

Examining the impact of service recovery resilience in the context of product replacement: the roles of perceived procedural and interactional justice

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Abstract

Purpose – Given increasing customer expectations and disturbances to product returns management, capabilities such as supply chain resilience (SCR) can complement service recovery strategies in retail supply chains. This study utilizes procedural justice theory (PJT) to conceptualize service recovery resilience as a capability that allows firms to meet customer requirements when dealing with disruptions, and empirically investigates its impact on procedural and interactional justice and customer outcomes (i.e. satisfaction and loyalty) in the context of product replacement.

Design/methodology/approach – This research employs two scenario-based experiments using a sample of 368 customers to explore the outcomes associated with service recovery resilience.

Findings – The investigation shows more satisfied and loyal customers when a retail supply chain can overcome service recovery challenges through SCR. The study shows that customers evaluate not only the process itself, but also their interactions with the retailer. Specifically, procedural justice and interactional justice have a significant influence on these relationships.

Originality/value – This study proposes service recovery resilience as a concept that bridges service recovery theory with supply chain strategy in the unique context of product replacement. Further, this study also notes how information enhances customer satisfaction with the retailer's effort to address disturbances in the recovery process. Finally, this study informs managers on the capabilities needed to face new customers' needs.

Keywords Service recovery resilience, Procedural justice theory, Product returns, Reverse supply chain, Interactional justice

Paper type Research paper



Introduction

Consumer returns represent a major challenge for retailers (Russo *et al.*, 2021; Ambilkar *et al.*, 2022). The increasing numbers of returns, from a value of United States (US) \$250 billion in 2015 to US \$400 billion in 2020 (Shang *et al.*, 2019; National Retail Federation, 2021), has motivated retailers to improve the management of the reverse flow of goods (Abdulla *et al.*, 2019) and engage in service recovery activities to better address customer complaints (Mollenkopf *et al.*, 2007). The advent of online retail and ongoing digitalization have further amplified the importance of reverse flows, leading retailers to actively manage their omnichannel to meet customer needs (Murfield *et al.*, 2017; Rintamäki *et al.*, 2021). However, in a recent United Parcel Service consumer survey (Warren, 2020), 58% of shoppers indicated they were not satisfied with the current returns model because it did not align with their expectations. As a result, retailers offer multiple options to resolve customer returns claims, including full or partial refunds, store credits or product replacement for the same, similar or different items (Ahsan and Rahman, 2016; Petersen and Alptekinoglu, 2018). Among these options, customers have developed a preference for product replacement, primarily because they seek to continue using the purchased item. Recent evidence indicates that 57% of customers exchanged or replaced the last item they returned (Narvar, 2018).

While product replacement typically satisfies customer requests, especially when minor product defects are claimed (Janakiraman *et al.*, 2016), service recovery, defined as the activities through which a retailer addresses a customer complaint relative to a service failure (Maxham, 2001), introduces a key challenge for retailers, who may not hold available stock of a product to be replaced (Shang *et al.*, 2017). Retailers thus experience service recovery failure when they cannot fulfill replacement requests. The prior literature does not provide a clear understanding on the impact of stockouts during service recovery on customers' outcomes. Further, the outbreak of the COVID-19 pandemic has forced companies to redesign many aspect of retail, including their returns process (Warren, 2020). However, by extending the time allowed for returns by customers – due to the safety and logistics issues associated with returning items – retailers often face incongruent inventory availability, which ultimately results in out-of-stock items and poorer customer outcomes (Deloitte, 2020). These changes in the retail environment mean that managing product returns in instances of product replacement has become more complicated across supply chains (SCs).

These changes in the retail environment, paired with the challenges in the era of customer impatience (Daugherty *et al.*, 2019), have required retailers to take a proactive stance by developing the capability to efficiently and effectively provide the promised service recovery (Ader, 2021). Therefore, service recovery, as theorized in the marketing literature, is no longer sufficient to capture the retail SC effort to deal with disturbances in the service recovery process. Customers' impatience increases pressure on logistics professionals in terms of both service delivery and information availability, as customers expect information and visibility in the service process (Daugherty *et al.*, 2019). The marketing literature has extensively studied service recovery in the personal contact environment (Kau and Loh, 2006; del Río-Lanza *et al.*, 2009) and online retailing (Lin *et al.*, 2011), analyzing procedural, distributive and interactional justice (Maxham, 2001). However, recent supply chain management (SCM) literature has raised a debate on theorizing and measuring service recovery in SCM (Khamitov *et al.*, 2020; Peinkofer *et al.*, 2022). Capabilities that have been associated with service recovery, such as responsiveness (Mollenkopf *et al.*, 2007) and recovery speed (Peinkofer *et al.*, 2022), represent distinct theoretical constructs (Richey *et al.*, 2022). Indeed, it is unclear how existing constructs are related to service recovery in SCM processes, where dimensions such as speed and flexibility are likely to be interpreted differently (Peinkofer *et al.*, 2022). In addition, the growing debate on a customer-centric perspective of logistics and SCM (Esper *et al.*, 2020) calls for a granular theoretical understanding of service recovery through procedural justice theory (PJT) (Confente *et al.*, 2021).

Prior research has shown that procedural justice is useful to assess the impact of SC capabilities on customer outcomes (Mollenkopf *et al.*, 2007; Griffis *et al.*, 2012). However, when service recovery is disrupted, supply chain resilience (SCR) can become the key capability in the retail SC to ensure that positive customer outcomes are an integral part of strategies to manage product returns. Indeed, SCR, defined as “the ability to recover quickly from the effects of an adverse situation” (Gligor *et al.*, 2019, p. 475), is not only central to recovering from disruptions, but also helps navigate through turbulent times, enhancing competitiveness (Pettit *et al.*, 2013). SCR also helps to mitigate the probability of disruptions, thus improving customer service (Hohenstein *et al.*, 2015). In this vein, in a retail SC strategy, SCR can provide the ability to improve service to customers in the case of product replacement.

Drawing from the above discussion, the primary purpose of this study is to contribute to the theoretical debate in the literature to investigate specific aspects of service recovery related to the recovery process and associated interactions. First, we introduce the concept of service recovery resilience, which we define as the strategic capability of the service recovery process to successfully withstand disturbances and adverse situations while maintaining continuity in the service recovery process at the level expected by customers, and assess its impact on the service recovery process by answering the following research question:

RQ1. How can service recovery resilience help improve the perceived fairness of the service recovery process and enhance customers outcomes?

Second, given customers’ desire for information and complete visibility over logistics processes (Daugherty *et al.*, 2019), we unveil the key role of the retailer’s communicative effort in impacting customers’ perceived fairness of the process, thus addressing the following research question:

RQ2. How can the retailer improve the service recovery experience by leveraging its communicative effort for the customer?

We conceptualized this definition based on the key tenets of PJT (Lind and Tyler, 1988), which explains how the perceived fairness of the process impacts individuals’ attitudes and behaviors. Specifically, PJT posits that if a firm employs policies and processes that align with the expected level of fairness (i.e. the weighing of sacrifices against rewards), individuals perceive procedural fairness and justice, which often leads to positive customer outcomes (Griffis *et al.*, 2012; Maxham, 2001). Following this theoretical background, this study empirically investigates the impact of service recovery resilience on customer outcomes namely, customer satisfaction and customer loyalty, and processes via procedural and interactional justice in the context of product replacement.

Overall, the results of this study yield insights into how service recovery resilience can be used as a key capability to address disturbances in the reverse SC and respond to customer requests during service recovery, with the final aim to improve and adapt the returns process in the context of product replacement to enhance customer outcomes. Specifically, we reveal how service recovery resilience impacts customer satisfaction and customer loyalty. In addition, we unveil the key role of interactions between customers and retailers as a moderator of the perceived experience related to the service recovery process. We detail the theoretical and managerial implications associated with these insights in the latter part of the manuscript. Next, we continue with an overview of the key concepts of interest.

Literature review and hypotheses development

In the following, we review the literature on product replacement, service recovery and SCR. We described the key points of prior literature in a taxonomy in Table 1, where we identify the

Literature	Cite	Description: key topic	Research gap	Contribution of this study
1) Return policy, product replacement and customer outcomes	Bonfield <i>et al.</i> (2010)	Customers' perceived quality of e-tailers moderates the impact of return leniency on perceived purchase risk	Understanding how stockouts during service recovery impact customers' perceived fairness, and retail SCs address the challenges of a lenient return policy with high service recovery standards in the context of product replacement	We introduce SCR as the capability to support a returns management program in the case of a stockout during product replacement
	Bower and Maxham (2012)	Return shipping costs negatively impact customers' perceived fairness of product return process		
	Confente <i>et al.</i> (2021)	Return policy leniency mitigates customers' perceived risk for remanufactured products for both online and brick-and-mortar retail channels		
	Hjort and Lantz (2016)	Return policy leniency improve repeat customers' spending but reduces firm's profit in the long run		
	Janakiraman <i>et al.</i> (2016)	Return policy leniency improves customers' outcomes, stimulating purchases and decreasing the return hassle		
	Mollenkopf <i>et al.</i> (2007)	Customers' return service experience influences perceived fairness and customers' outcomes		
	Shang <i>et al.</i> (2019)	Retailers benefit from customizing the return policy leniency based on product maturity and variety to impact return and exchange likelihood		

(continued)

Table 1.
Taxonomy of the
literature review and
research gaps

Literature	Cite	Description: key topic	Research gap	Contribution of this study
2) Service recovery and justice theory	Andreasen (2000) Collier and Bienstock (2006) Craighead <i>et al.</i> (2004) Gu and Ye (2014) Holloway and Beatty (2003) Kau and Loh (2006) Lin <i>et al.</i> (2011) Maxham III (2001) Roggeveen <i>et al.</i> (2012) Zhu <i>et al.</i> (2004)	The perceived performance of service recovery impacts customer satisfaction Interactive, procedural and outcome fairness constitute the e-service recovery three second-order dimensions Service recovery techniques vary in their effectiveness to address different types of service failures The impact of online management responses is greater among low satisfaction customers when experiencing service recovery Managing customer expectations of online service recovery affects how they perceive the service failures Customer satisfaction and purchasing behaviors are affected by perceived justice in service recovery Perceived justice differently impacts customer outcomes and the service recovery paradox The level of provided service recovery affects customer outcomes Customers' co-creation in service recovery positively affects outcomes with higher service failure severity Resource allocation on service recovery depends on customers' risk profiles and firms' cost structure Assessed and refined E-S-Qual and E-RecS-Qual in bank service settings Developed E-S-Qual and E-RecS-Qual scales Adapted service recovery dimensions to SCM context Conceptualized and developed a measure for customer-oriented product returns service	Distinguishing service recovery dimensions that represent, in fact, a distinct theoretical construct and understand the impact on customers' perceived fairness of the process and interactions with the retailer	We theorize service recovery at a more granular level to assess the key role of an inherent SC capability – resilience – on addressing the challenges of the service recovery process. We empirically test the impact of service recovery resilience on customers' outcomes
3) Measurements of service recovery	Akinci <i>et al.</i> (2010) Parasuraman <i>et al.</i> (2005) Peinkofer <i>et al.</i> (2022) Sajjanit and Rompho (2019)	Existing service recovery scales do not adhere to service recovery in SCM processes	Provide a measurement scale to capture perceived service recovery resilience efforts in SCM	

research gaps that this manuscript aims to address relative to three research streams: (1) *returns policy, product replacement and customer outcomes*, (2) *service recovery and justice theory*, (3) *measurements of service recovery*.

