $p < .001$), as shown in Figure 3.14. For the situational growth mindset condition, participants who were exposed to the upskilling communication condition reported higher adoption intention than did the situational fixed mindset ($M_{\text{signaling}} = 3.99$ vs. $M_{\text{upskilling}} = 4.65$; $F(2, 298) = 4.22$, $p < .04$). In contrast, those with a situational fixed mindset were more sensitive to signaling communication and therefore reported more adoption intention than did the situational growth mindset ($M_{\text{signaling}} = 4.64$ vs. $M_{\text{upskilling}} = 3.99$; $F(2, 298) = 5.44$, $p < .02$). More importantly, those with growth and fixed mindsets showed no significant difference in adoption intentions for functional communication $F(2, 298) = .094$, $p < .76$). Thus, H6 is supported.

FIGURE 3.14: Study 6: The effect of upskilling versus signaling versus functional communication and situational growth (vs. fixed) mindset on adoption intention



(A) Adoption Intentions

3.6.4 Discussion

Four main implications can be derived from Study 6. First, I showed that people with situational growth (vs. fixed) mindsets seek self-improvement opportunities from RNPs, but they do so differently. People with a situational growth mindset were more responsive to upskilling communication, whereas people with a situational fixed mindset were more attentive to signaling communication. Second, as predicted, the results indicate that the functional communication of RNP would not vary for those with a growth and fixed mindset toward adoption intentions. Third, Study 6 sought to conceptually replicate the findings of Studies 3, 4, and 5 in a relatively more externally valid manner to show that the new operationalization of upskilling communication exerts the same effect on adoption intentions. Fourth, as predicted, I found that the effect of upskilling communication would not vary for RNPs, regardless of whether the product is a half-bike, camera, cooking machine, or smart beauty device. Accordingly, I provide further support for H4 by extending the findings from Studies 3, 4, and 5.

3.7 Meta-analyses for H1, H4 and H6

A meta-analysis is a widely used statistical technique for compiling and analyzing the results from multiple studies that have examined the same phenomenon. McShane and Böckenholt (2017) recommend the Single Paper Meta-analysis (SPM) approach to supplement single-study analyses in behavioral research papers that have multiple studies examining a common phenomenon. SPM is designed to aggregate information from multiple studies produced using identical sets of conditions and outcomes to estimate a single effect size. In order to assess the robustness of the effect observed across the studies (i.e., H1, H2 and H6) in this dissertation, I performed a series of SPM (McShane and Böckenholt, 2017). Following the recommendation of McShane and Böckenholt (2017), which requires that all dependent variables use the same scale and have similar values, I transformed all of our focal dependent variables to be on the same scale. Consistent with my hypotheses and findings, I focused on the contrasts between the upskilling versus functional communication X INP versus MNP versus RNP (H1), upskilling versus functional communication X growth versus fixed mindset X INP versus MNP versus RNP (H4), and upskilling versus functional versus signaling communication X growth versus fixed mindset (H6). This can complicate a meta-analysis, because replications of these types of studies will, at the very least, differ in terms of method factors such as the operationalization of manipulations, the subject pool the sample is drawn from, and where the study is conducted (McShane and Böckenholt, 2017). This ultimately results in between-study variation (i.e., heterogeneity). Thus, SPM was specifically designed to accommodate the heterogeneity resulting from the methods factors.

