Consumer behavior in social commerce: A literature review

Kem Z.K. Zhang [a,b,*], Morad Benyoucef [b]

[a] School of Management, University of Science and Technology of China, 96 Jinzhai Road, Hefei, Anhui 230026, China
[b] Telfer School of Management, University of Ottawa, 55 Laurier East, Ottawa, ON, Canada K1N 6N5

A B S T R A C T

The emergence of social commerce has brought substantial changes to both businesses and consumers. Hence, understanding consumer behavior in the context of social commerce has become critical for companies that aim to better influence consumers and harness the power of their social ties. Given that research on this issue is new and largely fragmented, it will be theoretically important to evaluate what has been studied and derive meaningful insights through a structured review of the literature. In this study, we conduct a systematic review of social commerce studies to explicate how consumers behave on social networking sites. We classify these studies, discuss noteworthy theories, and identify important research methods. More importantly, we draw upon the stimulus–organism–response model and the five-stage consumer decision-making process to propose an integrative framework for understanding consumer behavior in this context. We believe that this framework can provide a useful basis for future social commerce research.

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1. Introduction

The concept of social commerce emerged in 2005 amid the growing commercial use of social networking sites and many other social media websites [15]. It ushers a new form of electronic commerce (e-commerce) [97]. Unlike traditional e-commerce where consumers usually interact with online shopping sites separately, social commerce involves online communities that support user interactions and user-generated content [55]. A recent survey points out that social commerce in the U.S. has already generated 5 billion dollars in sales, with 9 billion expected in 2014 and 15 billion in 2015 [71].

The significance of social commerce has made it the subject of various studies. For instance, prior research posits that online reviews in social media are an important source of information that assists consumers' decision-making [1,32]. Liang et al. [65] showed that social support from online friends is critical in driving consumers to adopt social commerce. Edelman [22] advocated that social media enables consumers to engage with brands in profoundly new ways; hence, companies should shift marketing strategies from attracting consumers' awareness (pre-purchase stage) to bonding with consumers after their purchases (post-purchase stage).

To harness the power of social commerce, it is important to study the process and uniqueness of how consumers behave in this setting [38].

Although we are witnessing an increase in the literature on this emerging issue, current research is rather fragmented, which makes it difficult to derive meaningful and conclusive implications from it. To this end, the purpose of this study is to conduct an extensive review of the literature on consumer behavior in social commerce. We first address important aspects such as research contexts, theories, and methods in this area. We then draw upon the stimulus–organism–response model [69] and the five-stage consumer decision-making process [23] to develop an integrative framework for better understanding consumer behavior in the context of social commerce. We argue that this framework can provide a useful foundation for future social commerce research.

The paper is organized as follows. First, we discuss the definition and scope of social commerce in the present research. Second, we explain our review method of studies on consumer behavior in social commerce. Third, we review these studies and summarize findings in several aspects. Fourth, we propose a theoretical framework to understand consumer behavior in social commerce. Finally, we discuss our implications, opportunities for future research, as well as the limitations of our work.

2. What is social commerce?

Social commerce is often considered as a subset of e-commerce [16,67]. Prior research has broadly characterized it with two essential elements: social media and commercial activities [65,104]. However, a closer look at its definitions in the literature reveals that the social commerce concept is associated with many inconsistencies. For instance, Stephen and Toubia [92] defined social commerce as a form of Internet-based social media which enables individuals to engage in

* Corresponding author at: School of Management, University of Science and Technology of China, 96 Jinzhai Road, Hefei, Anhui 230026, China. Tel.: +86 551 63600195.
E-mail addresses: zhang@telfer.uottawa.ca (K.Z.K. Zhang), benyoucef@telfer.uottawa.ca (M. Benyoucef).

the selling and marketing of products and services in online communities and marketplaces. Such definition limits sellers to individuals, excluding companies. Dennison et al. [21] adopted a definition provided by IBM and explained it as the marriage of e-commerce and electronic word-of-mouth (eWOM). Marsden and Chaney [68] conceptualized social commerce as the selling with social media websites, such as Facebook, Twitter, LinkedIn, Pinterest, and YouTube (the "Big Five"), which support user-generated content and social interaction.