Returns policy, product replacement and customer outcomes

A returns policy represents one of the key factors influencing a customer's purchasing proclivity (Janakiraman *et al.*, 2016), perceived risk (Bonifield *et al.*, 2010; Hjort *et al.*, 2013; Confente *et al.*, 2021) and rate of returns (Shang *et al.*, 2019). Indeed, returns policy lenience, which refers to the level of convenience for a customer to complete a return (Abdulla *et al.*, 2019), determines how customers evaluate the purchase of a product, and later, the ease of completing the returns process (Mollenkopf *et al.*, 2007; Rao *et al.*, 2018).

As part of their returns policy, retailers determine the effort and scope of service recovery by outlining the options available to customers when they initiate a return (Abdulla *et al.*, 2019). Specifically, retailers offer multiple options to resolve customer return claims, including a full or partial refund, store credit or product replacement for the same, similar or a different item (Ahsan and Rahman, 2016; Petersen and Alptekinoglu, 2018).

As a core part of returns lenience, product replacement occurs when the retailer exchanges the returned product for another of the same item without cost (Cassill, 1998; Ahsan and Rahman, 2016). Product replacement can occur for product malfunctions and defects (Van den Berge *et al.*, 2021), which constitutes one of the main reasons for returning an item: 80% of online returns are for the item being broken or damaged (Charlton, 2020). Product replacement requires the availability of stocks of the same item and replacement fulfillment according to customer demand (Shang *et al.*, 2017). However, product scarcity often leads to stockouts, which negatively impact customer outcomes, as customers' expectations of finding the product remain unmet (Peinkofer *et al.*, 2015). The literature investigating this issue focuses on how inventory availability positively impacts customer satisfaction (Peinkofer *et al.*, 2016) and loyalty intentions (Peinkofer *et al.*, 2015). Thus, the literature presents divergent views on how retail SC should decide on returns policy lenience and their efforts in service recovery.

When implementing product replacement policies, retailers face a trade-off between economizing on inventory costs by limiting the additional stock for product replacement (Shang *et al.*, 2017) and maximizing customer outcomes by offering a more lenient returns policy that facilitates product replacement and is fair for customers (Ahsan and Rahman, 2016). Lenient returns policies enhance customer outcomes (Abdulla *et al.*, 2019). However, product unavailability alters customers' purchasing behaviors (Peinkofer *et al.*, 2016) and is considered to result from poor SCM (Esper and Peinkofer, 2017). Scholars have investigated this issue by looking at the crucial role of retailer SC capabilities in managing product returns, and the associated operational performance. Specifically, to achieve a high level of service recovery with product returns, retailers can improve internal competencies, such as recovery responsiveness (Mollenkopf *et al.*, 2007; Russo *et al.*, 2019), recovery timeliness and accuracy (Mollenkopf *et al.*, 2011; Griffis *et al.*, 2012), while leveraging intra-SC relationships by partnering with third-party logistics suppliers (Russo *et al.*, 2021). Further, omnichannel retail offers benefits for retailers in managing stocks and returns, in terms of a reverse logistics network (Bernon *et al.*, 2016; Murfield *et al.*, 2017), reduced uncertainty, customers' perceived risk and returns rates (Ertekin, 2018, 2019; Letizia *et al.*, 2018).

However, these capabilities and relationships may not be sufficient to manage uncertainties in service recovery. Indeed, customer expectations of retailers' services are increasing, and they seek more liberal policies and more consistent returns experiences, which retailers often find expensive and inefficient (Daugherty *et al.*, 2019). From this perspective, the literature is unclear how customers react when experiencing a stockout during service recovery and how

the retail SC can solve the trade-off (policy leniency vs decreasing stocks) in the context of product replacement. The outbreak of the COVID-19 pandemic has further challenged the returns process: retailers have extended the time allowed for a return due to safety and logistics issues, which means they often face incongruent inventory availability, ultimately leading to out-of-stock items and worse customer outcomes (Deloitte, 2020). In this changing retail environment, managing product returns in instances of product replacement requires SC managers to develop capabilities to maintain processes performance standards while facing these challenges (Daugherty *et al.*, 2019). Thus, this study aims to address the research gap relative to assessing how customers perceive fairness in the service recovery process, and how retrieval SCs solve the trade-off between a lenient return policy with high service recovery standards (see Table 1, part 1, research gap). This study identifies SCR as a capability required to manage the SC and improve service recovery via product returns management (Daugherty *et al.*, 2019; Feizabadi *et al.*, 2021a).

Service recovery and justice theories

The literature on service recovery has investigated the key impact of justice on customer outcomes. Justice is perceived by customers when the design and offer of service recovery is fair and equitable, considering the loss suffered in the service failure (Peinkofer *et al.*, 2022). Customer satisfaction is often the key metric to establish whether the service provider's effort was successful in the service recovery, as it reflects the perception of justice relative to the resolution of the dispute (Andreassen, 2000; Maxham, 2001; Mollenkopf *et al.*, 2007; Smith *et al.*, 1999). In addition, this literature found that satisfied customers are more likely to engage in positive relational behaviors toward the retailer, such as word-of-mouth, relationship commitment and trust, repurchase intention and loyalty (Chebat and Slusarczyk, 2005; Kau and Loh, 2006; Peinkofer *et al.*, 2022; Siu *et al.*, 2013; Tax *et al.*, 1998).

Service recovery has been theorized as formed by three justice dimensions: distributive, procedural and interactional (Bies and Moag, 1987; Goodwin and Ross, 1990; Clemmer, 1993; Tyler, 1994; Blodgett *et al.*, 1997; Sparks and Callan, 1997; Tax *et al.*, 1998). Distributive justice concerns the customer's perceived fairness relative to the outcome of the service recovery, including replacement (Siu *et al.*, 2013). Procedural justice includes the policies and procedures used to provide the desired outcome, including timing, speed and flexibility (Lind and Tyler, 1988; Chebat and Slusarczyk, 2005). Finally, interactional justice focuses on customers' interpersonal treatment during service recovery (Smith *et al.*, 1999).

Recent literature has raised a debate on theorizing and measuring service recovery in SCM. First, while the prior literature studied service recovery by focusing on the response of an associate interacting with the customer, it is not clear how the existing scales are relevant to service recovery in SCM processes (Khamitov *et al.*, 2020), where dimensions such as speed and flexibility are likely to be interpreted differently (Peinkofer *et al.*, 2022). Second, the increase in customer impatience (Daugherty *et al.*, 2019) demands a customer-centric perspective of logistics and SCM (Esper *et al.*, 2020) and calls for a more granular theoretical understanding of service recovery through PJT (Confente *et al.*, 2021). For example, Gu and Ye (2014) studied interactional justice in service recovery, and Peinkofer *et al.* (2022) focused on order fulfillment time and speed after a stockout. Third, dimensions included within the procedural justice of service recovery, such as responsiveness, flexibility and adaptability, represent distinct theoretical constructs (Richey *et al.*, 2022). Thus, considering these literature gaps (see Table 1, part 2, research gap), this study aims to (1) contribute to the theoretical debate in the literature, as it addresses and goes beyond a specific aspect of service recovery, (2) capture the retailer SC strategy most able to adapt to customers' novel needs in managing returns and reverse SC and (3) empirically investigate a distinct SCM capability, that is SCR, in the context of product replacement as an outcome of distributive justice (Ahsan and Rahman, 2016).

Measurements of service recovery

Prior marketing and SCM literature have measured service recovery using the SERVQUAL scale (Parasuraman *et al.*, 1988; Zeithaml, 1988; Tax *et al.*, 1998) in the personal contact environment (Kelley *et al.*, 1993; Andreassen, 2000; Hoffman and Kelley, 2000; Craighead *et al.*, 2004; Zhu *et al.*, 2004; Kau and Loh, 2006; del Río-Lanza *et al.*, 2009; Roggeveen *et al.*, 2012) and the E-RECS-QUAL scale (Parasuraman *et al.*, 2005) in the online retailing environment (Holloway and Beatty, 2003; Collier and Bienstock, 2006; Akinci *et al.*, 2010; Lin *et al.*, 2011), adapting such scales in contexts of out-of-stock (Peinkofer *et al.*, 2022), returns management policies (Bower and Maxham, 2012; Hjort and Lantz, 2016) and product returns responsiveness and service performance (Mollenkopf *et al.*, 2007; Sajjanit and Rompho, 2019). However, these scales were employed to capture service recovery as a whole, without considering the service recovery presents multiple facets (e.g. distinct theoretical constructs). In addition, these scales were used to address service failures from only a marketing literature perspective. Hence, these scales fail to adhere to service recovery in SCM processes (see Table 1, part 3, research gap). Thus, this study provides a measurement scale to capture service recovery resilience efforts in SCM.

Supply chain resilience and service recovery resilience

Traditionally, SCR encompasses proactive methods to complement risk management (Pettit *et al.*, 2010); it entails balancing capabilities and vulnerabilities (Pettit *et al.*, 2013). From this perspective, Pettit *et al.* (2019) understand SCR as the gap between vulnerabilities and the capability to react to disruptions by improving SC strategies, and consider adaptation as a key element of SCR. This manuscript accepts the notion that SCR encompasses elements of disruption recovery and navigation of turbulent times, while enhancing competitiveness and improvements in customer service (Pettit *et al.*, 2013; Hohenstein *et al.*, 2015).

