

# **FROM DELIVERY TO DELIGHT: EXAMINING THE IMPACT OF LOGISTICS SERVICE QUALITY ON CUSTOMER SATISFACTION IN SOCIAL COMMERCE**

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## **ABSTRACT**

Friends-to-friend (Fr2Fr) social commerce (SC) has recently caught the interest of e-tailers and consumers. Fr2Fr SC offers the convenience of online shopping and a real-time trust-based shopping experience with the seller. Logistics service quality (LSQ) is critical for Fr2Fr SC sellers to meet customer expectations and satisfaction. More precisely, in Fr2Fr SC, there will be a strong 'relational' aspect of LSQ and the 'operational' aspect that was absent in the earlier version of online commerce and SC. Although the extant literature has primarily examined the motivations for Fr2Fr SC adoption and use, how the holistic LSQ affects customers' purchase behaviour remains to be determined. Based on the stimulus-organism-response (S-O-R) model, this study investigates the impact of operational LSQ and relational LSQ on customer experience and satisfaction. This study conducted an offline survey of 432 Fr2Fr SC users and analyzed the data using SmartPLS. The results show that operational LSQ (condition, timeliness, and availability) and relational LSQ (assurance, responsiveness, and empathy) positively relate to customer experience, influencing customer satisfaction in Fr2Fr SC. Furthermore, the study confirms the mediating effect of customer experience on the relationship between LSQ and customer satisfaction.

## **INTRODUCTION**

Social commerce (SC) has emerged as a transformative trend in the online purchasing landscape, enhancing the shopping experience through social media platforms. SC integrates real-time social interactions with online shopping (Huang & Benyoucef, 2013; Marshall et al., 2012; Molinillo et al., 2021; Wang & Zhang, 2012), contrasting with traditional internet-based shopping (Dhaigude & Mohan, 2023), which is more private and individualized. A new variant of SC, friend-to-friend (Fr2Fr) social commerce, has gained traction, especially in developing and emerging markets (Su et al., 2021).

Fr2Fr SC is characterized by transactions within established social networks of friends and acquaintances, where users largely self-regulate interactions (Zhang et al., 2014). For instance, a WhatsApp group initiated by a known friend to sell third-party products exemplifies Fr2Fr SC. While all group members may not know each other personally, the group administrator (seller) is a trusted direct or indirect contact. This trust-based network forms the foundation of Fr2Fr SC, setting it apart from other forms of SC, such as video-based commerce or group buying, which lack this relational aspect. By leveraging existing social connections, Fr2Fr SC has successfully brought first-time online shoppers into the digital economy, particularly in rural areas, reducing concerns around payment security, product quality, and delivery reliability.

Especially in the emerging and underdeveloped parts of the world, Fr2Fr SC is a great strategy. Approximately 60% of people on the planet utilize social media. The average daily consumption is 2 hours and 24 minutes (Global Web Index, 2023). Emerging markets like India have 900 million internet users, making it the second-largest online market after China (Statista, 2023a). Various consulting reports in the e-tailing space have indicated that SC is the future of Indian online commerce as social media plays a vital role in decision-making and stimulates Indians' tastes and preferences on a day-to-day basis (Bhandari, 2023). There are more than 900 million active online users, and approximately 200 million purchases online. Therefore, SC seeks real opportunities to reach online users who are not online buyers. These people are online for approximately four to five hours daily, spending time in chat groups, on YouTube, FB games, music, networking, and other social platforms. However, they are not buying (BAIN-Sequoia report of 2020).

Various issues impede these users from online shopping, and the SC, especially the Fr2Fr SC, seeks to capitalize on this opportunity by building trust and relationships and driving online sales. For example, Meesho, an Indian unicorn, succeeded in the SC space by riding the Fr2Fr SC wave and introducing the reseller program. On Meesho, there are 13 million-plus resellers, who account for more than 25% of total sales by reselling products on their social networks (Crunchbase, 2022). Surprisingly, 71% of total visitors came from tier 3 cities in 2021, tapping the bottom-of-the-pyramid market by building trust and leveraging network-based online selling (Mint, 2021). Meesho has strategically implemented the Fr2Fr SC format, in which the seller is a primary or secondary contact for customers, handling critical tasks in the pre-, during, and post-purchase phases, offering a unique shopping experience.

This study focuses on logistics service quality (LSQ) in the context of Fr2Fr SC, a dimension often explored in traditional e-commerce but understudied in SC, particularly its relational aspects. LSQ in traditional e-commerce primarily emphasizes operational efficiency—delivery speed, product condition, and product availability (Jain et al., 2021; Melacini et al., 2018). However, in Fr2Fr SC, the relational dimension of LSQ becomes equally important. Fr2Fr SC requires operational excellence, trust, relationship-building, and personalized service, given the nature of interactions among friends and acquaintances. This relational LSQ can serve as a key differentiator in Fr2Fr SC, enhancing customer experience and satisfaction through stronger emotional connections and trust, which are less pronounced in more anonymous, transaction-driven forms of online shopping.

Despite the increasing significance of LSQ in Fr2Fr SC, current literature has largely overlooked this relational dimension, focusing instead on broader SC factors such as dual-role trust, swift guanxi, knowledge sharing, product risk, social ties, user experience, network dynamics, social climate, selling/network platform, social support, recommendation and customer engagement (Cao et al., 2021; Hsu et al., 2022; Su et al., 2021; Wang, & Chang, 2013). To fill this gap, our study investigates the dual aspects of LSQ: operational and relational, and their impact on customer experience and satisfaction in Fr2Fr SC. Specifically, we propose that customer experience mediates the relationship between LSQ and customer satisfaction, offering a novel perspective on how these elements interact in Fr2Fr SC.

In doing so, our research makes two significant contributions to the SC literature. First, it extends the concept of LSQ to include relational dimensions critical in the Fr2Fr SC environment. Second, it explores how the interplay between operational and relational LSQ influences customer experience and satisfaction, shedding light on a crucial yet understudied area of SC. Specifically, this study has two questions:

**RQ 1:** *How does operational and relational logistics service quality impact customer experience and satisfaction in friend-to-friend social commerce?*

**RQ 2:** *How does customer experience impact the logistics service quality and customer satisfaction in friend-to-friend social commerce?*

Building on the S-O-R framework as a theoretical base, this study makes two theoretical advancements to the Fr2Fr SC literature. First, instead of measuring the operational side of LSQ as an overall LSQ, we extend LSQ to include a relational LSQ and investigate how LSQ impacts customer experience and satisfaction in Fr2Fr SC. Second, this study broadens customer experience and LSQ research by exploring how LSQ and customer satisfaction relate to customer experience. Specifically, we argue that customer experience mediates the relationship between LSQ and customer satisfaction in Fr2Fr SC.

The paper has been divided into various sections. The following section is a literature review exploring the literature and research gaps. Section three deals with hypotheses and a research model focusing on the operational and relational LSQ associated with customer experience and satisfaction. Section four elaborates on the sample, data analysis, results and findings. Section five presents an account of the theoretical and practical implications of the study, and finally, section six concludes the study by stating the limitations and directions for future research.