The conceptual confusion in defining social commerce, to some extent, brings about different understandings of what social commerce websites are. Recent research identified two major types of social commerce: (1) social networking sites that incorporate commercial features to allow transactions and advertisements; and (2) traditional e-commerce websites that add social tools to facilitate social interaction and sharing [43,67]. The first social commerce type is the focus of a majority of previous studies (e.g., [7,8,26]). In contrast, Amblee and Bui [2] considered Amazon, a traditional e-commerce website, as practicing a form of social commerce because it contains a large amount of online consumer reviews. Group shopping websites were also recognized as a form of social commerce in which people form groups to purchase products with price advantages [54]. Indvik [45] summarized seven categories of social commerce websites, including social network-driven sales platforms (e.g., Facebook), peer recommendation websites (e.g., Amazon), group buying websites (e.g., Groupon), peer-to-peer sales platforms (e.g., eBay), user-curated shopping websites (e.g., Lyst), social shopping websites (e.g., Motilo), and participatory commerce websites (e.g., Kickstarter).

A recent study by Yadav et al. [104] defines *social commerce* as the "exchange-related activities that occur in, or are 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" (p. 312). This definition explicates two building blocks of the concept: (1) *exchange-related activities*, which include various stages of consumers' decision-making; and (2) *computer-mediated social environments*, where meaningful personal connections and sustained social interactions exist among network members. This definition clearly rules out websites such as Amazon and Groupon, which have no explicit social networks among their users.

In this study, we adopt Yadav et al.'s definition of social commerce, and we further restrict our discussion to *social networking sites* to better highlight the "social" nature of social commerce. Moreover, to obtain a holistic view of consumer behavior, we consider *various stages* in the decision-making process, instead of narrowly emphasizing the transaction stage.

3. Literature identification and collection

We employ a systematic approach to identify relevant articles for our literature review. We use two methods to collect academic and peer-reviewed journal articles in this process. First, we select a number of academic databases, including Web of Science, Business Source Premier, Science Direct, ABI/INFORM Global (ProQuest), Emerald, and Wiley Online Library. We search these databases using keywords like social commerce, Facebook commerce, social shopping, and social media marketing. Second, we check important journals to ensure that we do not miss relevant articles. This method is consistent with Cheung and Thadani's [10] work on reviewing the literature of eWOM communication. We conduct a similar keyword search on information systems (IS) and e-commerce journals, such as *MIS Quarterly*, *Information Systems Research*, *Journal of Management Information Systems*, *Decision Support Systems*, *Information & Management*, and *International Journal of Electronic Commerce*; as well as marketing journals like *Journal of Marketing*, *Journal of Marketing Research*, and *Journal of Consumer Research*.

We follow the conventional literature review approach to cross-check and validate the relevance of the initial set of articles [100]. To select relevant articles, we examine the title, abstract, or the content of the articles manually by referring to three criteria: (1) *empirical research*, (2) *focusing on consumer behavior*, and (3) *examining the context of social networking sites*. This literature selection process allows us to reflect on significant peer-reviewed journal articles with empirical evidence regarding consumer behavior on social networking sites.

Finally, a total of 77 articles are collected for our literature review. As shown in Fig. 1, the number of articles about consumer behavior on social networking sites has increased each year since 2010. The increase suggests that this is a new research area that is increasingly attracting the interest of academics. Note that six articles have already been published in early 2015, and we expect that more studies are likely to appear in the upcoming years.

