STAY HOME AND SHOP TOGETHER

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ABSTRACT

Advanced technologies such as the Internet and social media have transformed business models and spawned a myriad of innovative business practices that challenge traditional ways of doing things. One notable innovation is collaborative online shopping, dubbed "next wave in e-commerce" due to its unique appeals to social needs of shoppers. In contrast to solo online shopping, where shopping activities (e.g., product searching, product reviewing, and ultimate purchasing decision making) are performed by a single individual, collaborative shopping has multiple individuals engaged in the shopping activities together. At the core of collaborative online shopping lies the dynamic social interactions where shoppers engage task-oriented and socio-emotional communication activities. Despite the importance of these communication activities in collaborative online shopping, however, our review of the literature on collaborative online shopping discovers the lack of adequate attention to the two types of communication activities. What is more, the impact of shopping group structure in the collaborative online shopping context remains unknown. To address the research gap, we first develop the shopping group structure typology in the collaborative shopping context, and then drawing on Bales' Interaction Process Analysis and research on medial richness and consumer shopping behaviors, propose a conceptual framework of social interactions in collaborative online shopping. We postulate antecedents and outcomes of task and socio-emotional communication between co-shoppers in the collaborative online shopping context and delineate the moderating impact of shopping group structure. As an early effort examining shoppers' communication activities and shopping group structure in the context of collaborative online shopping, our research offers insights that bear significant contributions to both academic researchers and industrial practitioners.

Keywords: Social commerce; Task-oriented communication; Socio-emotional communication; Collaborative online shopping; Social shopping

1. **Introduction**

Shoppers go shopping to pursue two types of general shopping values: utilitarian and hedonic. The utilitarian value lies in shoppers' conscious pursuit of an intended consequence (e.g., obtaining the needed product) and the hedonic value (e.g., the enjoyment afforded by a shopping experience) [Babin et al. 1994]. Shopping is an activity that people enjoy doing together, and inherently lends itself to social interactions [Goswami et al. 2007; O'Hara & Perry 2001; Puglia et al. 2000; Wolfinbarger & Gilly 2001]. Statistics show that 90% of customers prefer to have human contact while doing transactions [Gutzman 2000] and that 70% like to shop with shopping companions [Chebat et al. 2014].

Advanced technologies such as the Internet and social media have transformed business models and spawned a myriad of innovative business practices that challenge the traditional ways of doing things. One notable innovation is collaborative online shopping, "the activity in which a consumer shops at an online store concurrently with one or more remotely located shopping partners" [Zhu et al. 2010 p. 872]. Collaborative online shopping accentuates both

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utilitarian and hedonic shopping value and is considered as "next wave in e-commerce" [Wei et al. 2017] due to its uniqueness in satisfying social needs of shoppers. To support/enable social engagement between co-shoppers, many e-tailers have adopted collaborative online shopping technologies. Popular examples include the "Help Me Shop" feature on eBay, Mertado on Groupon, Google Plus, Shop with a Friend" feature of Landsend.com [Zhu et al. 2010], Plurchase sidebar on Amazon.com and Zappos, ShopTogether, RocketMelt, BuddyShopping, and BevyUp [Yue et al. 2014], and Facebook (where users interact within family/friends in their social network in buying products) [Kim et al. 2013].

Because of its unique appeal to shoppers' social needs, collaborative online shopping has gained enormous popularity in recent years. Gartner's report [Lee 2019] shows that one-fifth of 120 top brands have opted for shopping capabilities in their Facebook pages and 59% of the brands in their Instagram pages, an increase of 24% and 43% respectively from 2018. Interestingly, department stores embrace collaborative online shopping the most: all of the department stores surveyed in the report have incorporated shopping capacities in their Instagram pages and 41% on their Facebook sites. It is estimated that products sold via collaborative online shopping will reach $23.3 billion in 2020, up about 20% in 2019 [Droesch 2020].

Collaborative shopping is distinctively different from solo shopping. In solo shopping where shoppers shop by themselves, shopping activities (e.g., comparing product information, seeking available options) and the ultimate decision making occur in a solo context. In contrast, once an additional shopper joins the shopping process, social interactions between shoppers begin and give rise to dynamic social interactions. At the core of social interactions lies communication between shoppers. Previous studies theorize communication as one of the main motivations for people to shop [Puglia et al. 2000; Tauber 1995; Westbrook & Black 1985]. For example, people desire to communicate with others with similar interests, share ideas of certain products with their shopping pals, and exchange their comments and opinions [Tauber 1995]. Shoppers also express a need for shopping assistance in the online context [Tractinsky & Srinivasan Rao 2001]. Sommer et al. [1992] argue that shopping pals in the course of shopping often result in a more enjoyable shopping experience than shopping alone. Because of these reasons, communication between shoppers is believed to be essential to the success of an e-commerce website [Kim et al. 2013]. However, extant studies have focused mainly on the technical aspect of collaborative online shopping [e.g., Cheng et al. 2013; Yue et al. 2014; Yue & Jiang 2013], and not yet paid sufficient attention to shoppers' communication activities. As a result, a call has been made for more research on this area [Zhu et al. 2010]. With the backdrop, we focus on the following questions to address these deficiencies:

1.   What are communication activities consumers engage in collaborative online shopping?
2.   How do supporting technologies and co-shoppers' group structure affect communication in collaborative online shopping?
3.   What are the outcomes of co-shoppers' communication activities?

To answer the above questions, drawing upon Bales' Interaction Process Analysis and research on media richness and consumer shopping behaviors, we propose a conceptual framework theorizing antecedents and outcomes of the communication activities as well as the moderating impact of shopping group structure. In doing so, we categorize co-shoppers' communication into two types: task-oriented and socio-emotional, and create the group structure typology capturing different types of shopping companion combinations. The proposed framework contributes to the literature on collaborative online shopping by offering insights into social interactions among shoppers and illustrating the impact of technologies and shopping structure in collaborative shopping. With the proposed conceptual framework, insightful findings could be gained by investigating patterns of task-oriented and socio-emotional communication among different types of shopping group structure under different technological contexts.