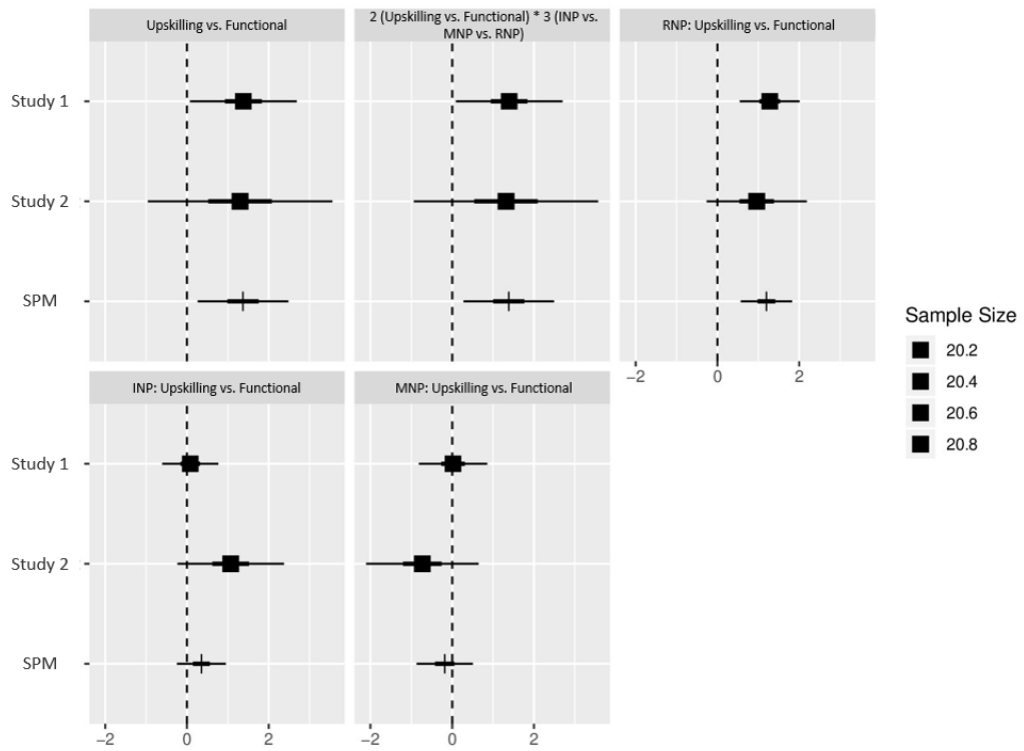
The first SPM included two studies (Studies 1 and 2) and examined whether upskilling (vs. functional) communication will lead to the higher evaluation of RNP, but this effect is attenuated for MNP and INP, as is hypothesized in H1. Significant differences were found across upskilling versus functional communication for the RNP evaluation (estimate = 1.19, $CI_{95\%} = [0.5709, 1.8277]$). For MNPs (estimate = .35, $CI_{95\%} = [-0.2452, 0.9513]$) and INPs (estimate = -0.18, $CI_{95\%} = [-0.8690, 0.5040]$), the effect is attenuated. Conditional estimates confirmed that upskilling relative to functional communication increased the evaluation of RNPs ($M_{\text{upskilling}} = 6.27$ vs. $M_{\text{functional}} = 5.07$) but attenuated the evaluation of MNPs ($M_{\text{upskilling}} = 5.48$ vs. $M_{\text{functional}} = 5.66$) and INPs ($M_{\text{upskilling}} = 4.96$ vs. $M_{\text{functional}} = 4.61$). In sum, the meta-analysis strongly supported H1 that upskilling communication increases consumer adoption of RNPs. The findings of the SPM are illustrated in Figure 3.15.

The second SPM examined four studies (studies 3, 4, 5, and 6). I tested whether

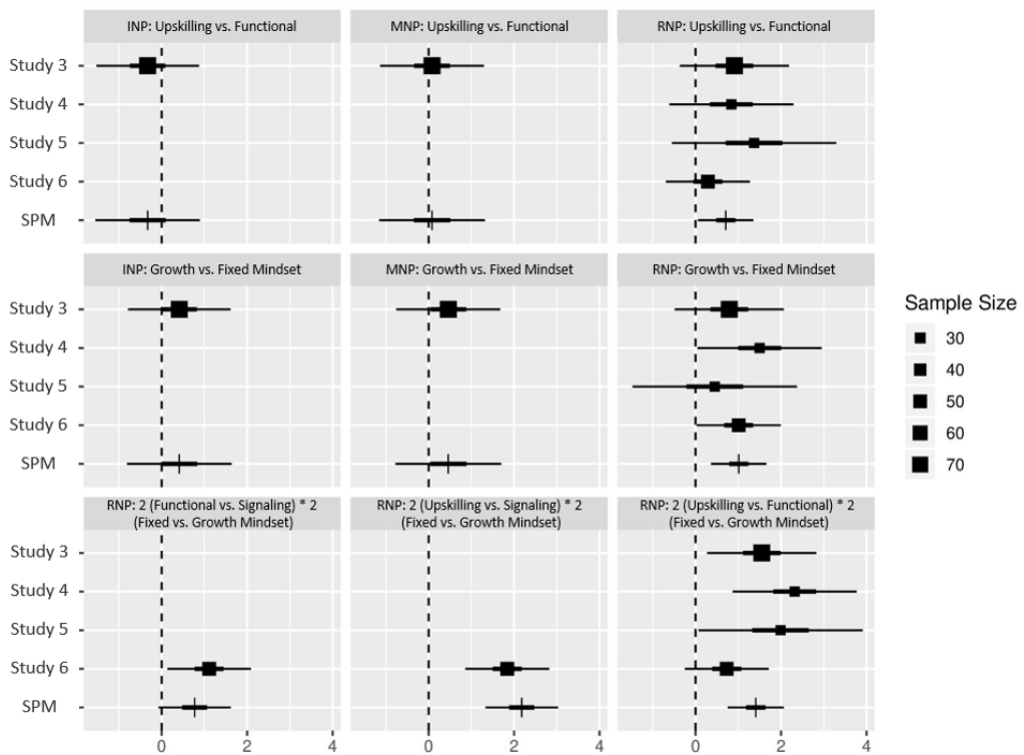
the positive effect of upskilling communication on the evaluation of RNP was intensified when people were in a situational growth (vs. fixed) mindset, as is hypothesized in H4. When people's growth (vs. fixed) mindset is activated, significant differences were found between upskilling versus functional communication on RNPs evaluation (estimate = 1.41, $CI_{95\%} = [0.7552, 2.0653]$), such that upskilling communication received higher evaluations than functional communication ($M_{\text{upskilling}} = 6.35$ vs. $M_{\text{functional}} = 5.29$). However, when people's fixed mindset is activated, upskilling and functional communication received equal evaluation of RNPs ($M_{\text{upskilling}} = 5.15$ vs. $M_{\text{functional}} = 5.49$). In addition, I examined how to encourage consumers' situational fixed mindset to adopt RNPs, as is hypothesized in H6. When people's fixed (vs. growth) mindset were activated, significant differences were found between signaling versus upskilling communication on RNPs evaluation (estimate = 2.18, $CI_{95\%} = [1.3312, 3.0294]$), such that signaling communication received higher evaluations than upskilling communication ($M_{\text{signaling}} = 6.04$ vs. $M_{\text{upskilling}} = 5.14$). However, when a consumer's situational growth mindset was activated, upskilling communication received higher evaluations than signaling communication ($M_{\text{signaling}} = 5.07$ vs. $M_{\text{upskilling}} = 6.35$). In sum, the meta-analysis strongly supported H4, that a situational growth mindset increases the effect of upskilling communication on the adoption of RNPs. Whereas, H6 confirms that situational fixed mindset increases the effect of signaling communication on the adoption of RNPs. The findings of the SPM are illustrated in Figure 3.15.