Table 1 shows a list of 19 journals with more than one article, suggesting that they have an interest in publishing in such area. *Computers in Human Behavior* ($n = 6$) and *Journal of Interactive Marketing* ($n = 5$) are the two journals with the highest numbers of published articles. In addition, we observe that some articles appeared in social commerce-related special issues of a few journals. These special issues include (1) *Decision Support Systems*, Volume 65, September 2014, pages 59–68: "Crowdsourcing and Social Networks Analysis"; (2) *Electronic Commerce Research and Applications*, Volume 12, Issue 4, July–August 2013, pages 224–235: "Social Commerce"; (3) *Information Systems Research*, Volume 24, Issue 1, March 2013: "Social Media and Business Transformation"; and (4) *International Journal of Electronic Commerce*, Volume 16, Issue 2, 2011: "Social Commerce". This is perhaps an indication that these journals are pioneers in showing an interest in social commerce research. Note that not all articles in the special issues were part of our studied sample. As mentioned earlier, we only selected those that focus on *consumer behavior on social networking sites using empirical methods*.

4. Review of the studies

To guide our review of the studies, we consider four major questions: (1) what research contexts were studied? (2) What theories were adopted? (3) What research methods were used? And (4) what important factors were studied to understand consumer behavior in social commerce? These questions are consistent with previous literature review studies [39,91] and can help us synthesize the research findings of various articles. We discuss the first three questions in this section. The fourth question is addressed in the next section with the discussion of an integrative framework.

4.1. Research contexts

While all the social commerce studies in our sample emphasize social networking sites, a further examination reveals two different
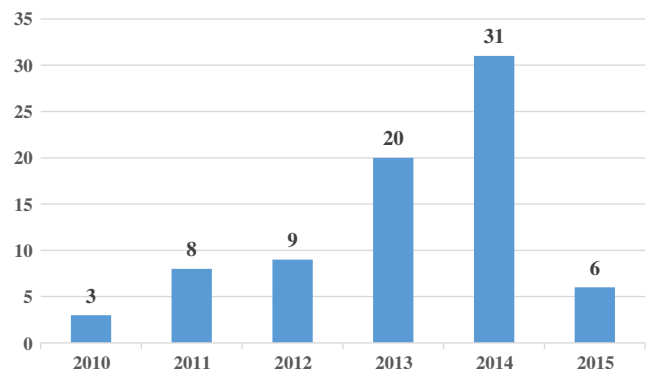

Fig. 1. Publication timeline of the literature.

Table 1
List of journals with more than one article.

Journal	Studies	Number
Computers in Human Behavior	[60,61,63,64,82,109]	6
Decision Support Systems	[36,103]	2
Electronic Commerce Research and Applications	[83,87,98]	3
Global Economic Review	[53,78]	2
Information & Management	[52,75,108]	3
Information Systems Research	[26,85]	2
International Journal of Advertising	[8,13]	2
International Journal of Electronic Commerce	[65,81]	2
International Journal of Hospitality Management	[49,62]	2
International Journal of Information Management	[29,32,59]	3
International Journal of Market Research	[5,31,33]	3
Journal of Business Research	[7,50,107]	3
Journal of Consumer Behaviour	[35,37,47]	3
Journal of Global Marketing	[12,93]	2
Journal of Interactive Marketing	[19,41,58,90,99]	5
Journal of Marketing Communications	[27,95]	2
Journal of Retailing and Consumer Services	[3,18]	2
Technological Forecasting and Social Change	[30,102]	2
Tourism Management	[44,73]	2

streams of studies with regards to their research contexts: focusing on social networking sites *in general* ($n = 37$) vs. *brand pages* on social networking sites ($n = 40$). Fig. 2 depicts the publication timeline of the two research streams. We can see that both streams have an increasing publication trend, with relatively more recent interest in the second stream.