The paper is organized as follows. We first explain our conceptual foundation in which we delineate the extant research on collaborative online shopping and introduce the two types of communication, and then propose the typology of shopping group structure in collaborative online shopping. Following the conceptual foundation, we present our conceptual framework of social interactions in collaborative online shopping and explain the model's propositions. Finally, we discuss significant theoretical and practical implications and conclude with recommendations for future research.

2.   Conceptual Foundations
2.1.   Current Literature on Collaborative Online Shopping

The significance of collaborative online shopping has made it the subject of many studies. In particular, supporting technologies for collaborative online shopping have attracted a lot of attention (see the summary of studies in Appendix I). Goswami et al. [2007] identify two objectives of collaborative shopping (i.e., socializing and purchasing) and propose website features (e.g., communication support and decision support) that help achieve these objectives. They argue that the fit between the co-shopping objectives and website features leads to shopper satisfaction with the

shopping process and outcomes. Similarly, Zhu et al. [2010] center on two types of technological support – navigation support and communication support – in collaborative online shopping. Navigation support assists co-shoppers in navigating websites to find information on products and brands, while communication support enables co-shoppers to coordinate their activities, exchange information, and share their interests/observations.

The impact of different navigation designs on consumers' coordination, concentration, comprehension, and perceived usefulness has been investigated [Cheng et al. 2013; Yue et al. 2014; Yue & Jiang 2013]. Yue & Jiang [2013] find that split navigation performs better than shared navigation in enhancing co-shoppers' shared understanding. Cheng et al. [2013], drawing on incorporated situational awareness theory [Endsley 1995] and dual-task interference theory [Pashler 1994], concur that compared to shared navigation, separate navigation with location cue and split-screen leads to higher perceived usefulness.

Kim et al. [2013] investigate the impact of collaborative online shopping design, avatar support, and voice/text chatting, which are proposed to enhance shoppers' co-presence, shopping flow, and the intention to use a collaborative online shopping website. Siau et al. [2013], drawing on media richness theory [Daft et al. 1987; Daft & Lengel 1986] and task-media fit [Valacich et al. 1994], investigate the interaction effect of communication support and task types (product selection and product generation) in collaborative online shopping. Seedorf et al. [2014] and Wei et al. [2017] focus on co-browsing technologies and discover that a higher perception of psychological presence during co-browsing leads to more engagement from co-shoppers in online shopping.

As shown above, the extant research on collaborative online shopping has focused mainly on the technical aspect of technologies and technological support for shopping tasks. What has not been adequately studied is the social aspect of collaborative online shopping. In the shopping literature, the shopping process of solo shopping typically consists of searching product/service information, reviewing information collected and making an ultimate purchasing decision [Martin & Kiecker 1990; Solomon 1983] (see Figure 1). In comparison, with an additional shopper joining in shopping, the shopping process becomes dynamic due to social interactions between shoppers. As shown in Figure 1, not only are information searching and information review activities performed collaboratively by co-shoppers, but there is an additional activity between co-buyers, which is communication between co-shoppers (the activity "communicate between shoppers" is enclosed in the dotted oval shape). Communication between shoppers directs and shapes all shopping activities and shopping decisions (represented by the dashed line linking communication to all shopping activities in Figure 1), thus is core to collaborative online shopping.

2.2. Media Richness of Information Technologies

The soul of collaborative online shopping is computer-mediated communication (CMC) between shoppers, so computer-mediated communication theories need to be incorporated in collaborative online shopping. One of the seminal CMC theories is media richness theory [Daft et al. 1987; Daft & Lengel 1986], which focuses on a parsimonious categorization of various communication media's capacities to resolve ambiguity and facilitate understanding. Media richness is defined by a set of objective characteristics, including (i) multiplicity of cues, (ii) immediacy of feedback, (iii) language variety and naturalness, and (iv) personal focus [McGrath & Hollingshead 1994]. For example, video conferencing, compared to telephone, is considered a richer medium as it conveys richer information (e.g., facial expressions and gaze) [Whittaker 2003]. Media richness theory argues that a task needs to be aligned with the communication medium's abilities to convey information related to those tasks [Daft et al. 1987; Daft & Lengel 1986]. Accordingly, information technologies, with multiple cues, immediate feedback, broad support for different languages, and close similarity to natural human-computer interaction, are considered rich and capable of facilitating rich information communication [Kaplan & Haenlenin 2010].

Purchasing Process for Solo Shopping

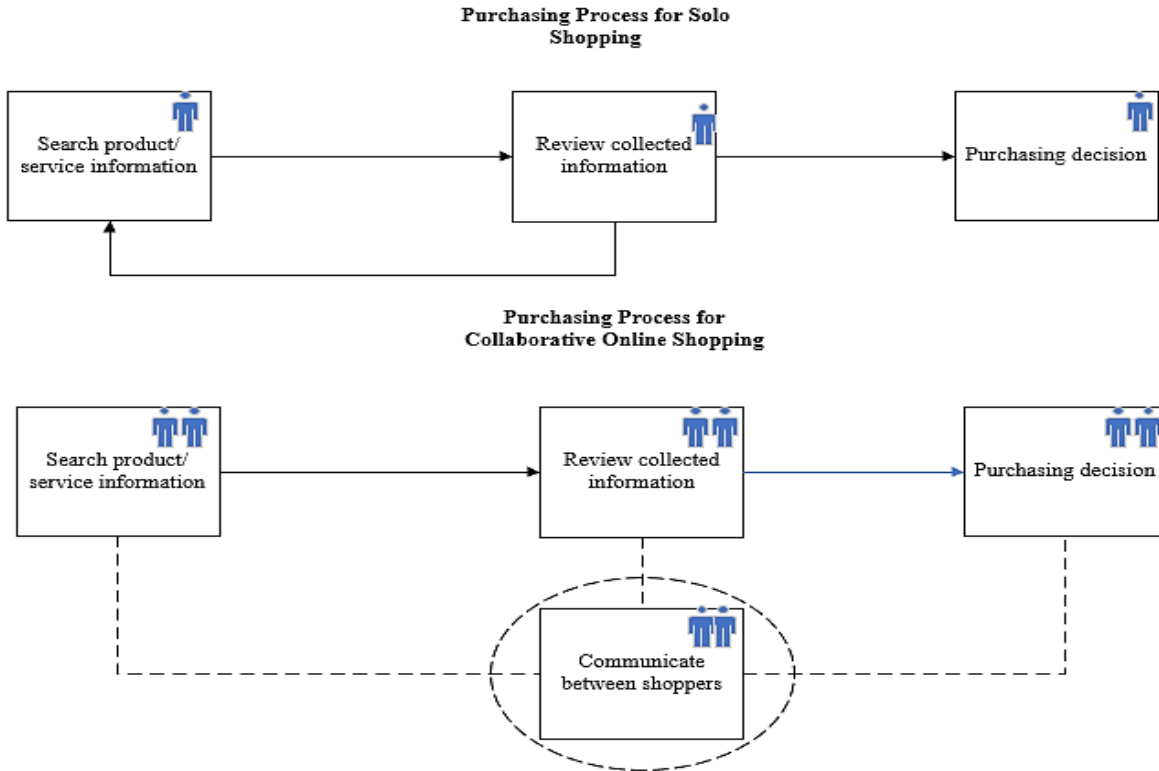**Purchasing Process for Collaborative Online Shopping**