However, recent conceptualizations distinguish between engineering resilience, related to returning to a pre-disruption scenario as soon as possible, and social-ecological resilience, focused on SC transformation and adaptation to new standards (Wieland and Durach, 2021). As such, SCR can be adopted in service recovery in reverse SCs in terms of adaptation and transformation (Wieland and Durach, 2021) to offer an improved service to customers. Furthermore, while service recovery is limited to resolution of a service failure, SCR improves service recovery in the sense that the SC reacts to new disruptions to mitigate the impact of failures (Ambulkar *et al.*, 2015; Wieland, 2021). Indeed, SCR is to be understood and evaluated based on the disturbances that can be absorbed by the system before key processes change (Novak *et al.*, 2021). In addition, SCR complements service recovery in terms of how customers perceive the overall process: retailers face increased customer expectations that change at high speed and with unpredictable results (Bozkurt and Gligor, 2021). Conversely, service recovery complements current SCR conceptualizations by highlighting the orientation toward customers. Indeed, while SCR looks at efficiency and effectiveness, service recovery has the customer at its core, which is a fundamental characteristic of developing customer-based SCM (Esper and Peinkofer, 2017). However, in these turbulent times for reverse SCs, service recovery is insufficient and requires other capabilities.

We thus identify SCR as a core capability to complement service recovery strategies that improve customer outcomes. Combining SCR with service recovery strategy, we define service recovery resilience as the strategic capability of the service recovery process to successfully withstand disturbances and adverse situations, while maintaining continuity in the service recovery process at the level expected by customers. This conceptualization of service recovery resilience aims to address recent calls to further investigate the theoretical depth of SCR (Ali and Gölgeci, 2019) and to integrate it by organizing the micro-processes occurring within and across SCs, informing both research and practice on how to implement

SCR when dealing with disruptions such as the COVID-19 pandemic (Katsaliaki *et al.*, 2021). The concept of service recovery resilience seeks to strategically capture preparedness for aspects of service recovery, going beyond the inventory and logistics facets. For example, disruptions could be due to not having the product in inventory (e.g. out-of-stock), having the product in stock but not being able to deliver it due to internal logistics-related challenges (e.g. trucks not available), experiencing a technology-related disruption, dealing with a customer service-related disruption, facing an environmental disaster or experiencing a politics-related disruption (e.g. change in trade agreements, wars), to name a few.

The effect of service recovery resilience on procedural justice

In this study, we seek to determine how customers evaluate the fairness of the process, thanks to service recovery resilience. Accordingly, we developed our theoretical model based on the key tenets of PJT (see Figure 1). PJT explains how the fairness of a process impacts the attitudes and behaviors of the individuals who are involved and affected by the process (Lind and Tyler, 1988). PJT is grounded in the assumption that fair treatment is a core factor when individuals experience and evaluate a process (Korsgaard *et al.*, 1995). Individuals develop their assessment of an event based on the fairness of the process, the control they perceive over the process and the outcome allocation (Liu *et al.*, 2012). PJT has proved beneficial in studying the impact of SC disruptions (Wang *et al.*, 2014), customers' judgments of service recovery (Smith and Bolton, 2002; Maxham and Netemeyer, 2003), product returns processes and reverse SC operations (Mollenkopf *et al.*, 2007; Griffis *et al.*, 2012).

In line with PJT, if the process aligns with the expected level of fairness, individuals perceive procedural fairness (Lind and Tyler, 1988). Procedural justice often leads to repatronage intentions and decreased likelihood of negative word-of-mouth (Lin *et al.*, 2011). As such, a retail SC's ability to respond quickly to disruptions occurring during service recovery enhances customers' perceptions of the fairness of the returns process because customers are likely to evaluate the process to be fair and aligned with their expectations. Indeed, consumers care about the process and not just the outcome (Lind and Tyler, 1998), as elements of process control, decision control, accessibility to the process, timing/speed and flexibility are part of the sequence of events in which a procedure is understood by the customers (Tax *et al.*, 1998). Thus, while the outcome of the service recovery is still a key element in the service experience, customers' perceived justice depends on different aspects of the recovery process (Peinkofer *et al.*, 2022). Such a recovery process includes decisions made by the retailer that are perceived as fair, leading individuals – that is, customers – not to challenge the outcomes (Hofer *et al.*, 2012). Ultimately, when individuals perceive control over the process, fairness follows (Liu *et al.*, 2012).

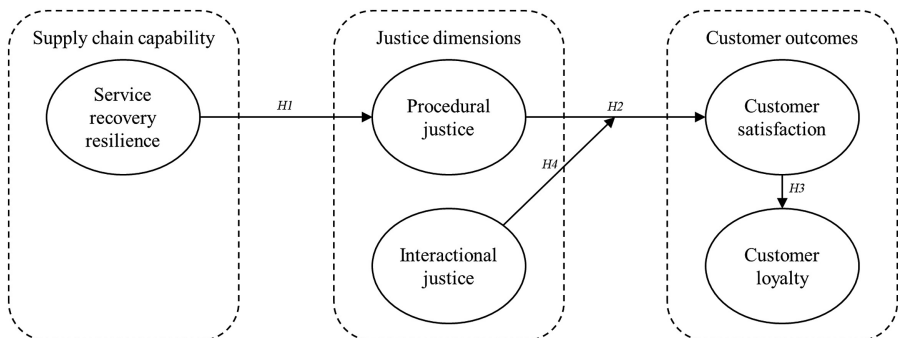


Figure 1.
Theoretical model

Accordingly, when customers initiate the replacement, they hold expectations relative to the outcome and the process. Retailers can meet the expectations relative to the outcome, make decisions that influence the process and control how to achieve the outcome. In the context of this study, customers receive the outcome expected, that is, the replacement, but through a process that may not meet their expectations. Indeed, when customers experience a disturbance and consequently have less control over the service recovery, we argue that the process does not meet their expectations. However, retailers can use service recovery resilience to provide a prompt solution that meets customers' expectations, improving the perceived procedural fairness (Ahsan and Rahman, 2016). Thus, in the product replacement context, the retailer can fulfill customer requests through service recovery resilience. Therefore, we expect that customers benefiting from service recovery resilience will perceive higher levels of procedural justice. Formally stated:

H1. Customers experiencing service recovery resilience will perceive greater levels of procedural justice.

The effect of procedural justice on customer satisfaction

Customer satisfaction is defined as the overall evaluation of a specific service experience (Murfield *et al.*, 2017). According to PJT, when individuals associate fairness with a process, they are less likely to question the outcome because it is perceived as fair (Hofer *et al.*, 2012). In the service recovery and returns management literature, perceived procedural justice is considered an antecedent of customer satisfaction (Maxham and Netemeyer, 2002), as procedural justice includes key elements of the service recovery process that customers value – such as the time required for process completion – customer orientation and a service provider's flexibility in meeting customer needs (Orsingher *et al.*, 2010). However, as customer demands increase, customers expect the retail SC to address a service failure in a manner aligned with their increasing expectations (Daugherty *et al.*, 2019). Therefore, service recovery resilience will impact procedural justice, which will influence customer satisfaction. Formally stated:

H2. Procedural justice mediates the relationship between service recovery resilience and customer satisfaction.

The effect of customer satisfaction on customer loyalty

Customer loyalty is defined as customers' repeat buying behavior resulting from a favorable attitude toward a retailer (Srinivasan *et al.*, 2002). According to PJT, perceived procedural justice influences individuals' attitudes and behaviors, such that individuals engage in behaviors to maintain the relationship and continue to enjoy the outcome (Lind and Tyler, 1988). Similarly, customer satisfaction promotes customer loyalty (Collier and Bienstock, 2006; Griffis *et al.*, 2012). Thus, we contend that improved service will enhance customer satisfaction, which will positively influence customer loyalty. Indeed, resilient retailers seek to address the immediate disruption and adapt to new standards (Richey *et al.*, 2022) aligned with increased customer expectations. Accordingly, we argue that customers experiencing improved service in the form of product replacement through service recovery resilience are likely to commit to a relationship with the retailer. Therefore, customers experiencing service recovery resilience perceive fairness and satisfaction, and ultimately adopt a favorable attitude toward the retailer, engaging in repeat patronage. Formally stated:

H3. Customer satisfaction mediates the relationship between procedural justice and customer loyalty.

The moderating effect of interactional justice

A key element in service recovery is informing customers of the procedures and status of the process (Collie *et al.*, 2000; Homburg and Fürst, 2005; Confente *et al.*, 2021). Specifically, the overall experience is influenced by how individuals perceive and process information communicated by the service provider (Peinkofer *et al.*, 2022). Indeed, individuals seek explanations and information relative to the disruptions and appreciate when the counterpart communicates relevant updates on the process to help them understand the service failure (Tax *et al.*, 1998). The stream of information helps establish frequent interactions between the two partners. As such, it increases perceived honesty, empathy and politeness (Tax *et al.*, 1998).

The information provided through interactions alters the perceived fairness of the process because it offers a clearer understanding of cause and effect in the service recovery (Andreassen, 2000). Indeed, perceived justice dimensions can compensate each other in such a way that lower degrees of process fairness can be balanced out by high degrees of information fairness, because communication improvements can help to clarify the procedures used within a process (Homburg *et al.*, 2010; Hulland *et al.*, 2012). Moreover, procedural and interactional justice together are predicted to provide individuals with extra positive outcomes that each individually cannot offer (Huang and Huang, 2016). For example, in a store setting, employees responsible for addressing customers' needs that politely and promptly communicate accurate information during the interaction with the customer can enhance customers' assessments of procedural justice (Tax *et al.*, 1998; Bahri-Ammari and Bilgihan, 2017). In these instances, the service recovery process offering the same outcome to the customer would be positively impacted by the interaction between the service provider and the customer. Explanations about the process can increase customers' understanding and control over the process.

In the context of this study, where the customer initiates the product replacement and the retailer experiences disturbance during the service recovery, a prompt and effective communicative effort by the retailer regarding the replacement status can improve customers' perceived fairness of the process (e.g. satisfaction). In a similar setting, Griffis *et al.* (2012) found that updates on the refund status comfort customers during the product returns process, and Ahsan and Rahman (2016) suggest that customers appreciate when service representatives provide real-time information access on returns. Accordingly, we contend that a prompt explanation for the service recovery procedure enhances customers' evaluation of the process, resulting in greater satisfaction, in particular when the retail SC experiences disturbances during the process. Therefore, we expect that interactional justice enhances the effect of procedural justice on customer satisfaction. Formally stated:

- H4.* Interactional justice moderates the relationship between procedural justice and customer satisfaction, such that procedural justice will have a stronger positive effect on customer satisfaction at higher levels of interactional justice.