## LITERATURE REVIEW

### ***Friend-to-Friend Social Commerce***

SC is the result of combining social media with e-commerce characteristics. SC is a virtual shopping experience similar to physical shopping in terms of fun and social interaction. The experience is like visiting a shop with friends/family and interacting with a salesperson online. Unlike online commerce, which enables sales from company to consumer, Web 2.0-enabled social commerce enables consumer interactions. (Lin et al., 2017; Wu et al., 2023). As per Yadav et al. (2013), '*SC is an exchange-related activity that occurs in, or is influenced by, an individual's social network in computer-mediated social environments, where the activities correspond to the need recognition, pre-purchase, purchase, and post-purchase stages of a focal exchange*'. Customers recommend, comment, review and review products/services on SC (Zhao, 2019). It offers customers other people's personal experiences with the product and/or service (user-generated content), which helps them make informed purchasing decisions (Park, Lee & Han, 2007). Customers believe other customers' reviews are more trustworthy and credible than the seller's provided content (Dou et al., 2012; Rotchanakitumnuai & Speece, 2023).

As per Accenture's (2022) report, SC has three models that engage in three different ways: content-driven, experience-driven, and network-driven, as explained below.

*Content-Driven.* Influencers, brands, and individuals generate unique content to promote engagement, action and discovery. For example, social media users find new items and experiences through in-app stores on Pinterest, shoppable posts, TikTok, YouTube, Instagram, Facebook, etc. It comprises one-to-many interactions with influencers/brands via pre-recorded videos/live streams. The video model, for example, is adopted by Indian businesses such as Bulbul and Simsim.

*Experience Driven.* These platforms allow for purchasing as part of an overall experience, mostly live streaming, but may also involve AR/VR or games. "Shop with friends" from Obsess lets groups shop together in virtual stores (Edward, 2021). Social reselling, such as the model used by Meesho, Glowroad, and Shop101, conversation or chat-related commerce, and group buying, as enabled by DealShare and Mall91, are also popular.

*Network Driven.* The Fr2Fr SC is an example of a network-driven type of SC. In the network-driven model, people rely on social networks to purchase/sell products and services. They are forming social groups on social media to purchase. For example, Pinduoduo successfully used a network-driven model in China to secure bulk discounts and now has more active customers than Alibaba 10. The base of the network-driven model is leveraging social connections to increase sales and profit from commissions. India's Meesho now has 13 million+ entrepreneurs who use the network-driven Fr2Fr SC to connect with their customers on social media platforms such as WhatsApp (Singh, 2021). For example, Facebook Marketplaces, Instagram business, and WhatsApp business enable online commerce for buyers and sellers.

The Fr2Fr commerce has deep roots in the evolution of business and likely existed since humanity began trade-related activities (Granovetter, 1985). Tapping social networks for commercial activities (buying and selling things) is a widely accepted phenomenon (Han & Kim, 2018; Hernando et al., 2022; Riaz et al., 2021; Shin, 2013; Xq et al., 2021). The research on Fr2Fr commerce has attracted the attention of the global research community (Agnihotri et al., 2012; Bi & Zhang, 2022; Li et al., 2018; Su et al., 2021). Fr2Fr commerce is a term for informal economic transactions between individuals, typically friends, acquaintances, or people within a personal network. This type of commerce is often based on trust, personal relationships, and mutual benefit. F2F commerce can take various forms, such as peer-to-peer (P2P) recommendation (Hu et al., 2019; Nadeem et al., 2015; Schultze et al., 2007), bartering (Williams, 1996), group buying/collaborative consumption recommendations and referrals (Hossain et al., 2021; Sharma & Klein, 2020). Johnson and Ross (2015) highlighted the adverse effects of using personal relationships for purchases, such as limited recourse, weakened trust, and strained relationships. These outcomes can influence customer behaviour, impacting complaints, satisfaction, and loyalty.

Fr2Fr commerce has several advantages, including building and strengthening personal relationships, fostering trust, and often leading to more flexible and informal arrangements. However, it also has limitations, including potential misunderstandings, disputes, and the need for clear communication and boundaries to maintain healthy friendships. With the advent of technology, Fr2Fr commerce evolved into Fr2Fr SC, where transactions occur through social media platforms, online marketplaces, and apps that enable friends and acquaintances to connect to buy, sell, and share goods and services. These platforms provide a convenient way to expand the scope of Fr2Fr SC while maintaining the personal connection between individuals.

The evolution of Friend-to-Friend Social Commerce (Fr2Fr SC) is deeply rooted in peer-to-peer (P2P) interactions, where trust and social capital play a crucial role in shaping consumer behaviour. Unlike traditional e-commerce, Fr2Fr SC integrates social proof mechanisms, digital reputation systems, and interpersonal trust to facilitate online transactions (Sundararajan, 2014; Einav et al., 2016). Studies indicate that user-generated content, peer endorsements, and relational bonds significantly impact purchase decisions, reinforcing the importance of relational service quality in these contexts (Hajli et al., 2017). Additionally, trust-building mechanisms such as peer reviews, shared networks, and community-driven engagement enhance consumer confidence in informal marketplaces (Resnick et al., 2000; Ba & Pavlou, 2002). Su et al. (2021) have explored the dual-role-based trust model in Fr2Fr SC and how guanxi and role-based trust interact to support

social media users' friend-engagement behaviour. The studies by Buttner and Goritz (2008) and Wu and Tsang (2008) investigated the influence of knowledgeable friends on purchase decisions and found it significant. At the same time, Hajli (2020) discovered the positive effect of e-WOM and its influence on purchase decisions in a social network-driven sales context. Hu et al. (2022) argued for the importance of social support in sustaining social intention in Fr2Fr sales. People place greater trust in their social media friends than companies, which explains the effectiveness of friends and relationships in purchasing decisions (Hajli, 2020; Hu et al., 2022; Jin & Ryu, 2020; Zhao et al., 2019).

Moreover, Fr2Fr SC is gaining prominence in emerging markets, where mobile penetration and informal trade networks drive commerce adoption. Research highlights that financial inclusion, social trust, and community-driven commerce are enablers for Fr2Fr SC growth, particularly in regions with infrastructural constraints (Einav et al., 2016). In Fr2Fr SC, Logistics Service Quality (LSQ) encompasses operational and relational dimensions, each influencing customer experience and satisfaction differently. While traditional LSQ literature focuses on delivery speed, order accuracy, and service reliability (Bienstock et al., 1997; Mentzer et al., 2001), relational LSQ, comprising assurance, responsiveness, and empathy, is more relevant in network-driven commerce models where sellers and buyers share pre-existing social connections (Dhaigude et al., 2024). Studies suggest that real-time communication, flexible return policies, and personalized support are critical factors that enhance relational LSQ (Tang et al., 2024). Customers consider operational efficiency and relationship when evaluating delivery services, emphasizing trust, communication, and social impact in online retailing (Ta et al., 2025). However, a significant research gap remains in understanding how holistic LSQ, particularly its relational components, influences customer loyalty and long-term engagement in Fr2Fr SC.

### ***Logistics Service Quality and Social Commerce***

Scholars have opined that e-fulfilment, especially the LSQ-related aspects of the SC, will be a challenging task and needs to be studied systematically (Changchit et al., 2021; Shin et al., 2020). In SC, a relational aspect of LSQ will be absent in the earlier version of online commerce. The backbone of delivering satisfying and long-lasting customer relationships is high service quality (Katarachia, 2013). Scholars have argued that LSQ is a crucial business aspect that affects customer experience, satisfaction, and loyalty (Bienstock et al., 1997; Jain et al., 2021; Mentzer et al., 2001; Rao et al., 2011).