Figure 1: Solo Shopping Versus Collaborative Shopping

Media richness theory has influenced later research on the impact of information technologies in the shopping context. For example, rich media such as avatars are recommended for collaborative online shopping to improve shopper interactions [Durlach & Slater 2000; Kim et al. 2013; Zhao 2003]. Customers' product reviews written in a combination of multiple formats (e.g., text, image, video) are considered richer than in one format (e.g., text) [Zhao et al. 2018]. With its instant feedback capacity, virtual reality is considered a rich medium and affects consumers' virtual interaction with products [Wang & Datta 2005]. The richness of different media affects online shoppers' processing of information [Maity et al. 2018]. Notably, technologies high in media richness positively influence shoppers' information search and sharing [Lee et al. 2021], particularly at the early stage of a purchase decision-making process [Tseng & Wei 2020].

As described above, studies on media richness in the online shopping context have generated useful and insightful findings. However, despite the recognition that online shopping is often a social (rather than solo) shopping activity [Kim et al. 2013], the impact of media richness of collaborative online shopping technologies on communication activities engaged by people who shop together online is largely ignored.

2.3.   Communication Typology in Collaborative Online Shopping

Communication is an essential part of any collaborative activity [Gouran & Hirokawa 1983; Huang et al. 2011]. In real life, co-workers, friends, or family members frequently buy a product or service together (e.g., shop for a gift for a mutual friend), and in doing so, engage interpersonal communication. In order to examine communication in the collaborative online shopping context, we draw on the coding method by Bales [1958; 1950], Interaction Process Analysis, which is recognized seminal in classifying interpersonal interactions (whether verbal or nonverbal) between small group members [Keyton 1992]. Bales centers on communication behaviors that are important for a group to achieve its objectives (i.e., group success), and devise the Interaction Process Analysis method through which twelve communication processes are identified. The communication processes are grouped into two broad categories: task-oriented communication and socio-emotional communication (see Table 1). Task-oriented communication is "directly relevant to the problems of adaptation and instrumental control" [Huang et al. 2011 p. 4], while socio-emotional communication is "relevant to the problems of expression of emotional reactions and tensions and maintenance of group integration" [Huang et al. 2011, p. 4]. Examples of task-oriented communication include: giving/asking suggestions, opinions, information, and recommendations. Socio-emotional communication could be positive and negative, with positive communication demonstrating support, sympathy, agreement, excitement, and satisfaction and negative communication rejection and tension [Bales 1950].

Table 1: Bales' Communication Categories

Socio-emotional	Task-Oriented Communication
1. Shows solidarity, raises other's status, give help, reward	7. Gives suggestion, direction, implying autonomy for other
2. Shows tension release, jokes, laughs, shows satisfactions	8. Gives opinion, evaluation, analysis, expresses feeling, wish
3. Agrees, shows passive acceptance, understand, concurs, complies	9. Gives orientation, information, repeats, clarifies, confirms
4. Disagrees, shows passive rejection, formality, withholds help	10. Asks for orientation, information, repetition, confirmation
5. Shows tension, asks for help, withdraws out of field	11. Asks for opinion, evaluation, analysis, expression of feelings
6. Shows antagonism, deflates other's status, defends of asserts self	12. Asks for suggestion, direction, possible ways of action

A myriad of studies has applied the Bales' coding method to examine group communication. Nam et al. [2009] focus on the process and outcomes of team communication in multi-cultural organizations. By incorporating the Bales' coding procedure, they find that showing agreement and giving opinions are more frequently used by homogeneous teams than by heterogeneous teams. Kahai & Cooper [2003] examine the impact of computer-mediated communication on decision quality. Applying the Bales' communication classification [1950], they investigate the influence of diversity of cues and immediacy of feedback on decision quality. In addition, they discover that richer media lead to greater socio-emotional communication, and leaner media a more negative socio-emotional climate. Rice & Love [1987] investigate computer-mediated communication content and pattern by employing the Bales' interaction process analysis and find that systems designed for computer-mediated communication can help exchange socio-emotional content. Peña & Hancock [2006] apply the Bales' method to discern and analyze the socio-emotional and task-oriented content of exchanged messages during social interactions in an online video game. Applying Bale's Interaction process analysis method, Lin and Peña [2011] examine communication orientations used by television networks on Twitter and discover more frequent use of task than socio-emotional communication across program genres.

Adapting the two categories to the collaborative online shopping context, we define task-oriented communication in the collaborative shopping environment as communication that focuses on accomplishing shopping objectives and socio-emotional communication as expressing feelings and emotions. While the types of communication could be of both linguistic (e.g., verbal and textual) and non-linguistic (e.g., facial expression, head nods), task-oriented communication is engaged by co-shoppers to fulfill their instrumental expectations, thus reflecting the utilitarian aspect of collaborative online shopping. In contrast, socio-emotional communication arouses pleasant and exciting sensations in shoppers, thus reflecting the hedonic aspect of collaborative online shopping.