Furthermore, in order to assess heterogeneity and gain a better understanding of the percentage of variation in the observations beyond what was attributable to the experimental manipulations, an I^2 measure was generated in the SPM (Higgins et al., 2003). The first SPM (Studies 1 and 2), I^2 is estimated at 0.00% (95% CI: 0.00%–62.90%), suggesting that method factors account for zero variation in the observations beyond that attributable to experimental manipulations. Within the second SPM (Studies 3, 4, 5, and 6), I^2 is estimated at 44.53% (95% CI: 0.00%–70.99%), suggesting that heterogeneity was very moderate. Recall that heterogeneity (i.e., between-study variation) can be caused by various factors, including the operationalization of experimental manipulations, context, and the subject pool from which participants were drawn (McShane and Böckenholt, 2017). Thus, the moderate heterogeneity reported here was not surprising, given that the studies in this dissertation used different operationalization of upskilling communication across different types of new products. Nevertheless, the SPM estimate confirmed that the observed effect was robust.

FIGURE 3.15: Meta-analyses: Main and interaction effects



(A) Effect Estimate



(B) Effect Estimate

3.8 General discussion

Innovation in consumer products is one of the most visible manifestations of how innovative products are changing people's lives. Despite the importance and increasing prevalence of innovative products in the marketplace, academic research thus far has offered limited insights into the consequences of this trend for consumers and marketers. The studies in this dissertation start to address this gap. Most RNPs are technically and functionally superior to new products, and provide great efficiency gains and convenience. However, RNPs are not universally desirable; anecdotally, RNPs require consumers to learn new skills in order to take advantage of them, and people differ in their desire to learn skills through effort and practice. In particular, RNPs can be attractive when people believe that it is possible to change and grow by learning new skills—a growth mindset. In a series of studies, we demonstrate that consumers who desire self-improvement in skills tend to have a stronger intention to adopt RNPs. To establish the managerial relevance and robustness of the findings, the studies span a variety of product categories and operationalization's of upskilling communication.

The following section provides a summary of the empirical investigation of upskilling communication and the impact of a situational growth mindset on perceived relative advantage and subsequent adoption of RNPs. The remainder of this chapter is structured as follows: the first section contains a brief summary of the results of the six experimental studies. The theoretical and managerial implications are drawn out in sections 2 and 3. The purpose of the last section is to reveal potential avenues for future research.

3.8.1 Summary of results

Chapter 1.2 introduced two research questions. This section will briefly summarize the results from six empirical studies in order to determine whether the research questions were answered in the course of this dissertation. The first research question was formulated as follows:

Research question 1: Will upskilling communication increase consumers' adoption of RNPs?

In sum, results from empirical investigation of proposition 1 in Study 1 and Study 2 can address the question of whether upskilling communication increases consumers' adoption of RNPs. In Study 2, I showed that cognitive effort and perceived relative advantage are the mediating mechanisms through which this

effect holds. The results from Study 2 confirmed that consumers who viewed an upskilling communication ad spent more time on a survey than those who viewed a functional communication ad. In turn, they perceived more relative advantage of RNPs. Furthermore, using two different ways to operationalize upskilling communication, Study 1 and Study 2 demonstrated that the concept of upskilling communication is different from existing concepts of functional communication. Overall, the results confirmed that when the product is really new, participants were more responsive to an upskilling communication than they were to functional communication. Yet these two communications did not differ in their persuasiveness for incremental and moderately new products (Studies 1, 2).