Studies in the first research stream examine consumer behavior by considering the context of social networking sites in general. Moreover, a majority of these studies examine consumer behavior by shedding light on information (especially eWOM) seeking [4,5,12], purchase attitude [63,99], and purchase intention [53,75,98]. This shows that *pre-purchase* and *purchase* behaviors are often the focus, which reflects the view that social networking sites can function as tools that stimulate consumers to purchase. Further, consumers' perceptions and feelings toward the websites [65], other consumers [99], and content created by other consumers [32] are deemed to be important aspects in influencing consumer behavior.

The second research stream pays particular attention to brand pages on social networking sites. Such brand pages are usually created by companies with the purposes of disseminating information, promoting brands/products, and interacting with consumers [109]. In this setting, it becomes important to consider factors associated with companies, their brands, and brand pages in understanding consumer behavior. For instance, Pentina et al. [81] examined the influence of consumers' perceived relationships with brands on Facebook and Twitter. de Vries et al. [19] investigated the effects of posted messages on brand pages, which include vividness, interactivity, informational content, entertaining content, position of the messages, and valence of comments. Labrecque [58] considered whether the perceived interactivity, openness, and
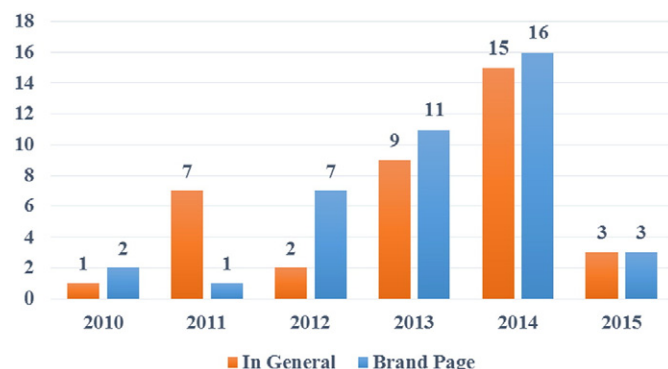

Fig. 2. Publication timeline of the literature: in general vs. brand page.

parasocial interaction of brands can entice consumers to provide information and develop loyalty toward the brands. Overall, this research stream mainly focuses on consumer participation [81,109], purchase intention [3, 70], eWOM spreading intention [6,61], and brand loyalty [24,59,110]. Thus, compared to the first stream, the second stream of studies has placed more emphasis on *purchase* and especially *post-purchase* behaviors. This reflects the view that social networking sites can be helpful for branding strategies after the purchase [22]. In sum, the second research stream is likely to provide more specific insights for companies to understand the influence of their brand pages on consumer behavior.

4.2. Theories

To understand consumer behavior, prior social commerce studies have adopted a number of theories. Table 2 depicts the theoretical foundations for these studies. The table shows that motivation theory, technology acceptance model, theories of reasoned action and planned behavior, and culture-related theoretical perspectives are mostly adopted in the literature (at least five articles for each theoretical perspective).

Upon further review, we note that the selected studies have put several theoretical emphases in addressing consumer behavior in social commerce. These emphases are detailed below.

First, there is an interest in investigating what consumers' *motives*, *benefits*, and *values* are in this setting, and theories such as consumer value theory, uses and gratifications theory, and motivation theory are used to explain these issues. Consumer value theory states that consumers may be able to identify functional value, emotional value, self-oriented value, social value, and relational value while interacting with brand pages on social networking sites [18]. Uses and gratifications theory is adopted to explain that consumers tend to seek entertainment, information, and remuneration on brand pages [17]. Likewise, motivation theory suggests that a consumer's intention to shop and intention to spread eWOM in the context of social commerce may be determined by utilitarian (e.g., perceived effectiveness of using a social commerce website) and hedonic (e.g., perceived enjoyment of using the website) motivations [70].

Second, *behavioral theories* such as the theory of reasoned action (TRA), the theory of planned behavior (TPB), and the technology acceptance model (TAM) were also applied in a number of the studies.

Table 2
Theoretical foundations in the literature.