Research methodology

To test our hypothesis, we used two between-subject, scenario-based experiments. A scenario-based experiment deploys varying versions of a vignette to describe a scenario that conveys information about different levels of the independent variable to participants (Rungtusanatham *et al.*, 2011). As discussed by Eckerd *et al.* (2021) and in line with other studies (e.g. Ta *et al.*, 2018; Barker and Brau, 2020; Confente *et al.*, 2021), scenario-based experiments constitute an appropriate research design to study the impact of retailer strategies on customer outcomes.

Experimental design common to study 1 and study 2

We developed the scenarios by carefully designing and validating the vignette before conducting the main experiment. Following Rungtusanatham *et al.*'s (2011) guidelines, in the

pre-design stage, we investigated the returns policies of various retailers (e.g. [Amazon.com, 2021](#); [Best Buy, 2021](#); [Walmart.com, 2021](#)) to gain insights into the length of the product replacement process identified therein. In addition, we consulted the literature on returns policy and product replacement ([Ahsan and Rahman, 2016](#); [Janakiraman et al., 2016](#); [Confente et al., 2021](#)) to understand how research has formally defined and operationalized various factors in returns policy and returns management.

In the design stage ([Rungtusanatham et al., 2011](#)), we built the common module – a written statement held constant across treatments – and the experimental module, which varied according to the level of the factor of interest ([Rungtusanatham et al., 2011](#)) (see [Appendix 1](#) for study 1; [Appendix 2](#) for study 2). In the common module, participants were presented with an online shopping scenario in which they purchased a notebook, later revealed to have major defects. A notebook was selected as the product in this scenario because of the intrinsic characteristics of this product type. Notebooks are theoretically categorized as specialty goods: customers expend significant efforts in purchasing such products and are unwilling to accept alternatives ([Thirumalai and Sinha, 2005](#)). Thus, customers are more likely to initiate a product return ([Shang et al., 2020](#)) and request a replacement ([Ahsan and Rahman, 2016](#)). To assess participants' attentiveness, an attention check question in the form of a direct query memory recall check was presented, asking participants to recall specific information related to the common module but unrelated to the study's focal point ([Abbey and Meloy, 2017](#)). The common module concluded by presenting participants with a disturbance (i.e. product being out of stock) in service recovery: once the product replacement was initiated, they were informed that the retailer was experiencing a stockout.

Study 1. In study 1, an experimental module included two distinct scenarios. In the control scenario, the retailer's product replacement and restocking operations followed standard procedures. Thus, participants were informed that they would receive a replacement after 15 business days. In the treatment scenario, participants were informed that the retailer had procured and delivered the replacement with a shorter lead time. Consistently, in this scenario, the replacement was consigned after three business days.

In the post-design stage ([Rungtusanatham et al., 2011](#)), following the recommendations of [Eckerd et al. \(2021\)](#), we assessed the effectiveness of the manipulation and validated the scenario in a pilot study. Thus, we conducted a between-subject experiment in which participants were randomly assigned to one of the two experimental conditions ([Bachrach and Bendoly, 2011](#)). A sample of 39 participants located in the US was recruited through Qualtrics, an online consumer panel considered in previous studies as a reliable source of high-quality data ([Brandon et al., 2014](#)). Each participant received US \$4 upon completing the study. Demographic statistics show that 56.4% of the respondents were females, the mean age was 66.18 years and more than 50% had a college education.

We assessed the effectiveness of the service recovery resilience treatment using a manipulation check measure consisting of a three-item, seven-point Likert scale (1 = strongly disagree, 7 = strongly agree), as recommended by [Perdue and Summers \(1986\)](#). In line with previous studies (e.g. [Gligor et al., 2013](#)), to develop the scale for service recovery resilience, we first created the list of items based on prior discussions and investigations of the service recovery and SCR literature. Specifically, in the items, we merged service recovery aspects with SCR, including adaptability, withstanding and recovery. Then, we emailed ten subject experts the definition of service recovery resilience and asked them to judge the content validity of the item list. These experts were chosen based on prior logistics and SCM professional experience. Most experts indicated that the list of items was sufficient, but some provided feedback on specifying that the items refer to the focal firm's reaction to the disturbance. The feedback was used to improve the three-item scale that was tested as a manipulation check in the pretest ([Howard and Reiley, 2020](#)). A one-way ANOVA revealed that participants exposed to the treatment scenario (i.e. more rapid product replacement)

perceived higher levels of service recovery resilience ($M_{Resilience} = 5.16$) than did participants exposed to the control scenario ($M_{Control} = 4.09$), with $F(1, 38) = 6.89, p < 0.05, \eta^2 = 0.16$. Further, we assessed the realism of the experimental scenario using two five-point scale realism checks. Participants found the scenario realistic ($M = 4.00, SD = 0.95$) and had no difficulty imagining themselves in the situation ($M = 3.95, SD = 0.97$).

We conducted the main experiment with a sample of 132 US-located respondents recruited through Qualtrics. In line with prior literature (Peinkofer *et al.*, 2022; Barker and Brau, 2020), the necessary sample size was based on Lonati *et al.*'s (2018) theoretical recommendation for at least 50 observations per cell, and statistical evidence (G*Power) (Faul *et al.*, 2007; Eckerd *et al.*, 2021). All participants were randomly assigned between the two experimental conditions and received US \$4 upon completing the study. The manipulation check and an attention check were also included in the final survey (Perdue and Summers, 1986; Abbey and Meloy, 2017). In line with best practice for experimental design, and previous studies, participants who failed the attention check were removed from the final sample (Abbey and Meloy, 2017; Confente *et al.*, 2021). Five participants failed the attention check, so final sample size contained 127 respondents: 66 in the treatment scenario and 61 in the control scenario. Demographic statistics show that 51.2% of the respondents were female, the mean age was 48.51 years and more than 50% had a college education.

The mediators and the dependent variable were measured using multi-item behavioral scales adapted from the literature, with a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree) (see Table 2). In addition, we collected demographic and purchasing behavior data. Specifically, *age* is a continuous variable reflecting the age, in years, of participants. *Gender* is a binary categorical variable (0 = female; 1 = male). *Level of education* is a binary categorical variable capturing whether the respondent has a college degree (0 = no college degree; 1 = college degree). Finally, *purchasing frequency* is a continuous variable capturing how often participants purchased from online retailers, on a seven-point semantic scale (1 = infrequently; 7 = frequently).

Before conducting the data analysis, we performed a confirmatory factor analysis (CFA) using the maximum likelihood (MLM) estimator on AMOS 26. The CFA model fit statistics show a fair model fit within acceptable limits (Hu and Bentler, 1999), and were consistent with recommended indices (Kline, 2005; Brown, 2015), with $\chi^2 = 157.24, d.f. = 98, CFI = 0.978, RMSEA = 0.069$ (90% confidence interval: 0.048; 0.089) and SRMR = 0.043. Convergent validity was established by estimating the average variance extracted (AVE), with values for all variables exceeding the recommended threshold of 0.5 (Fornell and Larcker, 1981). Next,

Study 1	Mean	SD	1	2	3	4		
(1) Procedural justice	5.03	1.20	–					
(2) Customer satisfaction	4.24	1.65	0.71***	–				
(3) Customer loyalty	4.04	1.51	0.59***	0.86***	–			
(4) Service recovery resilience	4.91	1.35	0.75***	0.77***	0.69***	–		
Study 2	Mean	Sd	1	2	3	4	5	6
(1) Procedural justice	4.80	1.58	–					
(2) Customer satisfaction	4.72	1.56	0.73***	–				
(3) Customer loyalty	4.57	1.56	0.66***	0.89***	–			
(4) Service recovery resilience	4.92	1.53	0.67***	0.83***	0.76***	–		
(5) Interactional justice	5.42	1.26	0.72***	0.72***	0.62***	0.72***	–	
(6) Interactive effort	3.61	1.54	0.61***	0.74***	0.72***	0.76***	0.66***	–

Table 2.
Descriptive statistics
and correlations

Note(s): *** $p < 0.01$

discriminant validity was assessed, confirming that the phi-square correlation (φ^2) of each pair of variables was less than the respective AVE of each pair of constructs (Fornell and Larcker, 1981; Hayes, 2018). In addition, composite reliability (CR) values exceeded the minimum threshold of 0.60, as recommended by Bagozzi and Yi (1988). Finally, the Cronbach's alpha for all scales exceeded the recommended minimum threshold of 0.70, indicating internal consistency of the scale (Nunnally and Bernstein, 1994; O'Leary-Kelly and Vokurka, 1998; Li *et al.*, 2005). Table 2 summarizes descriptive statistics and bivariate Pearson's correlations for the variables, and Table 3 reports the AVE, CR, standardized loadings and model fit indices.

Study 2. In study 2, we assessed the moderating impact of *interactional justice* on the relationship between *procedural justice* and *customer satisfaction*. The experimental module included four distinct scenarios (2×2), as we manipulated *service recovery resilience* and retailer's interactive effort. The manipulation of *service recovery resilience* unvaried with respect to study 1. The retailer's interactive effort was manipulated in two scenarios relative to the retailers' communication with the customer. In the treatment scenario, throughout the replacement process, respondents were presented with frequent updates from the retailer, who communicated through e-mails at each step, including the arrival of new inventories and the number of days remaining for the delivery. Conversely, in the control scenario, participants were only informed about the receiving of replacement request and the final delivery (see Appendix 2).