Research question 2: Will consumers' possession of a situational growth mindset enhance the effect of upskilling communication on adoption of RNPs?

Studies 3, 4, 5 and 6 found that consumers with a situational growth mindset were more responsive to upskilling communication than to baseline functional communication. As a result, they interpreted the communicated skills as a relative advantage compared to existing products. Thus, they reported higher adoption intentions for RNPs. At the same time, consumers with a situational fixed mindset were equally responsive to upskilling communication compared to baseline functional communication. As a result, the reported equal adoption intentions of RNPs. Nevertheless, as elaborated in Chapter 3.5.5, it was necessary to understand how to encourage consumers with a situational fixed mindset to adopt RNPs. More precisely, when marketers are unable to identify or encourage a situational growth mindset, how do they motivate consumers to adopt RNPs? Therefore, I proposed that signaling communication works better when a fixed mindset is activated among consumers. The results of Study 6 showed that a situational fixed mindset was more responsive to signaling versus upskilling communication. As a result, those participants reported higher adoption intentions for RNPs. At the same time, consumers with a situational growth mindset were more responsive to upskilling communication. In turn, they reported higher adoption intentions for RNPs. Thus, replicate the findings from study 3, 4, and 5. Furthermore, I showed that perceive relative advantage as the mediating mechanism through which these effect holds that aligned with prior research (Rogers, 2003; Jhang, Grant, and Campbell, 2012). Overall, using four different ways to operationalize upskilling communication, the studies demonstrated that the concept of upskilling communication is different from existing concepts of functional communication and signaling communication. Across six studies,

findings converge to deliver evidence consistent with the notion that upskilling communication increases consumers' adoption of RNPs. More importantly, upskilling communication works better for consumers with a situational growth mindset. However, if marketers are unable to identify or encourage a situational growth mindset, then signaling communication is more effective.

Taken together, these findings have several theoretical and managerial implications and leave room for future research.

3.8.2 Theoretical contributions

For decades, marketing communication of innovation has mostly focused on functional and signaling benefits of the new product. I take a different perspective: instead of examining the product-focused benefits, I examine self-focused benefits, i.e., the opportunity the new product gives consumers in terms of raising their skill levels. My work focuses on consumers and the differential attractiveness of new products for various consumption situations. In turn, I show that consumers are eager to learn about new products if they see them as relevant to self-improvement (Mathur, Chun, and Maheswaran, 2016). And consumers are willing to change if they think a new product will improve their lives in one way or another (Price et al., 2017).

The current research also contributes to the consumer learning of innovation literature by complementing existing research on the declarative-procedural model of Cohen and Squire (1980) and answering recent calls for studies of how companies can help consumers learn about and adopt innovative products or services (Weingarden, 2018). The existing literature has studied differences in declarative learning between incremental new products (INP) and really new products (RNP). The key finding was that declarative learning works for INP, but not RNP (Ziamou and Ratneshwar, 2003). Also, although procedural learning has been addressed in previous research (Johnson, Bellman, and Lohse, 2003; Burson, 2007; Murray and Häubl, 2007; Lakshmanan and Krishnan, 2011), the difference in procedural learning about INP and RNP has not been addressed. Furthermore, a comparison of declarative learning with procedural learning for RNP has not been made, either. Thus, this research attempts to fill a gap by examining the consumers' interest in upskilling that helps consumers to form mental models related to how to use the new product (Norman, 2002).

Beyond an innovation adoption context, I contribute new theorizing on consumer growth mindset. The importance of a growth mindset is one of the most important areas of inquiry regarding student performance (Dweck and Leggett,

1988; Levy, Stroessner, and Dweck, 1998). The crux of this literature revolves around people improving themselves through learning, dedication and effort. Although decades of research have resulted in the accumulation of a rich body of research on growth mindset, less is known about how growth mindsets apply to consumer behavior and marketing. My work focuses on the behavioral consequences of a growth mindset in consumers' adoption of innovation and thereby answers recent calls for studies on how a growth mindset affects self-enhancement based consumer behavior (Mathur, Chun, and Maheswaran, 2016). I highlight the fact that innovation adoption relies on consumers' openness to effort and their desire to learn new skills.

3.8.3 Managerial contributions

Across product domains, companies are investing heavily in innovations to make consumers' lives easier. The results from this dissertation do not question the marketplace value of innovation, but rather warn managers against thinking of innovation as universally desirable. They thus have important implications for a range of marketing decisions.