LSQ construct has evolved in the last 25 years and is crucial for e-tailing (Dhaigude & Mohan, 2023a). Mentzer et al. (1989) originated and studied the term "logistics service quality". They argued that customers' opinions of LSQ are also crucial factors, alongside physical distribution services. Timeliness, availability, and quality are the three dimensions that make up LSQ, according to Mentzer et al. (1989). Bienstock et al. (1997) emphasized the importance of service quality in the B2B context and developed a new measure called the physical distribution service quality (PDSQ). Grönroos (2001) and Mentzer et al. (1997) classified LSQ under customer service quality and PDSQ. Operational LSQ and relational LSQ were proposed by Davis (2006). Operational LSQ concerns perceptions of the service provider's logistics activities, while relational LSQ concerns the customer's knowledge and understanding of their needs. Scholars have stressed the importance of relational LSQ and urged us to research it more, especially in online shopping (Jain et al., 2021).

LSQ has been estimated and studied across various dimensions and forms of retailing, from traditional brick-and-mortar to modern multi-channel retailing (Cotarelo et al., 2021). LSQ

comprises operational and relational performance (Daughtrey et al., 1998; Stank et al., 2003). Bouzaabia et al. (2013) and Davis (2006) examined Operational and relational LSQ and found that operational LSQ leads to loyalty, whereas relational LSQ leads to satisfaction. Perceptions of the seller's logistical operations that led to steady quality, productivity, and efficiency are referred to as operational LSQ. In comparison, relational LSQ perceptions are those of logistics operations that aid businesses in forging stronger ties with their clients; firms can better understand customers' expectations and requirements and efficiently address those needs through superior services.

Operational LSQ has been well explored in various online and offline shopping contexts, such as business-to-consumer (B2C) (Grant & Phillip, 2014), mobile commerce (Liu et al., 2020), and business-to-business (B2B) (Gaudenzi et al., 2020; Russo & Conference, 2017). Operational LSQ contributes to customer satisfaction (Thirumalai & Sinha, 2005), loyalty (Bouzaabia et al., 2013; Cotarelo et al., 2021), experience (Gaudenzi et al., 2020), word-of-mouth (Giovanis et al., 2013), and other performance benefits. In contrast, relational LSQ focuses on aspects like assurance, responsiveness, and empathy during the transaction. Customer interaction with the seller is the crux of relational LSQ, grounded in trust and relationship management (Gil-Saura & Ruiz-Molina, 2011). Published research in online shopping has yet to explore the holistic LSQ construct. More specifically, the focus was on operational aspects only, and the relational aspect of LSQ has been ignored.

### **Stimulus-Organism-Response (S-O-R) Framework**

According to Mehrabian and Russell's (1974) stimulus-organism-response (S-O-R) model, environmental inputs impact emotions and subsequent behavior. This theoretical framework explains how internal physiological and psychological reactions to external stimuli affect behavioral outcomes. The stimulus is externally driven; the organism serves as the intermediary, and the response is the outcome of the stimulus and the organism's direct or indirect interaction. These three stages are closely related and provide a structured way to examine customer behavior.

Extending the SOR model to the context of Fr2Fr SC, we argue that relational LSQ (assurance, responsiveness, and empathy) and operational LSQ (timeliness, availability, and product condition) act as key stimuli that shape the customer experience (organism), which in turn influences customer satisfaction (response). Given the informal and trust-dependent nature of Fr2Fr SC, relational LSQ becomes exceptionally crucial. Unlike traditional e-commerce, Fr2Fr SC interactions are often built on pre-existing social ties and are informal, making trust and relational dynamics more significant. For instance, an online interaction with a Fr2Fr SC seller who is courteous, helpful, and kind results in a pleasant experience and impacts the customer's likelihood of revisiting. Similar to this in Fr2Fr SC, the seller is available to provide order delivery information to the customer's convenience, as per their requirements, which leads to a positive experience and a quality perception, resulting in satisfied customers.

Assurance is important in Fr2Fr SC because customers trust the seller's credibility, especially in informal transactions without strict platform guarantees. If a seller seems reliable, customers feel more confident about their purchase. Responsiveness also matters, as Fr2Fr SC often involves real-time social media or messaging apps. Quick replies from sellers build trust, reduce doubts, and make the shopping experience smoother. Empathy plays a key role, too, as sellers often engage with buyers personally, understanding their needs and preferences. This personal touch helps create a stronger connection and leads to higher customer satisfaction. Similarly, operational LSQ (e.g., providing accurate delivery information and fulfilling orders as

promised) ensures seamless transactions, reinforcing a positive experience that leads to satisfaction and behavioural responses such as repeat purchases and positive word-of-mouth.

Previous research (Nunthiphatprueksa, 2017; Tian et al., 2022) has shown that service quality can act as a stimulus, leading to favorable outcomes like repurchase intention and positive WOM. Our study expands on this by highlighting the importance of relational LSQ in Fr2Fr SC, where friendly interactions, trust, and personal relationships make an even bigger impact on customer experience and satisfaction.

## RESEARCH MODEL AND HYPOTHESES

### *Customer Experience and Customer Satisfaction*

In Fr2Fr, the SC customer experience encompasses all the interactions and touchpoints a customer has with the SC seller throughout their journey, from initial awareness to post-purchase support. Customer experience refers to the overall impression and interaction a customer has with a Fr2Fr SC seller throughout the shopping journey, from initial enquiry to purchase and post-purchase support (Grewal et al., 2009; Rose et al., 2012; Dhaigude & Bijuna, 2023b; Akhter, 2010). Customer experience includes factors such as communication, responsiveness, social media app usability, product quality and overall interaction quality (Gentile et al., 2007). Customers who have a positive experience in Fr2Fr SC find discovering, evaluating, purchasing, and receiving the product enjoyable, efficient, and hassle-free. Positive experiences are often associated with user-friendly interfaces, helpful customer support, timely delivery, and high-quality products, leading to customer satisfaction (Becker & Jaakkola, 2020; Ejaz et al., 2013; Kumar et al., 2022).

In the retailing context, scholars like Oliver et al. (1997), Yu and Dean (2001), Sukhu et al. (2019), and Lang and Hyde (2013) have indicated that an important factor in getting positive WOM and customer satisfaction is positive emotions. Dabholkar and Shend (2012) highlighted that positive customer satisfaction leads to repurchase intention, whereas Srivastava and Rai (2013) found that customer satisfaction leads to loyalty. Korkofingas (2010) and Dabholkar and Thorpe (1994) also highlighted the effect of customer satisfaction on post-purchase behaviour (future choice/repurchase intention). Zarantenello and Schmitt (2000), Pei et al. (2020), and Kim and Kim (2022) argued that experience can enhance customer attention, brand reliability, and customer satisfaction. A positive customer experience in Fr2Fr SC can significantly enhance customer satisfaction by ensuring customers not only receive high-quality products or services but also have a smooth, enjoyable journey throughout their interactions with sellers on Fr2Fr SC platforms (Tajvidi, Wang, Hajli, & Love, 2021). We hence hypothesize the following:

**H1.** *Customer experience in friend-to-friend social commerce is positively related to customer satisfaction.*

### *Operational LSQ and Customer Experience*

The operational LSQ plays a crucial role in shaping the customer experience in online shopping. It encompasses all the processes involved in receiving, processing, packing, shipping, and delivering customer orders accurately and on time. Seamless and efficient operational LSQ processes can significantly enhance the overall customer experience, while mistakes or delays can lead to dissatisfaction and lost customers. The operational LSQ comprises three factors: availability, timeliness, and condition (Jain et al., 2021). Availability denotes the inventory capabilities (Xing & Grant, 2006). Meanwhile, timeliness refers to the prompt delivery of

products/services, and condition relates to the product ordered being delivered in good condition (Koufteros et al., 2014).