Similar to study 1, we followed Lonati *et al.* (2018) and Faul *et al.* (2007) to assess the necessary sample size. We conducted the main experiment with a sample of 251 US-located respondents recruited through Qualtrics. An attention check and manipulation checks were also included in the final survey (Perdue and Summers, 1986; Abbey and Meloy, 2017). Six participants failed the attention check, and four were removed for speeding. The final sample size contained 241 respondents. Demographic statistics show that 52.7% of the respondents were female, the mean age was 51.22 years and more than 60% had a college education. We assessed the effectiveness of the manipulations and the presence of confounding effects. As in study 1, the manipulation of *service recovery resilience* was effective; $M_{\text{Resilience}} = 5.50$; $M_{\text{Control}} = 4.35$, with $F(1, 239) = 39.01, p < 0.05, \eta^2 = 0.15$. The manipulation of retailer's interactive effort was assessed using a manipulation check measure consisting of a two-item seven-point Likert scale (1 = strongly disagree, 7 = strongly agree) adapted from Colquitt (2001). A one-way ANOVA revealed that participants exposed to the treatment scenario (i.e. greater interactive effort) perceived higher levels of retailer's interactive effort ($M_{\text{Information}} = 3.78$) than did participants exposed to the control scenario ($M_{\text{Control}} = 3.53$), with $F(1, 239) = 4.37, p < 0.05, \eta^2 = 0.02$. To avoid confounding issues (Bachrach and Bendoly, 2011), we tested for the interaction effects of *service recovery resilience* and retailers' interactive effort. The interaction was not significant, and hence we found the confounding checks satisfactory; $F(1, 237) = 0.62, p = 0.43$. Finally, the realism checks produced results that resemble those obtained in study 1.

The mediators, the dependent variable and control variables were measured with the same scales used in study 1. The moderator, *interactional justice*, was measured with a two-item seven-point Likert scale adapted from Maxham and Netemeyer (2003) (see Table 3). In line with study 1, the CFA confirmed a fair model fit within acceptable limits. In addition, we assessed that convergent validity, discriminant validity, CR and Cronbach's alpha for all scales exceeded the recommended threshold. Tables 2 and 3 report descriptive statistics and CFA results for study 2.

Results and discussion

Study 1: results

Hypothesis 1 states that service recovery resilience positively predicts customers' perceived procedural justice. To test Hypothesis 1, a one-way ANCOVA was performed, with *age*,

	Study 1	Study 2
<i>Procedural justice</i> , adapted from Maxham and Netemeyer (2003)		
Despite the hassle caused by the product replacement, NotebookPoint.com responded fairly and quickly	0.88	0.89
I feel NotebookPoint.com responded in a timely fashion to the product replacement	0.85	0.91
I believe NotebookPoint.com has fair policies and practices to handle product replacement	0.75	0.84
AVE	0.69	0.77
CR ρ	0.78	0.78
Cronbach's α	0.88	0.91
<i>Customer satisfaction</i> , adapted from Murfield et al. (2017)		
Overall, I am very satisfied with NotebookPoint.com's delivery service offering	0.98	0.90
Compared to other similar retailers, my current shopping experience with this retailer has been superior	0.96	0.90
NotebookPoint.com comes very close to giving me a perfect delivery service offering	0.94	0.94
NotebookPoint.com sets itself apart from others because of its superior delivery service offering	0.82	0.91
AVE	0.86	0.83
CR ρ	0.90	0.88
Cronbach's α	0.96	0.95
<i>Loyalty</i> , adapted from Srinivasan et al. (2002)		
As long as the present service continues, I doubt that I would switch online retailer	0.94	0.86
I will try to use NotebookPoint.com whenever I need to make a purchase	0.95	0.90
When I need to make a purchase, NotebookPoint.com will be my first choice	0.87	0.94
I like using NotebookPoint.com online services	0.97	0.89
To me, NotebookPoint.com is the best retailer to do business with	0.92	0.93
I believe that this is my favorite online retailer	0.89	0.90
AVE	0.85	0.81
CR ρ	0.93	0.90
Cronbach's α	0.97	0.96
<i>Service recovery resilience</i>		
NotebookPoint.com withstood (dealt with) the disruption (i.e. product being out of stock) in a way that allowed it to satisfactorily address my service recovery needs	0.95	0.93
NotebookPoint.com adapted to the disruption (i.e. product being out of stock) in a way that allowed it to satisfactorily address my service recovery needs	0.95	0.92
NotebookPoint.com recovered from the disruption (i.e. product being out of stock) in a way that allowed it to satisfactorily address my service recovery needs	0.93	0.92
AVE	0.88	0.85
CR ρ	0.92	0.87
Cronbach's α	0.96	0.94
<i>Interactional justice</i> , adapted from Maxham and Netemeyer (2003)		
In dealing with the product replacement, NotebookPoint.com treated me in a courteous manner		0.89
NotebookPoint.com was honest and ethical in dealing with me during their fixing of my problem		0.92
AVE		0.82
CR ρ		0.84
Cronbach's α		0.90
<i>Retailer's interactive effort</i> , adapted from Colquitt (2001)		
NotebookPoint.com communicated details in a timely manner		0.80
NotebookPoint.com seemed to tailor the communications to my specific needs		0.84
AVE		0.67

Table 3.
Confirmatory factor analysis, construct validity and reliability assessment results

(continued)

	Study 1	Study 2	Impact of service recovery resilience
CR ρ Cronbach's α		0.78 0.80	
<i>Goodness of fit study 1</i> $\chi^2 = 157.24$, d.f. = 98, χ^2 /d.f. = 1.60, SRMR = 0.04, CFI = 0.98, RMSEA = 0.07, IFI = 0.98, TLI = 0.97			
<i>Goodness of fit Study 2</i> $\chi^2 = 399.28$, d.f. = 155, χ^2 /d.f. = 2.58, SRMR = 0.04, CFI = 0.96, RMSEA = 0.08, IFI = 0.96, TLI = 0.95			
Note(s): The confirmatory factor analyses used an MLM estimator. Standardized loadings are reported for each item. AVE = average variance extracted. CR = composite reliability (ρ). SRMR = standardized root mean residual. CFI = confirmatory fit index. RMSEA = root mean square error of approximation. IFI = incremental fit index. TLI = Tucker–Lewis index			

Table 3.

gender, level of education and *purchasing frequency* as covariates in the analysis to control for any potential systematic influences on the dependent variable. Indeed, the literature highlights the importance of such contingencies in determining customer behavior and perceptions of a product return process (Mollenkopf *et al.*, 2007; Powers and Jack, 2013; Petersen and Kumar, 2015). The results show that customers exposed to service recovery resilience perceived higher levels of *procedural justice* ($M = 5.42$, $SD = 0.88$) than did those in the control experimental condition ($M = 4.60$, $SD = 1.36$), with $F(1, 126) = 15.67$, $p < 0.01$, $\eta_2 = 0.12$, observed power = 0.98. Thus, Hypothesis 1 is supported.

In line with Rungtusanatham *et al.*'s (2014) recommendations for mediation analysis via bootstrapping, to test Hypothesis 2, we conducted a mediation model using the PROCESS macro model 4 (Hayes, 2018), with *procedural justice* as a mediator and *customer satisfaction* as the dependent variable. The PROCESS macro for SPSS is based on ordinary least squares regression path analysis and has been proved suitable to estimate different types of mediation and moderation statistical models, as well as moderated mediation models (Hayes, 2018; Peinkofer *et al.*, 2022). Theory and prior literature have established its reliability in estimating mediation effects with adequate statistical power (Abdulla *et al.*, 2021; Barker and Brau, 2020; Confente *et al.*, 2021; Rungtusanatham *et al.*, 2014). Service recovery resilience is a binary variable coded as 1 for the service recovery resilience treatment, and 0 for the control treatment. We also included four control variables: customer *age, gender, level of education* and *purchasing frequency*. The analysis was conducted with 95% bias-corrected bootstrapping with 5,000 samples, in line with previous studies (Confente *et al.*, 2021). Table 4 reports the results of PROCESS model 4. Hypothesis 2 predicts that the relationship between *service recovery resilience* and *customer satisfaction* is mediated by *procedural justice*. Results show that *service recovery resilience* has a positive and significant coefficient ($\beta_{\text{Resilience}} = 0.83$, $p < 0.01$) in the first step of the mediation analysis, and that *procedural justice* has a positive and significant coefficient ($\beta_{\text{Procedural}} = 0.96$, $p < 0.01$) in the second step of mediation, whereas the coefficient of *service recovery resilience* is not significant for *customer satisfaction*, with a positive and significant indirect effect (effect = 0.80, CI [0.41; 1.21]). These results illustrate full mediation (Zhao *et al.*, 2010). Thus, Hypothesis 2 is supported.

Finally, Hypothesis 3 predicts that the relationship between *service recovery resilience* and *customer loyalty* is mediated via a serial mediation path, including *procedural justice* as the first mediator and *customer satisfaction* as the second mediator. As such, following Rungtusanatham *et al.*'s (2014) recommendations, we tested Hypothesis 3 with a serial mediation model using PROCESS macro model 6 (Hayes, 2018), including *age, gender, level of education* and *purchasing frequency* as control variables. The analysis was conducted using

Table 4.
Process model 4:
study 1

DV	Procedural justice	Customer satisfaction
Intercept	4.25 (0.61)***	1.11 (0.67)*
Service recovery resilience	0.83 (0.21)***	-0.13 (0.21)
Procedural justice		0.96 (0.08)***
Age	-0.07 (0.21)	-0.01 (0.01)
Gender	0.21 (0.24)	0.45 (0.19)**
Level of education	0.06 (0.06)	-0.64 (0.22)***
Purchasing frequency	4.25 (0.61)	-0.14 (0.06)**
F-value (df)	3.54 (5, 121)***	26.37 (6, 120)***
R ²	0.36	0.75
Indirect effect		0.80 CI [0.41; 1.21]
N	127	127

Note(s): $p < 0.01$ ***; $p < 0.05$ ** ; $p < 0.1$ *; standard errors of the coefficients are reported in parentheses; CI confidence interval

95% bias-corrected bootstrapping with 5,000 samples. Table 5 reports the results for PROCESS model 6. Results from the first stage of mediation (service recovery resilience → procedural justice → customer satisfaction) and the second stage of mediation (service recovery resilience → procedural justice → customer satisfaction → customer loyalty) imply full mediation, as neither the direct effect of *service recovery resilience* nor *procedural justice* has a significant coefficient, while the coefficient of *customer satisfaction* is positive and significant ($\beta_{\text{Satisfaction}} = 0.92, p < 0.01$) (Zhao et al., 2010), suggesting that customer loyalty is fully mediated by the perceived level of procedural justice and satisfaction. In support of this result, indirect effect 3 representing serial mediation is positive and significant (effect = 0.74, CI [0.38; 1.14]), whereas indirect effect 1 (effect = -0.08, CI [-0.25; 0.06]), representing the mediation of *procedural justice* on *customer loyalty*, and indirect effect 2 (effect = -0.12, CI [-0.50; 0.26]), representing the mediation of *customer satisfaction* on *customer loyalty*, are both nonsignificant, as the confidence intervals include zero (Hayes, 2018). Overall, results from study 1 support the argument that customers perceive a greater level of procedural fairness