Theory	Studies	Number
Brand relationship theory	[81,82]	2
Communication privacy management theory	[87]	1
Consumer decision process theory	[47,48]	2
Consumer socialization theory	[99]	1
Consumer value theory	[3,18,20,52]	4
Contagion theory	[84]	1
Culture-related theoretical perspectives	[12,27,63,75,82,95,102,105]	8
Elaboration likelihood model	[7]	1
Information processing theory	[98]	1
Motivation theory	[37,42,70,73,83,93,95]	7
Parasocial interaction theory	[58]	1
Self-congruence theory	[109]	1
Social capital theory	[53,105,106]	3
Social cognitive theory	[61]	1
Social exchange theory	[110]	1
Social influence theory	[57,103]	2
Social response theory	[64]	1
Social support theory	[30,31,65]	3
Stimulus–organism–response model	[78,98,108]	3
Technology acceptance model	[9,35,57,62,88]	5
Theories of reasoned action and planned behavior	[57,88,102,105,106]	5
Trust transference theory	[75]	1
Uses and gratifications theory	[17,20]	2

TAM highlights the important roles of perceived usefulness and perceived ease of use, whereas TRA and TPB provide a belief-attitude-intention framework to understand individuals' behavior. Such theories have been widely tested in the IS literature for understanding the adoption of information technology (IT), as well as online shopping behavior (e.g., [25,80]). Thus, there were attempts to empirically examine whether these theories can also be applicable in the emerging social commerce context. For instance, Chen et al. [9] found that perceived usefulness and perceived ease of use of brand pages on Facebook can entice consumers to spread eWOM. Shin [88] adapted TAM and TPB to investigate the behavioral antecedents of using social commerce websites.

Third, the inherent social nature of social commerce entices researchers to derive theoretical insights from *social-related theories*. As shown in Table 2, these theories include social capital theory, social cognitive theory, social exchange theory, social influence theory, social response theory, and social support theory. The social capital theory indicates that consumers may invest and utilize social capital to facilitate their social shopping behavior [53]. The social cognitive theory explains that consumers' eWOM behavior on social networking sites may be a function of their cognitive judgment and social outcome expectation [61]. According to the social exchange theory, consumers are found to evaluate the benefits and costs to decide whether or not to participate in brand pages [110]. The social influence theory highlights the influence of social others. It is found that the frequency of interaction with online friends and their reviews of a product can be good measures to reflect the social influence in a consumer's product purchase decision [103]. Meanwhile, the social response theory views a social networking site as an independent social actor in which consumers can establish social relationships and apply social rules [64]. The social support theory characterizes social support from online friends with several dimensions (e.g., emotional support and information support). Further, social support is found to be an important determinant of consumers' social commerce intention [65].

Finally, our literature review shows that culture-related issues in social commerce have attracted considerable attention. Research shows that the levels of usage, participation, trust, and eWOM behavior on social networking sites are likely to differ across cultures [12,27,102]. Culture is also found to have moderating effects on consumers' purchase decision [75,82]. Overall, we identify several *culture-related theoretical perspectives* in these studies. For instance, Hofstede's five cultural dimensions [40], namely, individualism/collectivism, uncertainty avoidance, masculinity/femininity, power distance, and long-/short-term orientation, were adopted to explain cultural differences [27]. Ng [75] contended that the individualism/collectivism and uncertainty

avoidance are the most relevant dimensions to compare behavioral differences between East Asians (high individualism and low uncertainty avoidance) and Latin Americans (high collectivism and high uncertainty avoidance) on Facebook. According to Triandis [94], the individualism/collectivism dimension can be further divided into horizontal individualism, vertical individualism, horizontal collectivism, and vertical collectivism. This more sophisticated classification was helpful in addressing the differences in participation behavior [95] and eWOM communication [12] in social commerce. Xu-Priour et al. [102] considered the dimension of polychronic/monochronic time orientation besides the individualism/collectivism dimension. They found that consumers from a polychronic culture (e.g., France) are more likely to enjoy multitasking and social interactions than those from a monochronic culture (e.g., China), thus, are more prone to use social commerce websites. Lastly, Li [63] adopted the culture learning model to explain social networking sites as cultural products, which enable newcomers (e.g., international students and immigrants) in a host society to shape new cultural orientations. They showed that newcomers' attitude and purchase intention toward products with cultural symbols are associated with their usage intensity of social networking sites.