Targeting

In many product categories, situational growth mindsets are prevalent among highly involved consumers, and they are prime targets for a company's most innovative products. My findings highlight the risk of targeting situational growth mindset consumers with functional benefits of really new products. Innovation that decreases self-enhancement utility risks being unappealing to customers, which may help explain the low adoption rates of some innovative products, such as half-bikes, cameras, smart beauty devices, and cooking machines.

Product innovation

In addition to pointing to a potential reason for disappointing sales to situational growth mindset consumers, my studies offer suggestions for how to direct a company's innovation efforts. It is crucial to include an assessment of skill relevance when investigating which tasks currently performed by consumers could be good candidates for product innovation. I am not aware of any company currently performing such analyses systematically.

Communication

The way innovations are marketed also deserves careful attention. Really new products are not always preferable relative to their counterparts among existing products. For example, some cooking machines explicitly target cooking enthusiasts and stress how cooking could become a matter of “touching a button.” Yet my results show that many potential customers value the opportunity to learn cooking skills, so marketers should not deprive them of learning opportunities. In particular, Study 6 suggests that product functional benefits are less of a selling point for situational growth and fixed mindset consumers. In a nutshell, my findings offer actionable insights at the product launch stage. Managers should determine whether emphasizing upskilling over functional benefits in communication and advertising would increase product adoption likelihood among situational growth mindset consumers. However, if managers are unable to identify or encourage consumers with a situational growth mindset, then signaling benefits in communication is more effective. Marketers should take people’s motives into account, then communicate the benefits of really new products in a way that matches their target audience’s goals.

Segmenting consumers

In many consumer settings, companies consistently looking for the most relevant TV shows, videos, magazines, and websites to advertise their new products. For example, considering consumer media viewing habits related to change (e.g., *Biggest Loser*) or situations in which consumers engage in long-term thinking or change (e.g., conferences, staging, magazine, etc.) may foster a growth mindset (Murphy and Dweck, 2016). Similarly, people watch thousands of videos on YouTube that may also prime specific mindsets; therefore, making the communication’s message more relevant to those already activated mindsets would increase new product adoption likelihood among situational growth mindset consumers. Overall, my results inform the extant innovation adoption literature and practicing managers of the nuances involved in using the situational growth mindset as a segmentation variable at the product launch stage.

3.8.4 Future research

Several suggestions were made regarding how future research could resolve specific issues and investigate further topics derived from the studies in this dissertation. The following section summarizes avenues for future investigation on a more general level.

First, similar to most phenomena with broad practical relevance, the effect of upskilling communication on adoption of innovation likely reflects multiple determinants, and it would be interesting to assess the prevalence of other theoretical mechanisms. My theorizing zooms in on the potential desire to learn skills by exerting effort. In turn, consumers interpret the communicated skills as a relative advantage compared to existing products. A key mechanism that I have not discussed is the role of potential desire to attribute consumption outcomes to their own skills, though not all of the products I investigate prevent internal attribution. For example, the Tefal cooking machine in Study 5 does not prevent the user from being able to attribute the quality of the resulting food to her or his knowledge of cooking conditions and ability to design the recipes. If internal attribution motives determine the decision to make food, it should make cooking machines less desirable. Nonetheless, continued research might expand the nomological network I propose and examine other potential mediating processes. For example, research suggests that people with a growth mindset tend to be more likely than those with a fixed mindset to have a process rather than outcome focus (Jain, Mathur, and Maheswaran, 2009; Mathur, Chun, and Maheswaran, 2016). As a result, people with a growth mindset may respond more favorably to marketing campaigns emphasizing how a product will help them satisfy their needs rather than emphasizing direct benefits in terms of need satisfaction—i.e., outcomes (Levy, Stroessner, and Dweck, 1998). Thus, future research might investigate whether a process focus alone might sufficiently persuade those with growth mindsets regardless of whether the communication focus is upskilling or functional benefits.

Second, future research could test the research hypotheses by having consumers interact with really new products and measure their interest. Examining other products should also increase the generalizability of these results.

Third, future research could incorporate different types of advertising appeals beyond those examined here. I focused on upskilling and signaling benefits ad appeals, as they seemed especially well-suited to growth and fixed mindsets, respectively. However, it is possible that other types of ad appeals exist that would resonate with either consumers with a growth or a fixed mindset.

Fourth, as another area for further study here, I situationally activated growth versus fixed mindset orientation using the general trait manipulation employed in Chiu, Hong, and Dweck (1997). However, future research might manipulate the growth mindset within the realm of marketing communication. For instance, one could explore whether integrating slogans such as “We aren’t perfect, but we constantly improve ourselves in order to add value to your life everyday” might prime a growth mindset and therefore be particularly effective if used in

combination with a upskilling message.