Table 5.
Process model 6:
study 1

DV	Procedural justice	Customer satisfaction	Customer loyalty
Intercept	4.25 (0.61)***	1.11 (0.67)*	0.09 (0.45)
Service recovery resilience	0.83 (0.21)***	-0.13 (0.21)	-0.09 (0.14)
Procedural justice		0.96 (0.08)***	-0.10 (0.08)***
Customer satisfaction			0.92 (0.06)***
Age	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)
Gender	-0.07 (0.21)	0.45 (0.19)**	0.01 (0.13)
Level of education	0.21 (0.24)	-0.64 (0.22)***	-0.06 (0.15)
Purchasing frequency	0.06 (0.06)	-0.14 (0.06)**	0.07 (0.04)*
F-value (df)	3.54 (5, 121)***	26.37 (6, 120)***	66.45 (7, 119)***
R ²	0.36	0.75	0.89
Indirect effect 1		-0.08 CI [-0.25; 0.06]	
Indirect effect 2		-0.12 CI [-0.50; 0.26]	
Indirect effect 3		0.74 CI [0.38; 1.14]	
N	127	127	127

Note(s): $p < 0.01$ ***; $p < 0.05$ ** ; $p < 0.1$ *; standard errors of the coefficients are reported in parentheses; indirect effect 1: service recovery resilience → procedural justice → customer loyalty; Indirect Effect 2: service recovery resilience → customer satisfaction → customer loyalty; indirect effect 3: service recovery resilience → procedural justice → customer satisfaction → customer loyalty; CI confidence interval

when a retailer adapts and transforms its service recovery strategy, specifically product replacement, to deal with customer impatience in the event of a disturbance (RQ1). As a consequence, customer satisfaction and customer loyalty improve when retailers show greater resilience in service recovery.

Study 2: results

To test Hypothesis 4, we conducted a moderated mediation analysis with *procedural justice* as a mediator, *customer satisfaction* as the dependent variable and *interactional justice* as a moderator in the second stage of mediation. Following Hayes (2018), we ran PROCESS model 14, including customer *age*, *gender*, *level of education* and *purchasing frequency* as control variables. The results are summarized in Table 6, and show that *interactional justice* magnifies the effect of *procedural justice* on *customer satisfaction* (index of moderated mediation = 0.07, SE = 0.04). Thus, the indirect effect of *service recovery resilience* on *customer satisfaction* via *procedural justice* is stronger at higher levels of *interactional justice* (indirect effect = 0.62, SE = 0.18) than lower levels of *interactional justice* (indirect effect = 0.40, SE = 0.15). We further investigated this result by plotting the interaction between procedural justice and interactional justice (see Figure 2a), and the Johnson-Neyman estimations provided by PROCESS (see Figure 2b). Based on the estimations, we assessed that higher levels of *interactional justice* produce a stronger effect of *procedural justice* on *customer satisfaction* and that the marginal effect of *procedural justice* increases at greater levels of *interactional justice* and is significant only for values of *interactional justice* above the 2.28 threshold, the point at which the confidence interval defined by the lower limit confidence interval line and upper limit confidence interval line does not contain zero (Hayes, 2018). As such, we found support for Hypothesis 4. Overall, the findings from study 2 support the notion that retailer’s effort in communicating with the customer can enhance how customers perceive fairness in the service recovery process and, as a consequence, customer outcomes (RQ2).

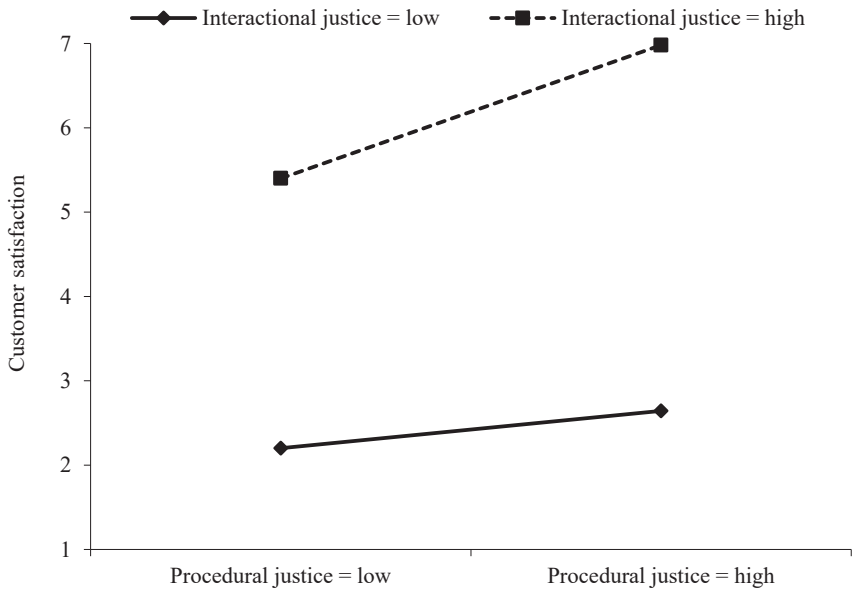
Post hoc analysis

We further conducted a moderation mediation analysis to assess the impact of *interactional justice* as moderator of the indirect effect of *service recovery resilience* on *customer loyalty* via *procedural justice* and *customer satisfaction*, using PROCESS model 91. The results are summarized in Table 7 and confirm that *interactional justice* significantly moderates the

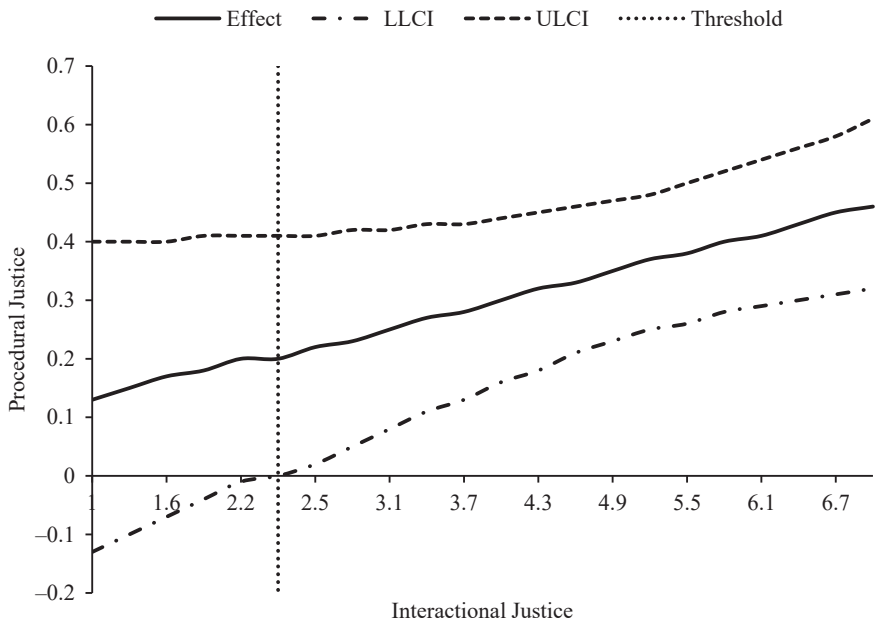
DV	Procedural justice	Customer satisfaction
Intercept	4.45 (0.33)***	1.41 (0.63)**
Service recovery resilience	1.34 (0.18)***	0.25 (0.14)*
Procedural justice		0.08 (0.16)
Interactional justice		0.34 (0.12)***
Procedural justice × interactional justice		0.06 (0.03)**
Age	0.01 (0.01)	-0.01 (0.01)***
Gender	-0.15 (0.19)	0.09 (0.13)
Level of education	-0.25 (0.20)	-0.08 (0.13)
Purchasing frequency	-0.07 (0.04)*	0.04 (0.03)
F-value (df)	11.56 (5, 235)***	52.33 (8, 232)***
R ²	0.44	0.80
Index of moderated mediation		0.07 (0.04) CI [0.01,0.16]
N	241	241

Note(s): $p < 0.01$ ***; $p < 0.05$ ** ; $p < 0.1$ *; standard errors of the coefficients are reported in parentheses; CI confidence interval

Table 6.
Process model 14:
study 2



(a)



(b)

Figure 2.
(a) Conditional effect of procedural justice and interactional justice on customer satisfaction
(b) Johnson-Neyman plot: Conditional effect of procedural justice as a function of interactional justice

DV	Procedural justice	Customer satisfaction	Customer loyalty
Intercept	4.45 (0.33)***	1.41 (0.63)**	0.15 (0.24)
Service recovery resilience	1.34 (0.18)***	0.25 (0.14)*	-0.02 (0.10)
Procedural justice		0.08 (0.16)	0.04 (0.05)
Interactional justice		0.34 (0.12)***	
Procedural justice × interactional justice		0.06 (0.03)**	
Customer satisfaction			0.86 (0.04)***
Age	0.01 (0.01)	-0.01 (0.01)***	0.01 (0.01)
Gender	-0.15 (0.19)	0.09 (0.13)	0.19 (0.10)***
Level of education	-0.25 (0.20)	-0.08 (0.13)	0.02 (0.10)
Purchasing frequency	-0.07 (0.04)*	0.04 (0.03)	0.01 (0.02)
F-value (df)	11.56 (5, 235)***	52.33 (8, 232)***	126.19 (7, 233)***
R ²	0.44	0.80	0.89
Index of moderated mediation		0.06 (0.04) CI [0.01,0.14]	
N	241	241	241

Note(s): $p < 0.01$ ***; $p < 0.05$ **; $p < 0.1$ *; standard errors of the coefficients are reported in parentheses; CI confidence interval

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Table 7. Process model 91: study 2

second stage of mediation (index of moderated mediation = 0.06, SE = 0.04). Hence, we conclude that *interactional justice* impacts the service experience and is relevant to customers' future purchasing behaviors.