The review of extant literature in marketing and electronic commerce indicates that regardless of different shopping contexts (e.g., in-store or online), people who shop together engage in socio-emotional and task-oriented communication. Table 2 summarizes publications identified in top marketing, management information systems, electronic commerce journals that shed light on task and socio-emotional communication engaged by shoppers. As shown, both types of communication could be manifested in different ways. For example, in engaging task-oriented communication, co-shoppers could search product information and seek advice from each other on products, prices, brands, and product performance [Chebat et al. 2014]. They could also evaluate products and stores [Mangleburg et al. 2004; Wei et al. 2011], exchange ideas to reach consensus [Pelaez et al. 2013] to reduce uncertainty associated with purchase decisions [Wenzel & Benkenstein 2018]. For socio-emotional communication, co-shoppers use figurative languages [Kronrod & Danziger 2013] and share a lively exchange of jokes and personal stories [Chebat et al. 2014; Das & Varshneya 2017; Mangleburg et al. 2004; Wenzel & Benkenstein 2018].

Despite the evidence of task and socio-emotional communication between shoppers, most of the studies are conducted under the physical shopping (e.g., shopping malls/in-store) context. Among the few studies on online shopping, the focus is on shoppers bidding strategies [Pelaez et al. 2013; Wei et al. 2011]. There lacks research on how the two types of communication affect shopping outcomes in collaborative online shopping.

Table 2: Summary of Marketing and Shopping Studies on Task and Socio-emotional Communication

Author(s)	Year	Focus of the Research	Context of Research	Task-oriented communication (TOC)/Socio-emotional Communication (SEC)
Chebat et al.	2014	Psychological processes for relation shoppers shopping in shopping malls	Shopping mall	TOC: information seeking (e.g., advice on products, prices) SEC: fun and enjoyable interactions
Das and Varshneya	2017	Consumers' emotions in a shopping mall	Shopping mall	SEC: consumers' emotions are affected by shopping mall environment, shopping companions, and promotional event
Kronrod and Danziger	2013	Conversational norms in interpreting and creating user-generated norm	Online review	SEC: figurative languages are used by consumers to express emotions
Mangleburg et al.	2004	Peer influence on teen shopping in stores	Shopping stores	TOC: evaluation of products, brands, and stores SEC: fun and enjoyable interaction
Nguyen et al.	2020	Customer-customer influence within service encounter (e.g., restaurants)	Restaurants	SEC: (e.g., delight) displayed by fellow customers influence emotions and perceptions of focal customers
Pelaez et al.	2013	Impact of group size and communication capacity on buyer performance on group-buying platforms	Online bidding	TOC: exchange between buyers to reach consensus on bidding strategies
Wei et al.	2011	Internet group purchasing using social media	Online bidding	TOC: group members retrieve, exchange, interpret, and evaluate identified information
Wenzel and Benkenstein	2018	Adolescent's shopping experience in stores	In-store shopping	TOC: product information exchange to reduce the perception of risk and uncertainty SEC: pleasant and fun social interactions

2.4.   Shopping Group Structure Typology in Collaborative Online Shopping

Research on consumer shopping behaviors has examined shopping pals (companions), "individuals who accompany buyers on their shopping trips in order to assist them with their on-site purchase decisions" [Hartman & Kiecker 1991 p. 462]. In choosing their shopping pals, people tend to shop with friends and family members [Borges et al. 2010; Mangleburg et al. 2004], with whom they have strong social intimacy (i.e., the closeness of the social relationship between shopping partners) [Zhu et al. 2010].

Shoppers with high social intimacy have in common "more intimacy, more self-disclosure, and more emotional and instrumental exchanges than other ties such as occasional ties with shoppers met infrequently or randomly in malls" [Chebat et al. 2014, p. 2]. Studies on consumer shopping behaviors identify two main motivations for shopping pals: social motivation (e.g., enjoyment) and assistance motivations (e.g., reduce risks/uncertainty, provide expertise/information) [Chebat et al. 2014; Hartman & Kiecker 1991]. While social motivation, driven by the pursuit of fun and enjoyment, is hedonic in nature, assistance motivation is utilitarian and task-oriented [Wenzel & Benkenstein 2018].

Extant literature, however, has paid little attention to the type of shopping pals who make decisions on the same purchase, which is prevalent in the collaborative online shopping context. In light of the drawback and drawing on the existing studies on shopping pals, we define shopping group structure based on two dimensions: (1) each shopper's role, which determines decision responsibilities and the level of commitment, and (2) the level of social intimacy between shoppers. For the dimension of responsibility/commitment, we adopt two roles suggested by Cheng and his colleagues [2013]: (1) co-buyers (i.e., all shopping companions are responsible for the decision making) and (2) buyer/advisor, where only one of the shoppers (the buyer) is responsible for purchasing decision-making, and other shoppers play the role of advisor. In the buyer-advisor structure, the buyer is the sole owner of the purchasing decision and thus possesses a greater commitment than other shoppers [Cheng et al. 2013; Yue et al. 2014; Yue & Jiang 2013].

For the dimension of social intimacy, we differentiate people who shop with their family/friends from those who shop with a store agent. While shopping pals often involve family members and friends, store agents could accompany

shoppers in the online shopping environment. The inability of having store agents physically present in online shopping motivates e-tailers and online businesses to incorporate collaborative online technologies so that store agents could virtually accompany shoppers in online shopping. For example, some online businesses employed co-browsing technologies to serve customers better. According to the Aberdeen Group research [2013], co-browsing technology helps companies achieve much more significant annual increases (5.1%) in customer satisfaction ratings than companies without this technology (1.4%). Companies with an online business have also been found to enjoy higher agent utilization rates and higher revenue if they offer co-browsing technology than those without.

Based on the two dimensions, we develop the typology of shopping group structure for the collaborative online shopping which is presented in the two-by-two matrix in Figure 2. We postulate there exist inherently different communication patterns in each cell of the matrix. For example, compared to the buyer-advisor structure that involves a store agent, shopping group structure involving friends and family members tend to have more frequent task-oriented and socio-emotional communication activities than does shopping group structure involving store agents. Due to the closeness in their personal relationship, co-shoppers with a close personal relationship, regardless of the level of purchase interests, tend to engage socio-emotional conversations in addition to performing the purchasing task at hand. This helps explain why people who shop with their family members and friends tend to spend a much longer time in shopping than those with a store agent [Lindsey-Mullikin & Munger 2011; Qiu & Benbasat 2005]. We focus on the communication patterns inherent in different types of shopping group structure in our study.