Finally, it would be interesting to investigate the moderating role that individual characteristics might have on the effects of upskilling versus signaling versus functional benefits communication. Two such characteristics are age and cultural orientation. This is especially relevant given the inconsistencies in the literature on the interaction of age and growth mindsets where some studies have found no significant association between age and growth mindset (Dweck, Chiu, and Hong, 1995), and others have suggested that younger (vs. older) consumers are more (vs. less) willing to learn and develop their skills (Lyon and Pollard, 1997), and thereby oriented toward a growth (vs. fixed) mindset because of their greater (vs. lower) enthusiasm for change (Lambert-Pandraud and Laurent, 2010).

Chapter 4

Conclusion

The dissertation begins with a conceptualization of a research problem: how to improve adoption rates of really new products (RNPs). RNPs have notoriously low rate of success; failure estimates range from 40% to 90% (Gourville, 2006). Notably, consumers are four times less likely to choose RNPs than incrementally new products (INPs) (Alexander, Lynch, and Wang, 2008). Among others, one important reason for failure is presumed to be consumers' lack of understanding of the benefits that RNPs can offer (Mick and Fournier, 1998; Moreau, Lehmann, and Markman, 2001; Gourville, 2006; Jhang, Grant, and Campbell, 2012).

The fundamental goal of this dissertation was to enhance our understanding of how firms can help consumers to understand the benefits a new product can offer to them. Existing research on consumer learning has focused on declarative learning, which mainly focuses on communicating what the new product is, such as its benefits involving functional features (Rogers, 2003; Ziamou and Ratneshwar, 2003) or signaling benefits (Berger and Heath, 2007; Ma, Yang, and Murali, 2014). The underlying assumption of declarative learning is that people know how to use the new product, that is, they have procedural knowledge (in the form of user skills). However, as elaborated in Chapter 2.2, the literature review suggests that this is not the case when the product is really new. And lack of procedural knowledge is an impediment to the learning process (Lakshmanan and Krishnan, 2011). Also, although procedural learning has been addressed in previous research, the difference between procedural learning about INPs and learning about RNPs has not been addressed. Furthermore, a comparison of declarative learning with procedural learning for RNPs has not been conducted, either. This dissertation is intended to address the need for research on this issue. I proposed and demonstrated that lack of procedural knowledge inhibits declarative learning, and that procedural learning is needed in order to create an understanding of and an interest in a RNPs. Accordingly, I introduced the concept of "upskilling communication" to refer to messages related to learning how skills can be improved with RNPs. Common examples of products that

require learning of new skills are technological devices and sports related products. In order to learn, people need to be open to change. And openness to change and learning should therefore enhance the effect of upskilling communication on learning about RNPs. A growth mindset influences the extent to which people seek learning opportunities (Dweck and Leggett, 1988). Accordingly, I proposed and demonstrated that when consumers are in a state of growth mindset, their openness to change enables them to appreciate the benefits presented in upskilling communications.

This dissertation has examined two specific research questions: (1) will upskilling communication increase consumers' adoption of RNPs? And (2) will consumers' possession of a situational growth mindset enhances the effect of upskilling communication on adoption of RNPs? Across six studies and a meta-analysis, using four different ways to operationalize upskilling communication and across four different new products, the findings converge.

The results from empirical investigation confirmed that upskilling communication leads to a higher rate of adoption of RNPs. It was also demonstrated that the concept of upskilling communication is different from existing concepts of functional communication and signaling communication. More importantly, I demonstrated that upskilling communication works better for consumers with a situational growth mindset. However, If marketers are unable to identify a situational growth mindset in consumers, then signaling communication is more effective. The underlying mechanism of these effects was cognitive effort in learning about a new product and perceived relative advantage of the new product.

The results presented in this dissertation are important for both consumer researchers and marketing practitioners. First, drawing on declarative - procedural model by Cohen and Squire (1980), this research is among the first in marketing to communicate upskilling - procedural learning, thereby enriching extant consumers learning of RNPs literature. Prior research in consumer learning of RNPs has relied largely on functionality preference - declarative learning such as product-benefit associations, and product attributes and features. Second, these findings contribute to the growth mindset literature. Researchers have found growth mindset to be important in understanding aspects of consumer behavior (Murphy and Dweck, 2016). Differences between growth and fixed mindset orientations are evident in how consumers respond to advertising brand appeals (Park and John, 2012; Yorkston, Nunes, and Matta, 2010), brand extensions (Yorkston, Nunes, and Matta, 2010), and brand experience (Park and John, 2010; Park and John, 2014). This research adds to this emerging trend by showing that a situational mindset focusing on growth and learning increases innovation adoption. Furthermore, the results from empirical investigations confirmed that marketing

communication oriented towards upskilling— self-focused benefits, rather than the focused on the functionality— product-focused benefits, will enhance consumers' adoption of RNPs. Finally, my findings enable marketers to gain a better understanding of how to target, segment and to communicate consumers the self-improvement benefits of their products at the product launch stage.