Conclusions and implications

As customer impatience increases (Daugherty *et al.*, 2019) and disturbances in product returns management, such as those caused by the outbreak of COVID-19 (Deloitte, 2020), complicate the management of retail SCs, capabilities such as SCR have become of key importance to quickly overcome disruptions to service recovery, and accordingly adapt and transform the retail SC. Building upon the service recovery background and SCR literature (Pettit *et al.*, 2013; Gligor *et al.*, 2019), and drawing from PJT (Lind and Tyler, 1988), we empirically investigated customers' perceived procedural and interactional justice of retailers' service recovery resilience, as well as its impact on customer outcomes.

Theoretical contributions

Our findings allow us to make several theoretical contributions. First, we make a noteworthy contribution by introducing SCR to address a returns management trade-off. Research has shown that when setting a product replacement policy, retailers face a trade-off between economizing on inventory costs and maximizing customer outcomes (Shang *et al.*, 2017). The literature focuses on the various combinations of product returns management-related antecedents that result in high levels of customer satisfaction (Russo *et al.*, 2019). The literature also explores consumer reactions to stockouts (Peinkopfer *et al.*, 2016), but without assessing customers' perceptions of service recovery in a product replacement setting. We expand on these studies by introducing SCR as the capability of supporting a returns management program in the case of a stockout (Daugherty *et al.*, 2019).

Our second contribution is to the service recovery literature. Prior literature has focused on the operational-level aspects of service recovery and has not captured the complexity associated with the possible sources and scope of disruptions. For example, Mollenkopf *et al.* (2007) investigated the role of service recovery in creating customer value, while Ader (2001) provided insights into how to efficiently and effectively provide the promised service recovery. We augment this stream of research by proposing service recovery resilience as a

construct that allows firms to *strategically* and *comprehensively* approach service recovery. In this vein, Stoltz (2004) noted that SCR is the key to producing a strategic plan that yields results superior to those of less resilient competitors, thus providing the *strategic* perspective to service recovery. Moreover, our conceptualization of the construct is aligned with extant SCR literature, which proposes SCR as a capability that allows firms to successfully deal with “unexpected events, respond to disruptions, and recover from them while maintaining continuity of operations at the desired level” (Ponomarov and Holcomb, 2009, p. 131). As such, approaching service recovery from an SCR perspective provides the *comprehensiveness* aspect to service recovery by allowing firms to successfully deal with a variety of “unexpected events” going beyond issues traditionally examined in service recovery literature (e.g. inventory, logistics). In essence, given the strategic and comprehensive scope of SCR, the introduction of the concept of service recovery resilience can help advance the dialogue in the service recovery literature.

Third, we contribute to the debate on theorizing and measuring service recovery in SCM. Recent literature discussed that service recovery, as theorized in the marketing literature (Maxham, 2001), does not fully adhere to SCM processes (Peinkofer *et al.*, 2022). In line with prior literature that investigated recovery responsiveness (Mollenkopf *et al.*, 2007), timeliness (Griffis *et al.*, 2012) and recovery speed (Peinkofer *et al.*, 2022), we contend that service recovery resilience adds to the SCM capability of addressing disturbances in service recovery. Relatedly, following Richey *et al.*'s (2022) theoretical distinctions among the predictors of responsiveness, we assert that service recovery resilience represents a distinct construct that covers specific aspects of responsiveness in service recovery. The new construct also captures at a more granular level the aspect of the retail SC strategy to adapt to customers' impatience (Daugherty *et al.*, 2019).

Fourth, we contribute to the growing literature on SCR. Studies have explored various drivers and consequences of SCR (Brandon *et al.*, 2014; Pettit *et al.*, 2013). SC scholars have also sought to refine the theoretical domain of SCR (Gligor *et al.*, 2019). We have built on these past efforts by revealing the role of SCR in successfully addressing customer needs. Thus, we argue SCR as an inherent SC capability to address uncertainty or disruptions arising at different phases of service recovery – in this study, the replacement process. Finally, the empirical investigation informs on integrating SCR in micro-processes within and across SCs, specifically when dealing with service recovery disruptions (Ali and Gölgeci, 2019; Katsaliaki *et al.*, 2021).

Fifth, we contribute to the PJT literature. Studies have shown that perceived justice in the service recovery process leads individuals to experience satisfaction with the outcome (Mollenkopf *et al.*, 2007) and to engage in desirable consumer behavior (Griffis *et al.*, 2012). In this study, we augment the dialogue beyond the returns process (e.g. service recovery, Mollenkopf *et al.*, 2007; speed of returns, Griffis *et al.*, 2012), by investigating product replacement and adverse cases during service recovery. Scholars have suggested that fairness in service recovery is not sufficient to achieve customer satisfaction (Maxham and Netemeyer, 2002; Griffis *et al.*, 2012). Our findings reveal that service recovery resilience can improve the process, as such the perceived procedural fairness. Ultimately, service recovery resilience represents a significant driver of customer outcomes.

Finally, we augment extant literature by offering novel insights into the mediating effect of procedural justice. Traditionally, the service recovery literature has addressed the mediation effects of perceived procedural justice (i.e. the process) and interactional justice (i.e. the interpersonal treatment) separately relative to the impact of service recovery on customer outcomes (Smith *et al.*, 1999). By investigating the two-way interaction between the two justice types (Tax *et al.*, 1998), we contend that interactional quality can improve retailers' outcomes. Indeed, in the era of customer impatience, in which customers are “accustomed to an informed, fully visible, and on-time delivery process” (Daugherty *et al.*, 2019, p. 21), a prompt recovery service is no longer the sole element that satisfies customers; rather, the

process requires the support of an organized retail SC capable of informing and updating customers about each and every stage of the process. Hence, in line with [Griffis et al. \(2012\)](#), who indicate that informing customers relative to the refund status may comfort them and increase the perceived speed of refunds, we argue that communicating throughout the replacement process increases the perception of the retailer's effort in addressing their customers' needs.

Managerial implications

Our findings also offer noteworthy takeaway messages for managers; they indicate to managers that enhancing service recovery resilience can influence customers' perceptions of the fairness of service recovery in a product return setting. In addition, service recovery resilience leads to increased customer satisfaction and loyalty. Managers dealing with increasing customer impatience ([Daugherty et al., 2019](#)) can rely on service recovery resilience to achieve these objectives. In other words, service recovery resilience functions as the capability through which logistics and SC managers react to a disturbance event with the goal to keep the customer committed with the company. As such, attention to stock availability for products to be replaced is of key importance when offering prompt service and a more lenient return policy to customers. In addition, leveraging the retail SC can be another actionable way to improve resilience in service recovery. Thus, in response to 40% of consumers not purchasing items as a result of frustration over returns ([Inmar Intelligence, 2020](#)), retailers can adopt new capabilities to satisfy and retain customers.

Moreover, although SC scholars have praised the possible benefits of SCR, there is limited empirical evidence to support these claims. Our findings indicate that SCR can be an important driver of desirable customer-related outcomes. Indeed, as retailers were unprepared to face increasing product return rates due to the pandemic ([Petro, 2021](#)), many now allow customers additional time to return products ([Thomas, 2020](#)). This has important implications considering the significant costs associated with enhancing various aspects of a firm's resilience. Thus, SC practitioners can use our empirical findings to provide evidence to their upper management when requesting resources that will enhance resilience-related attributes, such as service recovery resilience. In this vein, managers need to rethink the alignment between the lenience of their returns policy and the relative effort required, for example, in inventory management to support the returns management program, because these solutions are often unsustainable ([Malka, 2021](#)). Therefore, while retaining a lenient returns policy is vital to encourage customer purchasing, retail SCs need to ensure the fulfillment of the promised service level, leveraging capabilities such as SCR. In other words, we encourage managers to consider the following question: Will the SC strategy be able to follow the customers' needs in terms of providing an appropriate service recovery in the case of replacement? We recommend retailers to link the promised service level (lenient returns policy, time of replacement and stock easily available) to the development of a specific set of capabilities, that is, service recovery resilience, to process returns. This is an important issue since misalignment between the offered returns policy and the capabilities necessary to process returns in accordance might lead to severe SC disturbances and inefficiencies, ultimately leading to frustrated consumers. As [Narvar's \(2018\)](#) report indicates, during the product replacement process, consumers will likely switch retailer if experiencing an out-of-stock. This gains relevance in the era of omnichannel retail, as companies should develop additional capabilities to manage stock availability throughout the SC at different places (stores, depots, distribution centers), especially for retailers offering the same return policy across all channels.

Finally, while the outcome of service recovery plays a key role, retailers' information systems can improve the perceived effectiveness of the process. This is important, especially when seeking to promptly address customers' needs. Resilient service recovery is better

perceived when customers have the opportunity to follow the process step-by-step. This also mirrors customers' expectations relative to the product type: for specialty products (e.g. notebooks), customers expect a customized experience based on their needs, suggesting that managers can segment service recovery based on product type (Nguyen *et al.*, 2019). As such, the escalating service expectations can be mitigated by updating customers on the status of the process, regardless of the content of the update. In the experiment, customers perceived higher interactional justice and were more satisfied when they were informed about the replacement process's stockout and extended length. Hence, we argue that informing customers about issues in the service recovery offers noteworthy benefits (Daugherty *et al.*, 2019).

Limitations and future research

Our research is not free of limitations. Our study was conducted with a sample of US participants. Future studies should attempt to replicate our findings with a non-US sample to increase the generalizability of our findings. In addition, the research design was focused on a specialty product (Thirumalai and Sinha, 2005). Future investigations may assess the impact of other product types on customer outcomes.

We focused on procedural and interactional justice of service recovery in the context of product replacement, which constitutes only one of the outcomes of service recovery in product returns (Ahsan and Rahman, 2016), while being the most common (Narvar, 218). Future studies can analyze the impact of customers' evaluations of the distributive justice on other relevant outcomes, such as refund and store credits.

We developed the construct "service recovery resilience" on the premise that SCR is of key importance when addressing disruptions and disturbances in the process, which aligns with the business problem of this study (i.e. disturbances in the product replacement process), and the theoretical background. However, other SC capabilities can complement service recovery. For example, Richey *et al.* (2022) identified agility, flexibility, improvisation, adaptability and responsiveness. Thus, future research can look at how other SC capabilities complete service recovery. Relatedly, further investigations can utilize alternative theoretical backgrounds to analyze SCR and other SC capabilities in service recovery, such as complementarity theory to analyze the interaction among SC capabilities (Feizabadi *et al.*, 2021a), configuration theory to evaluate how the combination of SC capabilities impact SC performance (Feizabadi *et al.*, 2021b) and theoretical backgrounds to link SC capabilities to customers' outcomes (Gligor *et al.*, 2020); moreover, midrange theories proved narratives of causal processes and the conditions under which those capabilities generate outcomes as service recovery (Russo *et al.*, 2021). These characteristics make midrange theorizing a suitable approach to explore service recovery resilience to react in any disturbance event across the SC.