4.3. Research methods

Previous studies have employed a number of research methods to provide empirical evidence with regards to consumer behavior in social commerce. According to Hoehle et al. [39], empirical research methods are classified as *qualitative* (e.g., netnographic approach and focus group interview) if they emphasize descriptive data collection and the understanding of contextual and environmental research phenomena. In contrast, the *quantitative* methods (e.g., survey and experiment) focus on observable and numerical data collection and the analysis of relationships among factors in the phenomena. As shown in Fig. 3, both qualitative and quantitative methods have been adopted in the studies we collected. Further, over 70% ($n = 54$) of the studies adopted the quantitative survey method. This indicates that the *survey method* dominates empirical research in social commerce studies.

Since social commerce is still a new research area, only few studies apply qualitative methods such as narrative analysis, netnographic approach, and focus group interview to attain exploratory understandings of the phenomenon. For instance, using the narrative analysis method, Heinonen [37] asked consumer respondents to keep a diary to report their thoughts and information about social networking site usage. She was able to identify 15 types of activities regarding consumers' participation, consumption, and production behaviors. The
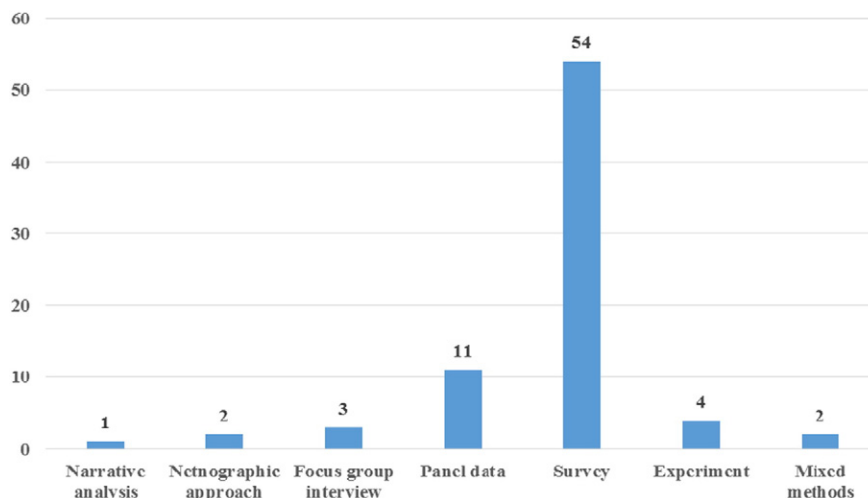

Fig. 3. Research methods in the literature.

netnographic approach, which has the unobtrusive and naturalistic attributes, is adapted from the ethnographic method to study communities and cultures in online settings [56]. Our review shows that this approach was adopted to collect data by actively participating and interacting with others on social networking sites [29,107]. Their findings provided insights about the existence and dimensions of brand communities on these sites, as well as the motivations of consumers' participation. The focus group interview method refers to two similar approaches: (1) a group of individuals are interviewed jointly to discuss topics provided by the researchers, and (2) individuals are interviewed independently. By using these approaches, prior research has examined consumers' shopping behavior [35], eWOM behavior [79], and the benefits of consuming brands on social networking sites [18].