Figure 2: Shopping Group Structure Typology in the Collaborative Shopping Context

3. Conceptual Framework of Social Interactions in Collaborative Online Shopping

Drawing on the Bales' Interaction Process Analysis and research on medial richness, we develop a conceptual framework of social interactions in collaborative online shopping (Figure 3). As shown, we propose that media richness of collaborative online shopping technologies affects both task and socio-emotional communication. The impact of media richness, however, is moderated by group structure. As communication serves as an essential component in the collaborative online shopping context, we theorize the significant impact of task-oriented communication on perceived decision quality (i.e., a person's perception of the level of confidence in the final purchasing decision [Housel 1981]) and socio-emotional communication on perceived enjoyment (i.e., perceived playfulness [Moon & Kim 2001]). Both perceived decision quality and perceived enjoyment are proposed as significant antecedents of intention to continue collaborative online shopping, an individual's judgment of continuing collaborative online shopping [Ahmad et al. 2010; Bhattacherjee 2001]. As the behavioral intention is a valid indicator of the actual behavior, it is commonly treated as a substitute for the actual behavior [Venkatesh & Davis 2000]. In addition, shoppers' intention to continue collaborative online shopping is a construct of value to businesses and e-tailers as they are keen on prolonging time spent by shoppers on their shopping platform for two main reasons: (1) the more time shoppers spend online, the higher the possibility they spend more money on products/services, and (2) by increasing the time spent by co-shoppers on e-commerce websites, e-tailers can expect an increase in revenue from advertising or affiliate marketing. It is not surprising that intention to continue shopping has often been studied in the online shopping context [e.g., Ahmad et al. 2010; Zhu et al. 2010]. Therefore, the intention to continue collaborative online shopping is proposed as a dependent variable in our framework.

3.1.   Perceived Decision Quality, Perceived Enjoyment and Intention to Continue Collaborative Online Shopping

Perceived decision quality, defined as the extent to which shoppers' degree of confidence in a purchase decision [Aldag & Power 1986; Todd & Benbasat 1994], reflects the fact that shopping is essentially a decision making process [Martin & Kiecker 1990; Solomon 1983] driven by the utilitarian shopping motivation [Babin et al. 1994; Chen 2017; Goswami et al. 2007]. In making a purchase decision, shoppers gather as accurate and complete information as possible and weigh different alternatives with the intention to maximize benefits and minimize risks [Häubl & Trifts 2000;Huang & Zhou 2019; Zha et al. 2013]. Therefore, when a quality purchase decision is reached, shoppers tend to be satisfied with the shopping behavior [Huang & Zhou 2019; Zha et al. 2013]. As a positive attitude toward a behavior is posited and has been confirmed to be a salient predictor of behavioral intention [Ajzen 1991; Ajzen 1977; Huang et al. 2011; Zhu et al. 2006], we postulate that

Proposition 1: Perceived decision quality positively affects co-shoppers' intention to continue collaborative online shopping
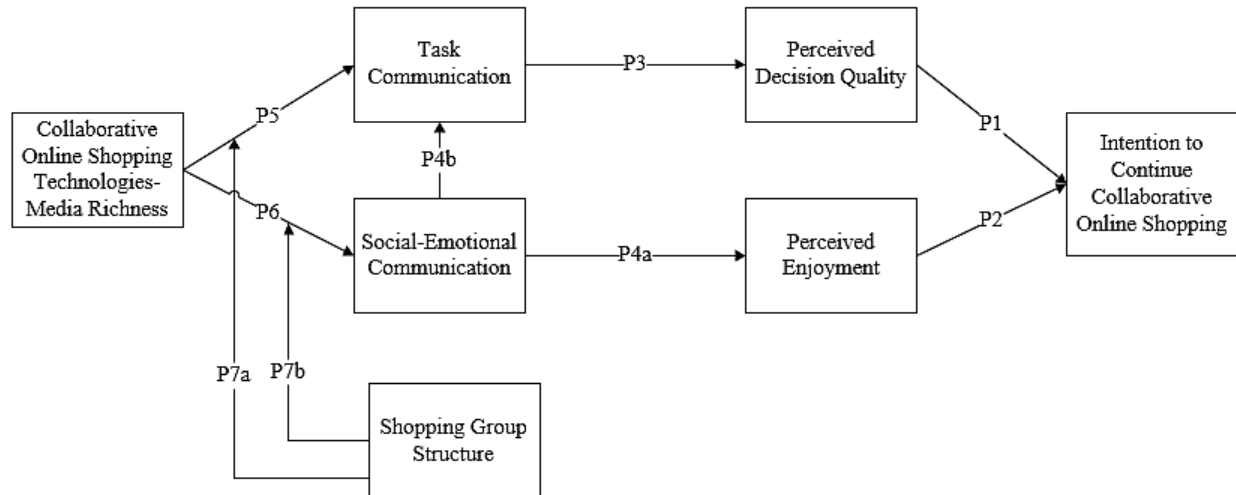

Figure 3: Conceptual Framework of Social Interactions in Collaborative Online Shopping

In contrast to perceived quality that focuses on the utilitarian aspect of collaborative online shopping, perceived enjoyment captures the hedonic aspect of the shopping [Babin et al. 1994; Chen 2017]. Pursuit of enjoyment is considered as a key motivation that drives people to shop [Min 2007; Wenzel & Benkenstein 2018]. Shopping is often perceived as a fun, relaxing activity, aroused by the inviting and energetic atmosphere of shopping malls [Chebat et al. 2014; Das & Varshneya 2017] and the comfortable company of friends and families [Chebat et al. 2014; Chen 2017; Mangleburg et al. 2004]. In the online context, enjoyable shopping experience has been found to be induced by the reduced effort required to find information [Bechwati & Xia 2003], browsing of interactive websites and images [Chen 2017;Wang & Wang 2005], and collaborative shopping with others [Wolfinbarger & Gilly 2001; Zhu et al. 2006]. Empirical studies have confirmed that high levels of enjoyment experienced in online shopping increase shoppers' intention to continuously perform the shopping activity [Huang et al. 2011; Kim et al. 2013;Lee et al. 2003; Suki & Suki 2007; Zhu et al. 2006]. Accordingly, we hypothesize that:

Proposition 2: Perceived enjoyment positively affects co-shoppers' intention to continue collaborative online shopping

3.2. Task-oriented Communication and Perceived Decision Quality

Online shoppers often face uncertainty caused by insufficient information pertaining to products/services (e.g., function, quality, performance) and companies that offer the products/services of interest [Marceda Bach et al. 2020; Wenzel & Benkenstein 2018], which could potentially threaten the quality of purchase decisions [Huang & Zhou 2019; Kim et al. 2008]. Collaborative shopping, in which co-shoppers engage in active information exchange about products and companies, allows an accurate and objective evaluation of quality of products/services [Wenzel & Benkenstein 2018], lowers the uncertainty of a purchase decision [Kiecker & Hartman 1993] and enhances shoppers' self-confidence in purchase decisions [Kiecker & Hartman 1994].