Like any form of online shopping, in Fr2Fr SC, the consumer anticipates the product's availability to meet their requirements, receiving the correct product in good condition within the agreed delivery time frame. Because customers cannot physically view product availability, Fr2Fr SC sellers must guarantee product availability on their selling platform and through communication. There should be synergy between the operational LSQ's availability and the parent company that the SC seller represents (E.g., Meesho, Flipkart). Any product disparity or shortage at the parent firm's fulfilment centre leads to late delivery. On the other hand, if the product is available, the customer's order can be filled immediately. A tracking system may enhance customer experience and satisfaction, as customers may be pleased to receive a notification that their orders have been packaged and dispatched.

Timely delivery is the second operational LSQ factor directly related to customer experience. To boost the customer experience, Fr2Fr SC players must communicate and ensure product delivery on the promised timeline to their consumers. Sometimes, customers order products for special occasions and require delivery on specific dates (e.g., anniversaries, birthdays, festivities), and the SC seller is aware of this. If the product is not delivered on time, the customer considers it of little value and has an unfavourable experience. Griffis et al. (2012) highlighted that customer experience and satisfaction are significantly influenced by timely delivery. A firm can enhance the customer experience and increase loyalty behaviour if it can deliver the product on time (Murfield et al., 2017). As a result, timely delivery is critical in creating an enjoyable customer experience. As a result, Fr2Fr SC players track order shipments and provide timely order updates to customers.

Finally, the condition aspect of operational LSQ deals with the critical aspect of customer experience known as the moment of truth. Customers expect the product to be in good condition and free of damage; this makes the shipment's condition crucial (Jain et al., 2021). The ordered product may be damaged during transportation, packaging, or any other stage before delivery. Paying attention to the LSQ's 'condition' component helps Fr2Fr SC sellers improve the customer experience, positive word-of-mouth, favourable review intentions, brand awareness, and customer satisfaction, while reducing return/exchange behaviour, resulting in improved economic and environmental performance. Any deviation in condition will result in a negative experience for both the customer and the seller at multiple levels, adversely impacting future business prospects (Barari et al., 2020; Kemppainen & Frank, 2019). The existing literature indicates that product condition has a positive impact on the customer experience (Koufteros et al., 2014).

Overall, in Fr2Fr SC, the availability, timeliness, and condition aspects of operational LSQ are related to cognitive, social, and emotional aspects of customer experience. Therefore, we hypothesize:

**H2.** *Operational LSQ is positively related to customer experience in friend-to-friend social commerce.*

### ***Relational LSQ and Customer Experience***

Relational LSQ represents market-oriented factors that involve the Fr2Fr SC seller's capacity to understand customer requirements through relationships. Fr2Fr SC tends to be more progressive in identifying the customer needs and wants and creating a trust-based relationship. Davis (2006) stated that relational LSQ helps a firm create closer bonds with customers by

understanding their expectations of the firm's relational activities. In the Fr2Fr SC context, the relational LSQ comprises assurance, responsiveness, and empathy, which directly affect the customer experience.

The assurance aspect of relational LSQ in Fr2Fr SC refers to an SC seller's ability to instill confidence and trust in customers that they will receive high-quality service. In the context of Fr2Fr SC, assurance plays a critical role in shaping the customer experience. When customers feel assured that they are dealing with a reliable and trustworthy seller, their overall shopping experience will likely be more positive, leading to customer satisfaction and potentially repeat business (Meyer & Schwager, 2007; Palmer, 2010). The assurance addresses important factors such as security, customer support, transparency, quality guarantees, ethical conduct, platform design, and return policies that directly affect the customer experience (Bauer et al., 2006; Sorooshian et al., 2013). In the context of Fr2Fr SC, trust is the base of the transaction. Customers need assurance that the sellers they encounter on social media platforms are legitimate and reliable (Choi & Kim, 2018). Factors such as transparent business information (Chatterjee & Datta, 2008), clear product descriptions, and positive customer reviews create a positive experience.

Responsiveness refers to how seriously customer feedback is taken and how long it takes SC vendors to respond to customer requests (Zeithaml, 2000; Adivar et al., 2019). The interactive aspect of Fr2Fr SC enables customers to ask questions and receive prompt responses from vendors, resulting in a deeply personal relationship between them (Fan et al., 2019; Lin et al., 2018). The responsiveness of Fr2Fr SC vendors, in particular, is recognized as a key aspect of achieving successful service quality and customer experience (Palese & Usai, 2018; Yen & Lu, 2008). Timely, helpful responses to enquiries are likely to reduce uncertainty and improve customer interaction with the Fr2Fr SC seller (Schendzielarz et al., 2022).

Empathy is linked to the effectiveness of interpersonal communication (Mentzer et al., 2001; Devaraj, Fan & Kohli, 2002) and to the amount of details/information provided to customers (Mentzer et al., 1997; Emerson & Grimm, 1996). Empathy is the ability of the Fr2Fr SC seller to comprehend the customer's point of view and sentiments during service exchanges (Markovic et al., 2015; Hwang & Kim, 2016; Delpechitre et al., 2019), which leads to a positive customer experience and emotions. Empathy is vital in recognizing and satisfying customer requirements (Markovic et al., 2015). The most significant factor in a positive customer experience and satisfaction is the ability of Fr2Fr SC seller(s) to understand customers' emotions and expectations and react accordingly (Zorfas & Leemon, 2016; Burns & Neisner, 2006). An empathic service provider recognizes the needs of the customer, adapts their behaviour and provides personalized support to a particular customer (Wieseke et al., 2012), which helps them get higher customer satisfaction, favourable customer experience and a long-lasting relationship (Agnihotri & Krush, 2015; Itani & Inyang, 2015). Hence, in light of the support from the above literature review, it is asserted that, in Fr2Fr SC, the assurance, responsibility, and empathy aspects of relational LSQ relate to the cognitive and emotional aspects of the customer experience. We hypothesize the following:

**H3.** *Relational LSQ is positively related to customer experience in friend-to-friend social commerce.*

### ***Customer Experience as a Mediator***

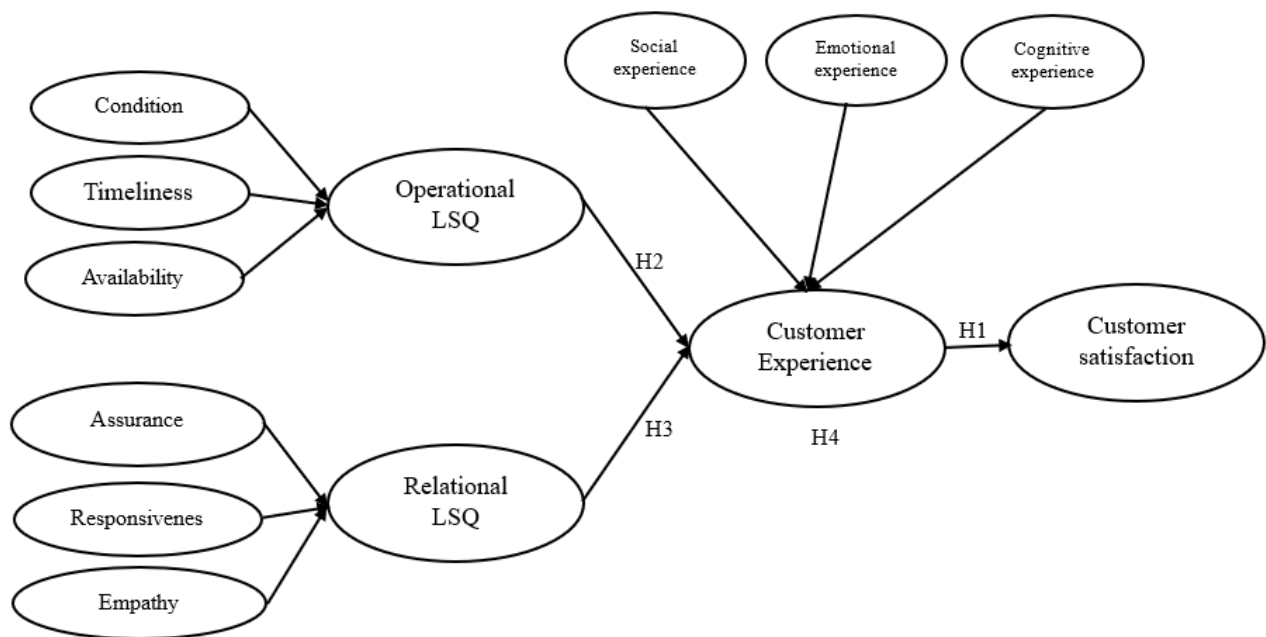
Mehrabian and Russell (1974) proposed that intentions or behaviours emerge as a result of an organism's action, activated by an external stimulus. As a result, a response emerges that