This dissertation ultimately demonstrated that solely understanding functional or signaling benefits may not strongly drive RNPs' adoption, and marketing communications should therefore consider upskilling benefits related to RNPs' use. This work has hopefully inspired researchers to further investigate the potential mediating processes (i.e., process vs. outcome focus), individual characteristics (i.e., age and cultural orientation), and to take new routes in exploring them.

Appendix A

Measures

A.0.1 Product evaluation

All items measured on either seven-point or nine-points semantic scale (Zhao, Hoeffler, and Dahl, 2009).

- "Dislike/like"
- "Uninteresting/interesting"
- "Poor/excellent"
- "Bad/good"
- "Undesirable/desirable"

A.0.2 Adoption intention

All items measured on either seven-point or nine-points semantic scale ("not at all likely", and "extremely likely") (Ma, Gill, and Jiang, 2015; Castaño et al., 2008).

- How likely would you be to purchase 'this product' if it were available today?
- How likely would you be to recommend 'this product' to a friend or colleague?
- How likely would you be to share information about 'this product' on social media?
- How likely would you be to try 'this product' if it were available today?

A.0.3 Product newness

All items measured on either seven-point or nine-points semantic scale (Zhao, Hoeffler, and Dahl, 2009).

- "Not at all innovative/very innovative"
- "Not at all novel/very novel"
- "Not at all original/very original"

A.0.4 Openness to experience

All items measured on either seven-point or nine-points semantic scale (Ratner and Kahn, 2002).

- "Not open-minded/open-minded"
- "Not innovative/innovative"
- "Not creative/creative"
- "Not risk-seeking/risk-seeking"

A.0.5 Technology savvy

All items measured on either seven-point or nine-points semantic scale (Thompson and Norton, 2011).

- "Not knowledgeable about technology/knowledgeable about technology"
- "Not skilled with technology/skilled with technology"

A.0.6 Relative advantages

All items measured on seven-point Likert-type scales ("strongly disagree", and "strongly agree") (Meuter et al., 2005; Müller-Stewens et al., 2017; Rogers, 2003).

- This 'product' has more benefits relative to existing practices.
- This 'product' add more value relative to competing products.
- Using this 'product' improves my learning experience.
- Overall, I believe using this 'product' is advantageous

A.0.7 Growth mindset scale

All items measured on seven-point Likert-type scales ("strongly disagree", and "strongly agree"). Items that are reverse-scored are noted with (R) (Levy, Stroessner, and Dweck, 1998).

- The kind of person someone is, is something basic about them, and it can't be changed very much. (R)
- People can do things differently, but the important parts of who they are can't really be changed. (R)
- Everyone is a certain kind of person, and there is not much that they can do to really change that. (R)
- As much as I hate to admit it, you can't teach an old dog new tricks. People can't really change their deepest attributes. (R)
- Everyone, no matter who they are, can significantly change their basic characteristics.
- People can substantially change the kind of person who they are.
- No matter what kind of a person someone is, they can always change very much.
- People can change even their most basic qualities.

A.0.8 Trait innovativeness (a)

All items measured on seven-point Likert-type scales ("strongly disagree", and "strongly agree"). Items that are reverse-scored are noted with (R) (Parasuraman, 2000).

- Other people come to you for advice on new technologies.
- In general, you are among the first in your circle of friends to acquire new technology when it appears.
- You keep up with the latest technological developments in your areas of interest.
- You are always open to learning about new and different technologies.
- You enjoy the challenge of figuring out high-tech gadgets.

- You have avoided trying new high-tech things because of the time it takes to learn them. (R)
- You are always open to learning about new and different technologies.
- There is no sense trying out new high-tech products when what you have already is working fine. (R)

A.0.9 Trait innovativeness (b)

All items measured on either seven-point or nine-point Likert-type scales ("strongly disagree", and "strongly agree") (Roehrich, 2004).

- I am usually among the first to try new products.
- I like to buy new and different things.

A.0.10 Innate innovativeness

All items measured on either seven-point or nine-point Likert-type scales ("not at all", and "very much") (Ma, Yang, and Murali, 2014).

- In general, how willing are you to purchase new products?
- How often do you buy products that have been adopted by very few others?

A.0.11 Trait discomfort

All items measured on seven-point Likert-type scales ("strongly disagree", and "strongly agree"). Items that are reverse-scored are noted with (R) (Parasuraman, 2000).