Task-oriented communication could positively affect perceived decision quality directly. In particular, task-oriented communication could facilitate and enhance the quality of information shared between shopping partners. For example, shoppers share consumer reviews to obtain richer product information [Zha et al. 2013], help each other clarify confusion/unclarity, identify missing data, add new information, and exchange ideas, contributing to decision

quality [Kohli et al. 2011; Stasser & Titus 1985]. In addition, with task-oriented communication, shoppers can identify a larger number of alternative opinions, engage detailed considerations of different aspects of the decision, and prevent potential mistakes, contributing to high decision quality [Eden et al. 1981; Fisher 1974; Jarvenpaa et al. 1988; Maier 1970; Mandl et al. 2011; Mangleburg et al. 2004]. Accordingly, we propose that:

Proposition 3: Task-oriented communication in collaborative online shopping could positively affect perceived decision quality.

3.3. Socio-emotional Communication, perceived enjoyment, and task-oriented communication

The presence of a shopping companion increases shopping emotions [Chebat et al. 2014; Matzler et al. 2005]. For teenage consumers, shopping with a companion is a pleasant social experience, as the companion implies fun and entertainment [Wenzel & Benkenstein 2018]. Adults also demonstrate enjoyment when shopping with a companion as opposed to shopping alone [Borges et al. 2010]. The enjoyable experience with the presence of others is possibly due to the reason that the presence of others (even passive observers) increases arousal or drive level, and as a result of which, people's performance improves [Zajonc 1965, 1980]. In the same vein, when people shop together online, they are aroused by the presence of the shopping companion, and thus become energized (as opposed to sleepy), which triggers affective responses [Chebat et al. 2014]. As a result, shoppers feel shopping an enjoyable experience [Das & Varshneya 2017; Guido 2006; Tauber 1972; Woodruffe-Burton et al. 2002]. Consequently, we propose that

Proposition 4a: Socio-emotional communication during collaborative online shopping could positively affect perceived enjoyment.

Communication can be studied in terms of effectiveness [Whittaker 2003] and/or amount of communication (the proportion of task-oriented communication and socio-emotional communication) [Huang et al. 2011]. We focus on the amount of communication. While co-shoppers could exchange task-oriented and socio-emotional communication, task-oriented communication cannot take place with socio-emotional communication simultaneously, and vice versa [Huang et al. 2011]. For example, when two shoppers discuss features of a product, they engage in communication-related to the shopping task. When they exchange stories about their personal lives, they perform socio-emotional communication. By increasing the amount of task-oriented communication, the amount of socio-emotional communication will be decreased, and vice versa. As shoppers have limited cognitive capacity [Lee et al. 2016], intense engagement in socio-emotional communication could leave little capacity for shopping tasks. The distraction from shopping tasks could lead to a decrease in the amount of task-oriented communication, which results in a lowered perception of decision quality. Consequently, we posit that

Proposition 4b: Socio-emotional communication during collaborative online shopping could negatively affect perceived decision quality by reducing task-oriented communication

3.4. Technologies Supporting Collaborative Online Shopping and The Two Types of Communications

Drawing on the literature on media richness, we examine the impact of characteristics of technologies supporting collaborative online shopping. Technologies supporting collaborative online shopping often encompass a wide range of features supporting communication, including text chatting, voice chatting, video calling, and co-browsing (collaborative web navigation) [Shah 2010]. Different platforms may have different levels of feature integration. For example, a URL can be copied, pasted, and sent via text message [Zhu et al. 2010]. Text chat, voice chat, and video calling are mentioned as the communication support feature for collaborative online shopping in several studies [Goswami et al. 2007; Siau et al. 2013; Yue et al. 2014; Zhu et al. 2010]. Also, Goswami et al. [2007] propose that collaborative filtering, content-based recommendation, and decision guidance are the features used for decision support in collaborative online shopping.

The premise of media richness theory rests on the notion that task effectiveness is determined by the extent the communication medium's ability to convey the information required by those tasks [Daft et al. 1987; Daft & Lengel 1986]. Lean media are not suitable for situations with equivocality and uncertainty and cause misinterpretation and misunderstanding. As a result, lean media (instant messages) are considered suitable for simple tasks [Siau et al. 2013; Valacich et al. 1994], while voice-enabled communication is suitable for complex tasks as it is effective in enabling fast information sharing and facilitating intricate discussions encompassing a wide range of topics (e.g., product reviews, price, warranty).

The level of richness of a medium determines the type of communication it supports. For example, lean media offer adequate support for simple task-oriented communication and rich media suitable for communicating complex tasks. In addition, media with high levels of media richness stimulate shoppers to engage more information seeking and sharing activities. For example, technologies with high interactivity (e.g., high interactive web pages, virtual reality), rich with cues on product descriptions, promotion videos, intensify shoppers' task-oriented activities [Jiang et al. 2010]. In addition, interactive technologies could trigger shoppers' recognition of unexplored perspectives and trigger them to significantly increase their search activities [Fong et al. 2015; Ghose & Todri-Adamopoulos 2016]. As a result, we propose that:

Proposition 5: Collaborative online shopping technologies high in media richness lead to more task-oriented communication than do technologies low in media richness

Similarly, technologies high in media richness could effectively heighten shoppers' affective involvement in shopping. For example, stimuli such as colors, animation, sound, images create excitement and pleasure [Jiang et al. 2010], driving shoppers to share their emotions. In addition, according to the social presence theory [Short et al. 1976], rich media, with the multiplicity of cues and immediate feedback, promote an individual's social presence [Kim et al. 2013]. When one is perceived to be present in a discussion, the person is more likely to engage in socio-emotional communication [Chebat et al. 2014]. Accordingly, we propose that:

Proposition 6: Collaborative online shopping technologies high in media richness lead to more socio-emotional communication than do technologies low in media richness

3.5.   Moderating Effects of Shopping Group Structure

We argue that shopping group structure moderates the impact of collaborative online shopping technologies on the two types of communication. Among the four types of shopping structure that are identified based on the two dimensions (social intimacy and responsibility/commitment), co-buyers with high social intimacy and buyer-advisor with low social intimacy are at the opposite end of each other. To better illustrate the moderating effects of group structure, we will focus on these two types of group structure in arguments below.