We investigated the impact of service recovery resilience on desirable customer-related attributes such as satisfaction and loyalty. Future studies should examine the impact of service recovery resilience on additional customer and firm-related performance metrics, such as customer referrals, customer positive word-of-mouth, firm operational performance or firm financial performance. Relatedly, in this study, we did not investigate service recovery resilience from the perspective of balancing efficiency and effectiveness. The retailer achieved customer satisfaction and loyalty, but future investigations could examine the boundary conditions of this improved service in terms of efficiency. In the same vein, some retailers might place a stronger emphasis on the cost component of providing service recovery solutions to customers. Similarly, much work remains to be undertaken specifically linking products returns/replaces to value-creation activities, for example, those included in a circular SC strategy (Hazen *et al.*, 2020).

We conducted an experiment to examine our hypotheses of interest. While this methodological approach offers a great deal of control, it does not include the realism afforded by other methodologies. As such, future studies should employ additional methodologies to

test the relationships explored in our study. For example, surveying customers based on their actual service recovery experiences may offer novel insights. Finally, qualitative interviews with customers may help uncover nuances of the service recovery process that are more difficult to capture with experimental data.

Finally, the manipulation of retailer's interactive effort was based on informative messages relative to the replacement process, representing only a type of communication mean used by retailers, though e-mails are the most common communication tool to inform consumers about the delivery status (Retail TouchPoints *et al.*, 2018). A particular challenge associated with this information flow is synchronizing with the recovery product flow. Specifically, the results suggest that offering a better service recovery process, from a reverse SC standpoint, is not enough if retailers are not sharing with customers the delivery status of their orders with appropriate information flow. Thus, more research is needed along this stream, for example, understanding the key role of retailers' presence on different social media platforms, thus offering more options for customers to connect with retailers (Ahsan and Rahman, 2016).

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Appendix 1

Experimental scenarios study 1

Instructions to participants

In this task, you will be provided with an online purchasing scenario followed by a product return scenario. After the scenario, you will be asked several questions about your purchasing preferences. Please read the questions carefully, and take as much time as needed.

Common module

Recent events have required you to work from home. You are currently using your laptop, which is outdated and does not allow you to efficiently work. Consequently, you want to buy a new laptop. After having compared several laptops, you have found the one that meets your requirements. The laptop is the NoteView 5, known for its fast performance, ultra-high-definition webcam and the 15.6-inch screen.

You decide to purchase the NoteView 5 from NotebookPoint.com, an online retailer specialized in selling desktop computers and laptops. On the landing page, NotebookPoint.com emphasizes the strengths of their service. Indeed, they promise to deliver orders in 3 business days and to help the customer with returns, replacement and repair if the customer is not satisfied with the purchase. You have never purchased from this retailer before.

After 3 business days, you receive the package with your laptop. However, upon starting the laptop for the first time, you realize there's a scratch on the screen, as well as issues with the Wi-Fi connection. Therefore, you decide to return the product and ask for a replacement with the same product. You need this laptop for work so you want it replaced as soon as possible.

The return policy reported on NotebookPoint.com states that product replacement may take up to 15 business days. A new product will be sent upon retailer's approval of return.

Experimental module

(1) Control experimental scenario

Because you need the laptop as soon as possible for your work, you decide to start the replacement procedure on the same day you have received it. You specify that the replacement is due to product defects. Three business days later, you receive an e-mail from NotebookPoint.com – the online retailer, confirming that they received your request and communicating to you the instructions for the replacement procedure and the pre-paid return label. The instructions report that the product replacement may take up to 15 business days. However, you wish the retailer would take less than 15 business days, as you really need a new laptop to fulfill your work commitments.

Because you need the new laptop to fulfill your work commitments, you send an e-mail to the retailer asking whether it is possible to find a quicker solution. The retailer replies that they will keep you updated relative to the new stocks of NoteView 5.

After 15 business days, you receive an e-mail from NotebookPoint.com, where the retailer specifies that new stocks of NoteView 5 are now available and one has been shipped to your address. The laptop arrives 5 business days later.

Once you open the package and start the laptop, you do not notice any defects. However, the product replacement process has severely delayed your work schedule.

(2) Treatment experimental scenario

Because you need the laptop as soon as possible for your work, you decide to start the replacement procedure on the same day you have received it. You specify that the replacement is due to product defects. Three business days later, you receive an e-mail from NotebookPoint.com – the online retailer, confirming that they received your request and communicating to you the instructions for the replacement procedure and the pre-paid return label. The instructions report that the product replacement may take up to 15 business days. However, you wish the retailer would take less than 15 business days, as you really need a new laptop to fulfill your work commitments.

Because you need the new laptop to fulfill your work commitments, you send an e-mail to the retailer asking whether it is possible to find a quicker solution. The retailer replies that they will keep you updated relative to the new stocks of NoteView 5.

After 2 business days, you receive another e-mail from NotebookPoint.com, where the retailer specifies that new stocks of NoteView 5 are now available in a store of its retail chain near your location and one has been shipped to your address from a local store. The laptop arrives the next day.

Once you open the package and start the laptop, you do not notice any defects. The product replacement process has not severely delayed your work schedule.

Appendix 2

Experimental scenarios study 2

Instructions to participants

In this task, you will be provided with an online purchasing scenario followed by a product return scenario. After the scenario, you will be asked several questions about your purchasing preferences. Please read the questions carefully, and take as much time as needed.

Common module

Recent events have required you to work from home. You are currently using your laptop, which is outdated and does not allow you to efficiently work. Consequently, you want to buy a new laptop. After having compared several laptops, you have found the one that meets your requirements. The laptop is the NoteView 5, known for its fast performance, ultra-high-definition webcam and the 15.6-inch screen.

You decide to purchase the NoteView 5 from NotebookPoint.com, an online retailer specialized in selling desktop computers and laptops. On the landing page, NotebookPoint.com emphasizes the strengths of their service. Indeed, they promise to deliver orders in 3 business days and to help the

customer with returns, replacement and repair if the customer is not satisfied with the purchase. You have never purchased from this retailer before.

After 3 business days, you receive the package with your laptop. However, upon starting the laptop for the first time, you realize there's a scratch on the screen, as well as issues with the Wi-Fi connection. Therefore, you decide to return the product and ask for a replacement with the same product. You need this laptop for work so you want it replaced as soon as possible.

The return policy reported on NotebookPoint.com states that product replacement may take up to 15 business days. A new product will be sent upon retailer's approval of return.

Experimental module

(3) Resilience control scenario – retailer's interactive effort control scenario

Because you need the laptop as soon as possible for your work, you decide to start the replacement procedure on the same day you have received it. You specify that the replacement is due to product defects. Three business days later, you receive an e-mail from NotebookPoint.com – the online retailer, confirming that they received your request. You wish the retailer would take less than 15 business days, as you really need a new laptop to fulfill your work commitments.

Because you really need the new laptop to fulfill your work commitments, you send an e-mail to the retailer asking whether it is possible to find a quicker solution.

After 15 business days, you receive an e-mail from NotebookPoint.com, where the retailer specifies that new stocks of NoteView 5 are now available and one has been shipped to your address. The laptop arrives 5 business days later. Once you open the package and start the laptop, you do not notice any defects. However, the product replacement process has severely delayed your work schedule.

(4) Resilience control scenario – Retailer's interactive effort treatment scenario

Because you need the laptop as soon as possible for your work, you decide to start the replacement procedure on the same day you have received it. You specify that the replacement is due to product defects. Three business days later, you receive an e-mail from NotebookPoint.com – the online retailer, confirming that they received your request and communicating to you the instructions for the replacement procedure and the pre-paid return label. The instructions report that the product replacement may take up to 15 business days. However, you wish the retailer would take less than 15 business days, as you really need a new laptop to fulfill your work commitments.

Because you need the new laptop to fulfill your work commitments, you send an e-mail to the retailer asking whether it is possible to find a quicker solution. The retailer replies that they will keep you updated relative to the new stocks of NoteView 5.

After 15 business days, you receive an e-mail from NotebookPoint.com, where the retailer specifies that new stocks of NoteView 5 are now available and one has been shipped to your address. The laptop arrives 5 business days later. Once you open the package and start the laptop, you do not notice any defects. However, the product replacement process has severely delayed your work schedule.

(5) Resilience treatment scenario – Retailer's interactive effort control scenario

Because you need the laptop as soon as possible for your work, you decide to start the replacement procedure on the same day you have received it. You specify that the replacement is due to product defects. Three business days later, you receive an e-mail from NotebookPoint.com – the online retailer, confirming that they received your request. You wish the retailer would take less than 15 business days, as you really need a new laptop to fulfill your work commitments.

Because you really need the new laptop to fulfill your work commitments, you send an e-mail to the retailer asking whether it is possible to find a quicker solution.

After 2 business days, you receive another e-mail from NotebookPoint.com, where the retailer specifies that new stocks of NoteView 5 are now available in a store of its retail chain near your location and one has been shipped to your address from a local store. The laptop arrives the next day. Once you open the package and start the laptop, you do not notice any defects. The product replacement process has not severely delayed your work schedule.

(6) Treatment experimental scenario – retailer's interactive effort treatment scenario

Because you need the laptop as soon as possible for your work, you decide to start the replacement procedure on the same day you have received it. You specify that the replacement is due to product defects. Three business days later, you receive an e-mail from NotebookPoint.com – the online retailer, confirming that they received your request and communicating to you the instructions for the replacement procedure and the pre-paid return label. The instructions report that the product replacement may take up to 15 business days. However, you wish the retailer would take less than 15 business days, as you really need a new laptop to fulfill your work commitments.

Because you need the new laptop to fulfill your work commitments, you send an e-mail to the retailer asking whether it is possible to find a quicker solution. The retailer replies that they will keep you updated relative to the new stocks of NoteView 5.

After 2 business days, you receive another e-mail from NotebookPoint.com, where the retailer specifies that new stocks of NoteView 5 are now available in a store of its retail chain near your location and one has been shipped to your address from a local store. The laptop arrives the next day. Once you open the package and start the laptop, you do not notice any defects. The product replacement process has not severely delayed your work schedule.

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