comprises intention and behaviour as functions of the external stimulus and the impacted organism. Furthermore, published studies have indicated that an organism could mediate the stimulus-response relationship (Cheng et al., 2020). A broader view of Schmitt, Brakus, and Zarantonello (2015) states that every service exchange, regardless of its nature/form, creates a customer experience. Based on this argument, in this study, the LSQ offered by Fr2FR SC seller leads to customers' experience. Furthermore, based on the S-O-R model, scholars have stated that emotions (customer experience) affect behaviours (customer satisfaction), Store atmosphere, and purchasing behavior (Donovan et al., 1994). Combining these two arguments and the S-O-R model thesis, we argue that the path through which LSQ impacts customer satisfaction is routed through the customer experience. Stimulated by the LSQ offered by the Fr2FR SC seller, customers' experience of SC shopping increases customer satisfaction. Along similar lines, scholars have used service quality like e-service quality, e-fulfilment quality, and PDSQ as external stimuli and customer experience say cognitive, affective and social emotions as mediators and finally, the purchase intentions and customer satisfaction as response variable in online shopping (Jain et al., 2021; Türkdemir et al., 2023). Based on the above arguments and the S-O-R model, we argue that LSQ acts as a stimulus, leading to the customer experience as the organism and ultimately to customer satisfaction as the response. Therefore, we propose the following hypothesis:

**H4.** *Customer experience in friend-to-friend social commerce mediates the relationship between the LSQ and customer satisfaction.*

In summary, Figure 1 depicts the conceptual framework proposed by this study.

**Figure 1**  
**Conceptual Model**



## **DATA, METHODS, AND ANALYSIS**

### ***Item Measurement***

This study has used scales from published literature in leading business and management journals that have been widely employed in similar studies globally, including in India (Busalim & Ghabban, 2021; Tandon, 2021; Mohapatra et al., 2024; Attar et al., 2021; Renming et al., 2024). The adaptation of these scales for our study follows the methodology outlined in the published literature (Van Teijlingen & Hundley, 2001; Thabane et al., 2010; DeVellis & Thorpe, 2021; Beaton et al., 2000), and we have taken great care in administering the survey. Refer to Appendix A for more details on the measurement scales.

The questionnaire was converted into a couple of local languages with the help of experts, and pilot tests were conducted to refine the instrument before rolling out the survey. The face validity of the questionnaire was conducted using the experts and academicians. Modifications were made to the few questions to suit the context. After this the questionnaire was tested using the pilot study. The pilot study included 50 Fr2Fr SC users and 11 subject matter experts to evaluate the questionnaire's suitability and applicability. A seven-point Likert scale was used to evaluate each construct. The demographic details (Appendix B) ensure that the pilot study sample is sufficiently diverse and representative of the broader SC consumer base of India. However, based on pilot study feedback, we made slight modifications to some questions to enhance clarity. These refinements improve readability without altering the core intent of the questions.

### ***Sampling and Data Collection***

The data was collected from the Fr2Fr SC users of India. More precisely, the study was conducted across the central, western, and northern sides of India, where the Fr2Fr SC is growing at a faster pace (Statistica, 2021). India's vast and diverse geography and demographics significantly influence consumer behaviour and experiences. With a population exceeding 1.4 billion, comprising over 2,000 ethnic groups and a wide array of languages and religions (Statista, 2023b), the country's diversity gives rise to distinct regional variations in culture, demographics, and consumer preferences. Broadly, India is categorized into four regions: North, South, East, and West (e.g., Bharadwaj, 1982; Ramaswamy, 2007; Dev, 2024). This study focuses on the central, western, and northern regions, each of which embodies unique characteristics that contribute to consumer behaviour.

The sampling strategy was deliberately designed to minimize bias by ensuring coverage of diverse regions, thus providing a pan-India perspective. This approach enhances the comprehensiveness and representativeness of the data set, capturing a wide range of perspectives from different parts of the country. As SC continues to grow rapidly across India (Business Insider India Report, 2021; Consultancy, 2024), a pan-India sample was crucial to accurately reflect the evolving behaviour and preferences of SC consumers nationwide.

The data collection process followed a mixed method. Most of the data were collected through face-to-face interactions with SC consumers. The offline survey administration was an enjoyable and excellent learning experience. Initially, we contacted several SC sellers, who provided us with the contact details of SC consumers. Using snowball sampling, we compiled a list of SC consumers across four regions of India. We shared the questionnaire online but received a low response rate, with responses barely reaching double digits despite multiple requests. As a result, we decided to visit the field and collect data in person. This approach aligned with the SC concept, as consumers prefer interacting with sellers when purchasing. Similarly, they may prefer

engaging with the researcher while completing the survey. While the field visits increased the time and cost of the survey, they yielded valuable qualitative and quantitative data. This method is consistent with research by scholars such as Shi et al. (2023), Wiyata et al. (2024), Ji et al. (2022), and Çeliker et al. (2024), who have studied consumer behaviour in similar contexts.

Confirmatory factor analysis (CFA) was conducted to examine the measurement model and test hypotheses. A qualifying question, "Did you purchase something from a member of your social media group using social media like WhatsApp, Facebook, Youtube, Instagram, Telegram, etc.?" was included to ensure the quality of the responses and data. Four hundred fifty responses were captured over four months, from January 2023 to May 2023. We eliminated respondents whose responses deviated by at least 2.5 standard deviations from the cell mean (Su et al., 2021). In the end, 432 valid questionnaires were evaluated. In Table 1, the samples' demographic data is displayed.

**Table 1**  
**Respondent Demographic Information**

Characteristics	Item	Respondents	Frequency (%)
Gender	Male	198	46%
	Female	234	54%
Age	18-21	67	16%
	22-30	187	43%
	31-40	144	33%
	Above 40	33	8%
	Education	Primary school	168
	Up to High school	173	45%
	Junior college	48	11%
	Bachelor's degree	13	3%
Frequency of using social commerce		9	
	Several times a day		2%
	once a day	30	7%
	Several times a week	52	12%
	Once a week	164	38%
	Several times a month	65	15%
	Once a month	112	26%
Family income	less than 3,00,000	242	56%
	3,00,000 - 5,00,000	112	26%
	More than 5,00,000	78	18%
Location	Rural	168	39%
	Semi-urban	112	26%
	Urban	99	23%
	Metro	52	12%

## **Data Analysis and Results**

*Measurement Model Analysis.* We employed partial least squares (PLS) analysis to evaluate the measurements and structural model. PLS (Wetzels et al., 2009) can ensure greater theoretical stinginess and reduced model complexity. Additionally, PLS can easily handle both reflective and formative aspects (Albers, 2009). According to scholars like Barclay et al. (1995) and Chin and Newsted (1999), the smallest sample size in PLS must contain at least ten times as many items as the largest construct. The PLS approach worked well with our sample of 432 people. We ran a CFA on the dataset to better examine the scale's factor structure. More precisely, it included evaluating the discriminant and convergent validity. Measurements such as CR, AVE, Cronbach's alpha, and item factor loading were used to assess the convergent validity. The generally accepted cut-off values for Cronbach's alpha factor loadings and AVE are 0.70 and 0.50, respectively. Respectively. Tables 2 and 3 show the factor loadings and four measures of convergent validity that fall within an acceptable range.