3.5.1.   Group Structure's Moderating Effect on the Relationship between Media Richness and Task-oriented communication

Interactions between shopping agents and customers are believed to be a natural part of retail shopping [Scholz et al. 2020]. Shopping agents often engage in task-oriented communication with shoppers [Lindsey-Mullikin & Munger 2011]. Based on their 18-month observation of interactions between shoppers and salespeople, Lindsey-Mullikin and Munger [2011] have discovered that store companion shoppers tend to engage in task-oriented communication such as demonstrating products, sharing product judgments, advising shoppers, and offering promotions. Shoppers often perceive store companion as an expert and seek details of a product including brand name, price, product quality and gift ideas [Lindsey-Mullikin & Munger, 2011].

It is advised that effective shopping agents adjust how they communicate with a customer based on the customer's specific characteristics and needs [Hall et al. 2015; McFarland et al. 2006; Román & Iacobucci 2010]. For example, describing a product in detail may not be necessary for an informed customer, who may prefer an in-depth comparison of different brands. Regular customers who are familiar with existing products might be interested in new offers and competitive promotions. Some customers may be reluctant to share personal preferences and afraid to be judged by strangers. While these unique shoppers' characteristics and needs could be visually observed and quickly sensed through in-person interactions in physical stores and shopping malls, they could not be easily detected in online shopping. Therefore, it is reasonable that technologies high in media richness (e.g., virtual reality) would enable store agents to capture a customer's unique characteristics and needs and actively engage the customer in sales, and that technologies low in media richness, characterized by limited cues, delayed feedback, and lack of personal focus, would hamper store agents from effectively performing task-oriented communication (e.g., explain product features and offer recommendations).

In contrast, buyers with high social intimacy are less susceptible to lean media. Studies on computer-mediated communication have discovered that people familiar with each other could overcome the limitations of lean media and engage in communication online as they do face-to-face [Carlson & Zmud 1999; Walther 1996, 2015]. With the experience, communicators can adroitly come up with ways to add a variety of cues to convey rich and subtle messages. It is foreseeable that task-oriented communication will be even heightened when buyers with high social intimacy are presented with technologies high in media richness. In addition, responsibility/commitment plays a significant role in task-oriented communication, as co-buyers are much more committed to a purchase together than are shopping pals involving a store agent. Technologies high in media richness would stimulate co-buyers to engage intense task-oriented communication. Accordingly, we propose that

Proposition 7a: The positive impact of collaborative online shopping technologies on task-oriented communication is moderated by group structure in that the impact of media richness on task-oriented communication is stronger in the co-buyer group structure with high social intimacy than in the buyer-advisor group structure with low social intimacy

3.5.2.   Group Structure's Moderating Effect on the Relationship between Media Richness and Socio-emotional Communication

The presence of a shopping pal stimulates affective responses, regardless of whether they shop and buy together or assist another in his/her respective shopping activities [Das & Varshneya 2017]. The level of affective responses, however, is higher in co-buyers with high social intimacy than in shopping pals involving a store agent. Shoppers desire to shop with people with high levels of social intimacy, those with whom they share similar interests and ideas, are personally familiar, and enjoy being together [Borges et al. 2010; Lindsey-Mullikin & Munger 2011; Tauber 1972].

Studies have revealed positive emotions experienced by people who shop with their friends and family members [Borges et al. 2010; Chebat et al. 2014; Wenzel & Benkenstein 2018]. In contrast, communication between a shopper and a store agent tends to focus mainly on the shopping task with little socio-emotional communication [Lindsey-Mullikin & Munger 2011]. As a result, technologies rich in media richness would enable co-buyers with high levels of social intimacy to engage socio-emotional communication, but would have little impact on shopping pals involving a store agent. As a result, we posit that

Proposition 7b: The positive impact of collaborative online shopping technologies on socio-emotional communication is moderated by group structure in that the impact of media richness on socio-emotional communication is stronger in the co-buyer group structure with high social intimacy than in the buyer-advisor group structure with low social intimacy.

4. Discussions

With advanced technologies such as the Internet and social medial, collaborative online shopping becomes a burgeoning phenomenon that has attracted increasing attention from academic researchers and industrial practitioners. However, our thorough review of collaborative online shopping literature has revealed the dominant focus on technologies supporting collaborative shopping. Compared to solo shopping, collaborative shopping is unique in communication activities between shoppers. Therefore, we argue that communication activities between shoppers represent the critical difference between solo shopping and collaborative shopping and that they play a critical role in the shopping experience and shopping outcomes. As a result, it is imperative to focus on communication in examining collaborative online shopping.

To address the gap in the extant literature, we set out to develop a conceptual framework of social interactions in the hope of inspiring more in-depth research on communication activities in the collaborative online shopping context. Drawing on Bales' [1950] Interaction Process Analysis and media richness literature and consumer shopping behaviors, we first distinguish communication activities into two distinct types of communication in collaborative online shopping: task-oriented communication and socio-emotional communication, and then propose antecedents and outcomes of these activities and postulate the moderating effects of shopper group structure in the collaborative online shopping context.

Our conceptual framework offers several contributions to the extant research on collaborative online shopping. First, we have theorized the antecedents and impact of the two types of communication activities. In particular, drawing upon the media richness theory [Daft et al. 1987; Daft & Lengel 1986], we posit that collaborative online shopping technologies high in media richness lead to more task-oriented communication and socio-emotional communication than technologies low in media richness. In addition, we propose that the two types of communication activities affect the utilitarian and hedonic value of shopping. Task-oriented communication can enhance the utilitarian value by improving perceived design quality, and socio-emotional communication contributes to the hedonic value by increasing perceived enjoyment. However, we argue that an excessive focus on socio-emotional communication can reduce the perception of decision quality.