In the social commerce context, the panel data method refers to the collection of archival data on social networking sites. The data can be qualitative (e.g., content of messages) and quantitative (e.g., number of messages). Data may be collected, for instance, using web crawlers developed by leveraging the application programming interfaces (APIs) of social networking sites [26,103]. The analysis of qualitative data may initially rely upon the content analysis approach (manual or computerized coding) to transfer it into quantitative data [26,90]. According to Fig. 3, panel data is the second most adopted research method in social commerce studies. This method is usually used to understand the relationship between the characteristics of brand pages and consumers' participation behavior (e.g., forward, reply, like, and comment) [8,17,19,36,86]. Xu et al. [103] used this method to examine consumers' probability of adopting a product, while Goh et al. [26] integrated archival data on a Facebook brand page with consumers' transaction data in order to examine their purchase behavior.

Survey and experiment are two typical representatives of quantitative research methods. As mentioned earlier, survey is also the most widely adopted method in the social commerce literature. It allows for the use of questionnaires to reach a large number of people on social networking sites and collect many theoretically related variables. In contrast, we find that only a few studies apply the experiment method. This method requires the manipulation and control over variables to design treatments. In the social commerce context, this method is used to build experimental brand pages on social networking sites and then examine consumers' behavior towards them [61,63,64]. Note that it may take time to develop social relationships among subjects in this context [98] which may, to some extent, constitute a barrier to the experimental design on these sites. Lastly, our review also identified two studies with mixed methods. Hollebeek et al. [41] first employed the focus group interview method to develop the measurement instrument of consumer brand engagement on social networking sites. Then, they tested and refined the measures through two surveys and conducted a final survey to investigate its antecedent and consequences. Labrecque [58] adopted the survey method to examine how parasocial interaction, which delineates consumers' illusionary social interactions with media, affects the willingness to share information and brand loyalty. Then, they conducted two experiments to manipulate parasocial interaction and explore the boundary conditions (e.g., knowledge of computer response automation) for their model.

5. An integrative framework for consumer behavior in social commerce

Through the literature review, we are further able to identify a number of important factors for studying consumer behavior in social commerce. To provide a coherent picture of the roles they play in this context, we propose an integrative framework based on the stimulus–organism–response model and the five-stage consumer decision-making process. Fig. 4 depicts an overview of the framework. Details of its theoretical background and important components and factors are discussed below.

5.1. Theoretical background

The *stimulus–organism–response* (SOR) model was originally developed upon the classical stimulus–response theory. This theory explains individuals' behaviors as learned responses to external stimuli [101]. Later, the theory was questioned and accused of oversimplifying the causes of behaviors and not considering ones' mental states. As a significant theoretical extension, Mehrabian and Russell [69] improved the SOR model by incorporating the concept of organism between stimulus and response. This concept was adopted to better reflect individuals' cognitive and affective states before their response behaviors. According to the SOR model, environmental cues act as external stimuli, which can affect individuals' internal cognitions and emotions. These internal factors will then drive them to perform behaviors forming the responses. In the extant literature, the SOR model has shown to be a viable theoretical framework to address consumers' behavior in online environments (e.g., [76,77]). As can be seen in Table 2, we found that some recent studies adopted the SOR model to understand consumers' social commerce intention [108] and purchase intention on social networking sites [78,98].

The *five-stage consumer decision-making process* explains five prominent activities in one's decision-making process: need recognition, search, evaluation, purchase, and post-purchase [23]. The *need recognition* stage indicates that consumers establish consumption needs or become aware of certain products. The *search* stage refers to consumers' information searching behavior for making informed choices. The *evaluation* stage suggests that consumers evaluate alternative products or shopping platforms to choose the best option. The *purchase* stage refers to consumers' purchase behavior or related activities to fulfill the transaction. Finally, the *post-purchase* stage refers to consumers' post-purchase activities, such as recommending products to others. IS researchers have applied this theoretical perspective to examine the effect of online store design on consumer purchase [66], roles of recommendation agents in e-commerce [72], and consumers' adoption of electronic channels over traditional channels [11]. Further, Yadav et al. [104] defined the concept of social commerce on the basis of this perspective. They contended that social commerce should encompass all consumer activities (or stages) of the decision-making process rather than merely transactions. Kang et al. [47,48] empirically applied this perspective to explain that factors in the search and evaluation stages (e.g., opinion seeking and attitude) can affect consumers' intention to shop on social networking sites.
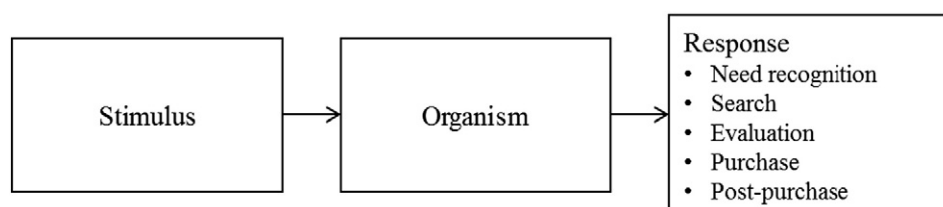