On the other hand, the discriminant validity reveals how considerably the constructs differ. Discriminant validity was assessed by comparing correlations among any two components with the square root of the AVE. The discriminant validity of the scale is supported by the fact that all of the square roots of the AVEs for constructs are bigger than their correlation values, as shown in Table 4. We also measured the heterotrait-monotrait ratio of correlations between the dimensions to assess discriminant validity further. The findings demonstrate that all construct values are more than or equal to 0.85 (Kline, 2010).

We have also looked at multicollinearity in the formative components of operational LSQ, relational LSQ, and customer experience. Table 5 shows the VIF values. The fact that none of the VIFs exceed the cutoff of 10 confirms the absence of multicollinearity in the dataset used in this study (Petter et al., 2007). Therefore, we checked conceptualizing operational LSQ, relational LSQ, and customer experience as formative constructs.

Common method bias (CMB) may arise from using a single survey approach to collect responses (Zheng et al., 2013). To analyse the CMB, we employed Harman's post hoc one-factor test at the outset. By applying principal component factor analysis, we identified seven factors that account for 71.7% of the variance in the data. The first factor accounted for 36.10%, less than the threshold value of 40%. To further evaluate CMB, following the procedure of Podsakoff et al. (2003), all elements were loaded onto a single first-order factor, and model-fit indices and factor-loading scores were examined, as shown in Table 6. The majority of factor-loading scores have decreased and are well below the threshold.

### ***Structural Model Analysis.***

To test the statistical significance of the path coefficients and the weights of the first-order constructs, a bootstrapping approach with 5,000 iterations was used (Chin et al., 2003). The hypothesized associations are supported at a 1% significance level, as shown in Figure 2. Operational LSQ and relational LSQ combined explain 65% of the variance in customer experience, whereas operational LSQ, relational LSQ and customer experience jointly account for 47% of the variance in customer satisfaction. Additionally, the RMR value in this study is 0.05, which is sufficient for PLS path models. The NFI score of .86 is also suitable.



**Table 3**  
**Reliability and Validity**

Constructs	FL	AVE	CR	Cronbach's alpha
Condition (CND)	-	.68	.89	.84
CND 1	.82	-	-	-
CND 2	.86	-	-	-
CND 3	.80	-	-	-
CND 4	.82	-	-	-
Timeliness (TML)	-	.75	.92	.89
TML 1	.88	-	-	-
TML 2	.84	-	-	-
TML 3	.86	-	-	-
TML 4	.87	-	-	-
Availability (AVA)	-	.71	.92	.90
AVA 1	.80	-	-	-
AVA 2	.83	-	-	-
AVA 3	.85	-	-	-
AVA 4	.84	-	-	-
AVA 5	.88	-	-	-
Assurance (ASR)	-	.74	.92	.88
ASR 1	.88	-	-	-
ASR 2	.84	-	-	-
ASR 3	.87	-	-	-
ASR 4	.84	-	-	-
Responsiveness (RES)	-	.68	.91	.88
RES 1	.85	-	-	-
RES 2	.83	-	-	-
RES 3	.78	-	-	-
RES 4	.83	-	-	-
RES 5	.83	-	-	-
Empathy (EMP)	-	.76	.93	.90
EMP 1	.87	-	-	-
EMP 2	.91	-	-	-
EMP 3	.86	-	-	-
EMP 4	.85	-	-	-
Social Experience (SOC)	-	.76	.93	.90
SOC 1	.88	-	-	-
SOC 2	.89	-	-	-
SOC 3	.85	-	-	-
SOC 4	.87	-	-	-
Emotional Experience (EMO)	-	.72	.91	.87
EMO 1	.83	-	-	-
EMO 2	.86	-	-	-
EMO 3	.85	-	-	-
EMO 4	.86	-	-	-
Cognitive Experience (COG)	-	.82	.93	.89
COG 1	.90	-	-	-
COG 2	.90	-	-	-
COG 3	.92	-	-	-
Customer satisfaction (CS)	-	.84	.94	.90
CS 1	.92	-	-	-
CS 2	.89	-	-	-
CS 3	.94	-	-	-

**Table 4**  
**Discriminant Validity of Constructs**

Construct	CND	TML	AVA	ASR	RES	EMP	SOC	EMO	COG	CS
CND	.82	-	-	-	-	-	-	-	-	-
TML	.75	.87	-	-	-	-	-	-	-	-
AVA	.73	.71	.84	-	-	-	-	-	-	-
ASR	.65	.62	.58	.86	-	-	-	-	-	-
RES	.65	.71	.63	.73	.82	-	-	-	-	-
EMP	.52	.59	.51	.66	.75	.87	-	-	-	-
SOC	.60	.62	.51	.68	.73	.78	.87	-	-	-
EMO	.60	.66	.59	.68	.70	.69	.76	.85	-	-
COG	.52	.67	.52	.50	.61	.50	.60	.69	.91	-
CS	.61	.67	.57	.61	.70	.63	.61	.63	.59	.92

**Table 5**  
**VIF Values of Formative Indicators**

Construct	Indicator	VIFs
Operational LSQ	CND	2.47
	TML	2.73
	AVA	2.58
Relational LSQ	ASR	2.29
	RES	2.93
	EMP	2.38
Customer Experience	SOC	2.52
	EMO	3.10
	COG	1.91

**Testing of the mediating effect**

We follow the mediation framework proposed by Zhao et al. (2010) and Nitzl et al. (2016) to describe the indirect effects between constructs. Specifically, there are two types of non-mediation:

- Direct-only non-mediation: The direct effect is significant, but the indirect effect is not.
- No-effect non-mediation: Neither the direct nor indirect effect is significant.

Additionally, mediation can be classified into three types:

- Complementary mediation: The direct and indirect effects are significant and move in the same direction.
- Competitive mediation: Both the direct and indirect effects are significant but point in opposite directions.
- Indirect-only mediation: The indirect effect is significant, while the direct effect is not.