- If you buy a high-tech product or service, you prefer to have the basic model over one with a lot of extra features.
- New technology is often too complicated to be useful.
- You get overwhelmed with how much you need to know to use the latest technology.
- You like to try out all the special features available in a new high-tech product to see what they can do. (R)
- People miss out on the benefits of technology when they delay a purchase for something better to come out. (R)
- You feel you are usually in control of new technologies. (R)

A.0.12 Ambiguity

All items measured on seven-point Likert-type scales ("strongly disagree", and "strongly agree"). Items that are reverse-scored are noted with (R) (Moreau and Engeset, 2016; Stanley Budner, 1962).

- I prefer jobs where the task to be accomplished is clear. (R)
- I get frustrated when people ask me to do tasks that are poorly defined. (R)

A.0.13 Need for cognition

All items measured on seven-point Likert-type scales ("strongly disagree", and "strongly agree"). Items that are reverse-scored are noted with (R) (Cacioppo, 1982).

- I would prefer complex to simple problems.
- I like to have the responsibility of handling a situation that requires a lot of thinking.
- Thinking is not my idea of fun. (R)
- I would rather do something that requires little thought than something that is sure to challenge my thinking abilities. (R)
- I try to anticipate and avoid situations where there is likely change I will have to think in depth about something. (R)
- I prefer to think about small, daily projects to long term ones. (R)
- I like tasks that require little thought once I've learned them. (R)
- The idea of relying on thought to make my way to the top appeals to me.
- I really enjoy a task that involves coming up with new solutions to problems.
- Learning new ways to think doesn't excite me very much. (R)

A.0.14 Emotions

All items measured on either seven-point or nine-point Likert-type scales ("not at all", and "very much") (Mehta, Zhu, and Meyers-Levy, 2014).

- I feel happy.

- I feel excited.
- I feel upbeat.
- I feel sad.
- I feel depressed.
- I feel upset.
- I feel anxious.
- I feel tense.
- I feel tight.

A.0.15 Regularity focus

All items measured on seven-point Likert-type scales ("strongly disagree", and "strongly agree") (Haws, Dholakia, and Bearden, 2010).

- When it comes to achieving things that are important to me, I find that I don't perform as well as I would ideally like to do.
- I feel like I have made progress toward being successful in my life.
- When I see an opportunity for something I like, I get excited right away.
- I frequently imagine how I will achieve my hopes and aspirations.
- I see myself as someone who is primarily striving to reach my "ideal self"- to fulfill my hopes, wishes, and aspirations.
- I usually obeyed rules and regulations that were established by my parents.
- Not being careful enough has gotten me into trouble at times.
- I worry about making mistakes.
- I frequently think about how I can prevent failures in my life.
- I see myself as someone who is primarily striving to become the self I "ought" to be - fulfill my duties, responsibilities and obligations.

A.0.16 Construal level (behavior identification form)

We ask participants to think of several actions below (appears in **boldface**) and indicate which one of the two identifications listed below **relates best** to this action. Please circle **ONLY** one of the two identifiers for every action. There are no right or wrong answers – it your personal opinion that we are interested in. Please go ahead and answer each of the questions below (Fujita et al., 2006; Aggarwal and Zhao, 2015; Trope, Liberman, and Wakslak, 2007).

1. Making a List

- (a) Writing things down
- (b) Getting organized

2. Cleaning the house

- (a) Vacuuming the floor
- (b) Showing cleanliness

3. Painting the room

- (a) Applying brush strokes
- (b) Making the room look fresh

4. Paying the rent

- (a) Writing a check
- (b) Maintaining a place to live

5. Voting

- (a) Marking a ballot
- (b) Influencing the election

6. Climbing a tree

- (a) Holding on to branches
- (b) Getting a view

7. Tooth brushing

- (a) Carefully moving a brush around one's mouth
- (b) Ensuring healthy gums

8. Taking a test

- (a) Answering questions
- (b) Showing one's knowledge

9. Growing a garden

- (a) Planting seeds
- (b) Getting fresh vegetables

10. Having a cavity filled

- (a) Going to the dentist
- (b) Protecting your teeth

11. Reading

- (a) Following lines of print
- (b) Gaining knowledge

12. Washing Clothes

- (a) Putting clothes into the machine
- (b) Removing odors from clothes

13. Measuring a room for carpeting

- (a) Using a yardstick
- (b) Getting to remodel

14. Caring for houseplants

- (a) Watering the plants
- (b) Making the room look nice

15. Locking a door

- (a) Putting a key in the lock
- (b) Securing the house

16. Filling out a personality test

- (a) Answering questions
- (b) Revealing what you are like

17. Greeting someone

- (a) Saying hello
- (b) Showing friendliness

18. Eating

- (a) Chewing and swallowing
- (b) Getting nutrition

19. Travelling by car

- (a) Following a map
- (b) Seeing countryside

20. Talking to a child

- (a) Using simple words
- (b) Teaching a child something

21. Pushing a doorbell

- (a) Moving a finger
- (b) Seeing if someone's home

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