Second, we propose the four types of shopping group structure based on the two dimensions: social intimacy and responsibility/commitment. The typology captures different combinations of shopping companions, and thus makes up for the gap in the extant literature that focuses mainly on shopping pals with high social intimacy (e.g., friends, family members). With the proposed shopping group structure typology, we then hypothesize the moderating role of shopping group structure in collaborative online shopping. We argue that the positive impact of media richness on the two types of communication will be stronger for co-buyers with high social intimacy than for buyer-advisor with low social intimacy.

To practitioners, our conceptual framework on the role of social interactions in collaborative online shopping guides practitioners' efforts in engaging consumers in online shopping. As people who shop with a family member or a friend tend to linger longer together when engaging in socio-emotional communication, e-tailers should embed various technologies supporting socio-emotional communication in their online shopping platform. However, to compensate for subsequent reduction in task-oriented communication, e-tailers should focus on stimulating shopping activities. For example, promotions of products of interest to shoppers could be automatically displayed every two or three minutes, which would effectively direct shoppers' attention to shopping activities. Furthermore, given the profound impact of socio-emotional communication on consumer behaviors, e-tailers shall train store agents to be more effective in engaging socio-emotional communication online. By separating communication into the two categories and highlighting the importance of task-oriented communication in shopping outcomes, our research is also valuable to technology designers, who could then identify and enhance elements of design that are inducive to task-oriented communication.

5. Future Directions and Conclusions

Our social interactions framework in collaborative online shopping builds a solid foundation based on which future research could be conducted. For example, the proposed conceptual framework shall be tested across various collaborative technologies and different shopping group combinations. In addition, studies could further investigate the differences in content and duration of task-oriented communication across different shopping group combinations, and examine the impact of the differences on perceived decision quality and intention to continue collaborative online shopping. Similarly, a comparison in content and duration of socio-emotional communication between co-buyers with high social intimacy and buyer-advisor with low social intimacy could be performed to shed light on differences in perceived enjoyment and behavioral intention.

How store agents could be more effective in the collaborative online shopping context needs to be further examined. Future research could investigate how effectively store agents could engage task and socio-emotional communication with customers in the collaborative online setting. As customers' susceptibility to social influence varies at the different stages of a purchase making process [Tseng & Wei 2020], studies could examine how store agents could adjust task and socio-emotional communication to enhance consumers' online shopping experience and improve shopping outcomes.

Extant research has focused mainly on two consumer groups: teenage consumers and adult consumers. It would be interesting to explore the differences in the content and duration of task and socio-emotional communication engaged by these two groups of consumers, and investigate the impact of media richness on the differences. As teenage consumers are often malleable to external influence [Mangleburg et al. 2004], future research could examine the extent to which store agents' task and socio-emotional communication could affect teenage consumers, and how technologies could play a role. Furthermore, studies could be conducted to investigate task and socio-emotional communication among senior consumers, as technologies become more antromorphic and easier to use [Go & Sundar 2019; Rietz et al. 2019].

In summary, the extant literature focuses mainly on the technical aspect of collaboration technologies and has largely ignored shoppers' social interactions in collaborative online shopping. Arguing for the essential role of within-shopper communication in collaborative online shopping, we distinguish the two types of communication activities: task-oriented and socio-emotional, and propose the shopping group structure typology. We then develop a conceptual framework of social interactions where antecedents and consequences of these communication activities are theorized. As an early effort examining communication in collaborative online shopping, our research bears significant and pertinent implications for both academic researchers and industrial practitioners.

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Appendix I: Summary of Studies on Collaborative Online Shopping

Author(s)	Supporting Features/ Technologies	Research Methodology	Dependent Variable(s)	Main Findings
Goswami et al., 2007	Communication Support and Decision Support Features	Conceptual Paper(non-empirical)	Satisfaction	The match between the purpose of shopping (i.e., socializing and buying) and the features offered by the website (communication support and decision support) is positively related to the satisfaction of the shopping process
Huang et al., 2011	Product Recommendation Agents	Experimental	Purchase Decision Quality, and Perceived Enjoyment	Product Recommendation Agents (PRA) could affect the shopping value both directly. Also, the relation between PRA use and shopping value is mediated by the communication between shoppers. Task-oriented communication could affect the utilitarian value, and socio-emotional communication could affect the hedonic value.
Cheng et al., 2013	Navigation Support Features	Experimental	Perceived Ease of Uncoupling Resolution, and Perceived Usefulness	Separate navigation with location cue and split screen leads to higher perceived usefulness than separate navigation and shared navigation. And there's significant interaction effect between navigation support and group structure.
Yue and Jiang, 2013	Navigation Support Features	Experimental	Intention to Return	Split screen navigation leads to more actual shared understanding than separate screen navigation. In addition, the perceived decision quality is found to affect customers' intentions to revisit the online store.
Yue et al., 2014	Navigation Support Features	Experimental	Coordination, Concentration and Comprehension	Split screen encourages more diverse product search, shared view enables better coordination
Siau et al., 2013	Communication Support Features	Experimental	Satisfaction	There is an interaction effect between communication supporting media and two core task types (product generation versus product selection) on satisfaction in the collaborative online shopping context.
Kim et al., 2013	The Use of an Avatar, Communication Support Features	Experimental	Intention to Use a Collaborative Online Shopping Website	Incorporating the avatar and richer media (voice chat instead of text chat) enhances co-presence, flow, and the intention to use a collaborative online shopping website
Zhu et al., 2010	Navigation Support and Communication Support Features	Experimental	Coordination performance, and Social Presence	Shared navigation and voice chat can significantly enhance the collaborative shoppers' perceptions of social presence derived from their online shopping experiences.
Seedorf et al. 2014	Co-browsing Technology	Experimental	Endurability	Higher perception of psychological presence (by co-browsing) leads to more engagement for co-shoppers in the online shopping activity.
Wei et al. 2017	Co-browsing Technology	Experimental	Endurability	Higher perception of psychological presence (by co-browsing) leads to more engagement for co-shoppers in the online shopping activity.