**Table 6**  
**Factor Loadings of First-Order Factor**

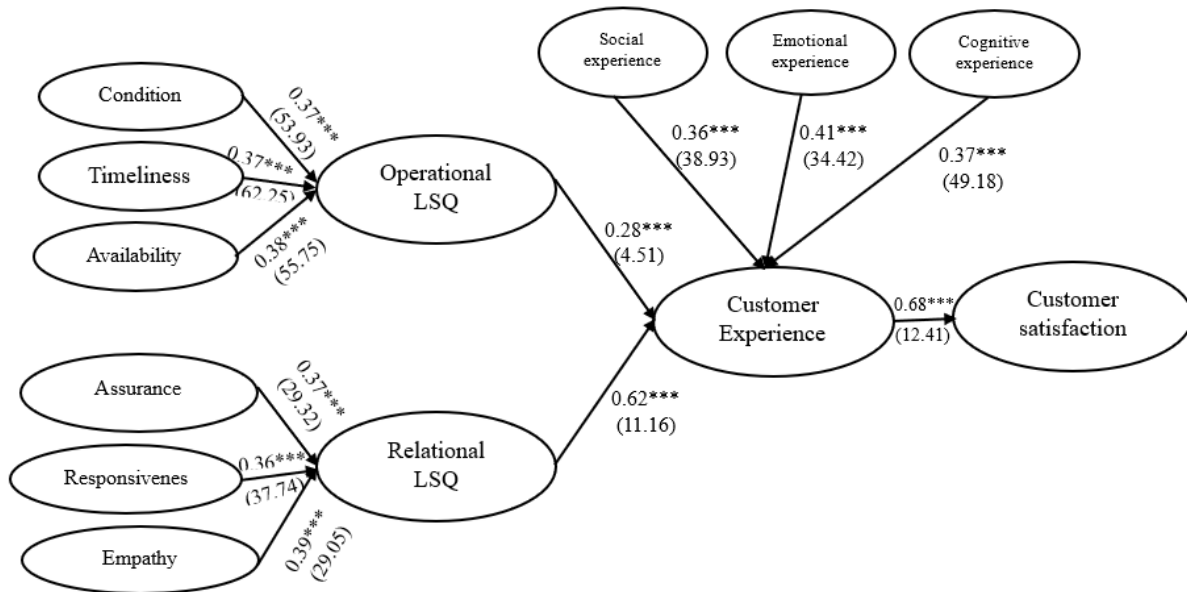
<b>Construct</b>	<b>Factor loading</b>	<b>Construct</b>	<b>Factor loading</b>
Condition (CND)		RES 4	.76
CND 1	.69	RES 5	.81
CND 2	.77	Empathy (EMP)	
CND 3	.74	EMP 1	.79
CND 4	.72	EMP 2	.81
Timeliness (TML)		EMP 3	.74
TML 1	.77	EMP 4	.78
TML 2	.77	Social Experience (SOC)	
TML 3	.80	SOC 1	.82
TML 4	.81	SOC 2	.80
Availability (AVA)		SOC 3	.78
AVA 1	.71	SOC 4	.80
		Emotional Experience (EMO)	
AVA 2	.76	AFF 1	.74
AVA 3	.80	AFF 2	.82
AVA 4	.81	AFF 3	.79
AVA 5	.77	AFF 4	.79
Assurance (ASR)		Cognitive Experience (COG)	
ASR 1	.78	COG 1	.82
ASR 2	.69	COG 2	.68
ASR 3	.77	COG 3	.67
ASR 4	.76	Customer satisfaction (CS)	
Responsiveness (RES)		CS 1	.92
RES 1	.82	CS 2	.89
RES 2	.74	CS 3	.94
RES 3	.70		

Table 7 shows that customer experience mediates the relationships between operational LSQ, relational LSQ, and customer satisfaction. Therefore, complementary mediation is present, meaning that the customer experience, as the mediator, partially explains the relationship. At the same time, the direct effect also contributes to the overall outcome, indicating a combined influence. The results show a positive and significant direct and indirect relationship between LSQ and customer satisfaction. Furthermore, the findings confirm the indirect effects of LSQ on customer satisfaction through customer experience, indicating complementary mediation.

**Table 7**  
**Mediating Analysis**

	Non-mediated model Customer satisfaction	Mediated model (Customer Experience) Customer satisfaction
Operational LSQ	0.34***	0.18***
Relational LSQ	0.47***	0.41***

**Figure 2**  
**Structural Model Analysis**



**DISCUSSION AND IMPLICATIONS**

**Theoretical Implications**

Online shopping is transactional, passive, top-down, and one-to-one, but with Fr2Fr SC, the entire shopping experience is relationship-based, active, bottom-up, and many-to-many. Fr2Fr SC is reaching the untapped online markets through the proper network marketing channels and converting non-buyers into buyers. With the rise of mobile penetration and internet reach, the Fr2Fr SC will grow even bigger, as predicted by numerous consulting firms (Minhas, 2023). Interestingly, the Fr2Fr SC customer benchmarks the service levels of the Fr2Fr SC seller against those of a traditional offline retailer. It is anticipated that e-fulfilment service aspects, namely LSQ, will change to provide users with a great shopping experience and increase shopping satisfaction.

The relational side of LSQ (assurance, empathy, and responsiveness) has become equally important as the traditional operational LSQ dimensions (condition, timeliness, and delivery). The published literature on online commerce, as well as the SC, needs to pay more attention to the role and impact of holistic LSQ on customer experience and satisfaction. As far as we know, this is the first study investigating the role of holistic LSQ in the Fr2Fr SC. More importantly, including the relational side of LSQ is an important contribution to the e-fulfilment and SC literature. Another important contribution of this study is the discovery of the mediating role of customer experience in the LSQ-customer satisfaction relationship.

This study's first significant theoretical contribution is the application and testing of the S-O-R theory in the Fr2Fr SC literature. This research conceptualizes LSQ offered by Fr2Fr SC sellers as a crucial antecedent of customer experience. At the same time, customer experience and satisfaction were evaluated as LSQ outcomes. A key implication is the inclusion of relational LSQ aspects alongside traditional operational dimensions, reflecting the unique demands of Fr2Fr SC formats.

In Fr2Fr SC, sellers must provide assurance, responsiveness, and empathy while maintaining high standards in product condition, timeliness, and delivery. Customer experiences, regarded as organism variables in the S-O-R framework, are influenced by relational LSQ dimensions that impact social, cognitive, and emotional responses. Consequently, customer satisfaction emerges as a response promoted by high LSQ. Our findings indicate that relational LSQ factors (e.g., assurance, responsiveness, and empathy) have a more substantial impact on customer experience and satisfaction than operational LSQ factors (e.g., timeliness, accuracy, and delivery condition). This can be attributed to the unique nature of Fr2Fr SC, where transactions occur within trusted social networks. Unlike traditional e-commerce, which prioritizes delivery efficiency, Fr2Fr SC emphasizes trust, personal connections, and perceived seller reliability (Al-Kfairy et al., 2024). Consequently, social and relational aspects of service take precedence over purely operational factors in shaping customer perceptions (Michalski & Montes-Botella, 2022). Additionally, prior studies suggest that in peer-to-peer (P2P) and social commerce contexts, service quality is often evaluated based on emotional assurance and relational commitment rather than just functional efficiency (Podrug & Grubišić, 2023). Supporting this, Uvet et al. (2024) highlight that relational LSQ exerts a more substantial influence on customer satisfaction than operational LSQ, further reinforcing its critical role in shaping customer experiences in social commerce.

Another crucial theoretical contribution is recognizing that Fr2Fr SC customers perceive customer experience as a direct attainment of LSQ. This is particularly significant in online shopping, where the lack of touch-and-feel aspects makes relational LSQ even more vital. Customers are likely to have better experiences and higher satisfaction when they perceive the Fr2Fr SC seller's LSQ as superior. The results reveal that customer experience partially mediates the relationship between LSQ and customer satisfaction, indicating that both the direct and indirect effects are significant. Specifically, operational LSQ enhances customer experience, which in turn improves satisfaction. Similarly, relational LSQ influences customer experience and satisfaction but has a stronger overall impact. This indicates that customer experience plays a key role in translating LSQ into satisfaction, with relational LSQ having a dominant role in shaping customer satisfaction, making it a critical factor in social commerce settings.

Consequently, SC is the future of e-tailing, and formats like Fr2Fr SC will open new doors and opportunities for marketers. Especially in the Fr2Fr SC context, the operational LSQ (condition, timeliness, and delivery) and the seller's relational LQS (assurance, responsiveness, and empathy) dimensions become integral to customers' e-shopping experience. These customers

are naïve to online shopping; therefore, the relational side of LSQ becomes even more important. As a result, it was regarded as a significant theoretical implication that Fr2Fr customers will have pleasant experiences owing to the high LSQ offered by Fr2Fr SC sellers and will have high customer satisfaction.

### ***Practical Implications***

This paper contributes to the body of knowledge on SC by demonstrating the links between LSQ, customer experience, and customer satisfaction among Fr2Fr SC customers, offering actionable insights for practice. To address LSQ challenges effectively, we provide implications and recommendations for key stakeholders: sellers, platforms, and policymakers. For sellers, strengthening relational LSQ dimensions such as responsiveness, empathy, and assurance is crucial for building trust and enhancing customer experience. Platforms play a vital role in supporting sellers through training, performance tracking, and AI-driven tools to optimize service quality. Policymakers can contribute by establishing industry standards, promoting digital inclusion, and ensuring fair marketplace practices. By systematically addressing LSQ at these levels, Fr2Fr SC participants can improve customer satisfaction, foster long-term relationships, and enhance the overall competitiveness of the SC ecosystem.

### ***Recommendations for Sellers***

Sellers in the Fr2Fr SC must focus on building trust and strong customer relationships. One key aspect is improving responsiveness, which can be achieved by implementing real-time customer support through chatbots and messaging apps to address queries and complaints quickly. Providing clear and regular updates on order status, delays, and issue resolutions enhances transparency and reassures customers. Another crucial factor is enhancing empathy in customer interactions. Sellers should personalize communication by addressing customers by name, acknowledging their specific concerns, and demonstrating an understanding of their needs. Additionally, offering flexible return and exchange policies shows a commitment to customer satisfaction and builds long-term loyalty.

Strengthening assurance is essential to gaining customer trust. Displaying customer reviews and testimonials prominently on the platform can enhance credibility. Clear product descriptions and guarantees help reduce uncertainty, making customers feel more confident in their purchases. By focusing on these areas, sellers can create a more positive and reliable shopping experience, encouraging repeat business and customer loyalty. Finally, enhancing training programs for Fr2Fr SC sellers is crucial for improving relational LSQ dimensions such as empathy, assurance, and responsiveness. One practical approach is scenario-based training, where sellers engage with real-life customer situations to practice handling issues with empathy and assurance. Additionally, customer interaction workshops can help sellers develop skills in active listening, personalized communication, and conflict resolution, fostering stronger customer relationships. Finally, establishing feedback loops by sharing performance metrics and customer feedback enables sellers to continuously improve their service quality and responsiveness.

### ***Recommendations for Platforms***

Platforms hosting Fr2Fr SC transactions support sellers by providing training, performance tracking, and technological enhancements. Seller training should include customer service best practices modules, focusing on relational LSQ dimensions such as empathy and responsiveness. Additionally, training on efficient logistical management can help ensure timely and reliable

deliveries, improving overall service quality. To enhance accountability and motivation, platforms should introduce performance metrics that track key relational LSQ indicators, such as response time and complaint resolution rates, and provide feedback to sellers. Incentivizing high-performing sellers through badges, promotions, or reduced platform fees can further encourage service excellence.

Moreover, leveraging technology can optimize the Fr2Fr SC experience by using AI-driven recommendations to connect buyers with sellers that match their preferences and needs. Developing interactive platform features that allow better buyer-seller communication can create a more personalized and engaging shopping experience, ultimately fostering stronger customer relationships. Designing platform algorithms and rating systems to prioritize relational LSQ factors is essential for enhancing customer experience. By optimizing decision-making through these algorithms, SC sellers can enhance customer experiences, improving trust and long-term engagement. Moreover, the seller rankings should incorporate relational LSQ metrics such as response time, resolution effectiveness, and customer sentiment analysis to ensure high-quality interactions. To encourage best practices, platforms can highlight top performers by awarding badges or featuring sellers with superior relational LSQ performance. Additionally, AI-powered suggestions can analyze relational LSQ data and provide tailored recommendations, helping individual sellers improve their service quality and responsiveness.

### ***Recommendations for Policymakers***

Policymakers can support the growth of Fr2Fr SC by establishing industry standards, promoting digital inclusion, and ensuring fair practices. Setting industry standards involves defining and regulating minimum service quality benchmarks for operational and relational LSQ in online commerce. Additionally, promoting certifications for sellers who meet high LSQ standards can enhance customer trust and credibility. To support digital inclusion, policymakers should invest in initiatives that improve internet accessibility and digital literacy in underserved regions, thereby expanding the potential customer base for Fr2Fr SC. Providing grants or subsidies to small businesses adopting Fr2Fr SC platforms can further encourage participation and economic growth. Lastly, encouraging fair practices is essential for fostering a balanced and sustainable marketplace. Platforms should be required to maintain fair policies that prevent seller exploitation and promote a collaborative ecosystem where relational LSQ can thrive.

## **CONCLUSIONS AND FUTURE RESEARCH**

This paper identifies operation LSQ and relational LSQ as two main dimensions of LSQ of Fr2Fr SC and explores their impact on customer experience and customer satisfaction. The key dimensions of operation LSQ are condition, availability, and timeliness, whereas the dimensions of relational LSQ are assurance, responsiveness, and empathy. This study empirically corroborates the impact of operation LSQ and relational LSQ on customer satisfaction and explores the mediating role of customer experience. These results provide crucial empirical support for LSQ dimensions in the context of Fr2Fr SC and provide conceptual clarity. Our findings will also help SC e-tailers and their resellers develop and design a high-level logistics service strategy to enhance SC users' customer experience and satisfaction.

This study has a few limitations that can be resolved in further studies. First, the generalizability of our findings may be constrained because most of the sample data we used were from Fr2Fr SC users primarily situated in rural locations of central, western, and northern India.

This geographic and demographic limitation may affect the applicability of our findings to other regions/countries/terrains. For instance, SC platforms in the UAE or China may have different user behaviours influenced by cultural, economic, and infrastructural factors. Future research could explore differences in SC models between rural and urban settings, or across regions, to gain a more comprehensive understanding of customer satisfaction. Additionally, the sample size and variation can be expanded in future studies, and the study can be repeated with various groups. Secondly, this study focuses on the effects of operational LSQ and relational LSQ on customer satisfaction through customer experience. Future studies could explore how trust, a critical factor in SC, varies across cultural contexts and its role in mediating the LSQ-customer satisfaction relationship. Cultural dimensions such as uncertainty avoidance and collectivism might influence how customers perceive LSQ and trust in different geographic areas. Expanding the analysis of trust across diverse cultural and regional settings would offer deeper insights into the LSQ framework.

Thirdly, we did not consider constructs or variables that might moderate the relationship between operational LSQ and relational LSQ and customer satisfaction. Future studies could include moderating variables at the individual, product, and policy levels, such as gender, product type, price sensitivity, and the leniency of return policies, to explore how these factors affect customer satisfaction across different SC contexts.

Finally, our study is cross-sectional and does not consider longitudinal data. Conducting longitudinal studies would offer new perspectives on how LSQ affects customer satisfaction as SC models and user preferences evolve. Additionally, exploring how trust and satisfaction develop and change over time, particularly in SC environments where long-term relationships are critical, would provide valuable insights into the sustainability of SC platforms.

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