Fig. 4. Framework for consumer behavior in social commerce.

Table 3
Factors associated with the consumer decision-making process.

Stage	Construct	Definition	Studies
Need recognition	Attention attraction	Consumers' attention is attracted by a social networking site	[14]
Search	Information seeking	Consumers search for information like eWOM on a social networking site	[4,5,47,48]
	Browsing	Consumers browse a social networking site for information	[70,83,102]
Evaluation	Attitude	The attitudinal response because of consumers' evaluation of products, brands, or social networking sites	[1,48,57,62–64,88,99,105,106]
Purchase	Purchase behavior	The willingness or actual behavior of consumers' purchase behavior	[3,26,27,31,32,34,35,41,47,48,50–53,57,62–64,70,74,75,78,81–83,98,99,102,103]
	Information disclosure	Consumers will disclose financial information for their purchase behavior	[87]
	Social commerce intention	Consumers are willing to purchase products, and receive and share shopping information on a social networking site	[30,65,108]
Post-purchase	Website usage	Consumers' intention, continuance intention, or actual behavior of using a social networking site	[20,65,81–84,88,105,106]
	Participation	Consumers participate (e.g., read, forward, and reply to messages) in brand pages of a social networking site	[7,17,19,20,36,46,49,86,90,93,95,96,109,110]
	Information sharing	Consumers are willing to share information (e.g., eWOM) on a social networking site	[4,8,9,12,13,27,42,44,58,61,64,70,83,105,106,110]
	Brand loyalty	Consumers are loyal to a brand and willing to repurchase its products and recommend them to others on a social networking site	[3,6,20,24,28,58–60,84,110]

Clearly, the SOR model and the five-stage consumer decision-making process carry the potential to explain consumer behavior on social networking sites. In this study, we further elucidate consumers' *response* activities in social commerce with the five stages (as shown in Fig. 4). This theoretical framework guides us in the literature review to bring about and understand important *stimulus* and *organism* factors that drive each type of consumer responses (i.e., need recognition, search, evaluation, purchase, and post-purchase). In addition, we recognize that factors within the "response" may also have interrelationships. Consistent with prior research [22,104], we note that consumers may not always follow each stage in sequence, and the stages may take place in iterative or non-linear manners on social networking sites.

5.2. Factors associated with the consumer decision-making process

Table 3 depicts the *response* factors identified in our literature review. According to their definitions, we refer to attention attraction in the need recognition stage; information seeking and browsing in the search stage; attitude in the evaluation stage; purchase behavior and information disclosure in the purchase stage; information sharing and brand loyalty in the post-purchase stage. Note that social commerce intention is denoted in the purchase stage, though by definition it may relate to consumers' search, purchase, and post-purchase activities. This is because the concept was initially developed to highlight consumers' intention of conducting commercial activities in the social commerce context [65]. Meanwhile, we refer to website usage and participation in the post-purchase stage because they tend to be beyond the scope of purchasing products. Instead, they are more related to brand followers' interactions with a brand/company through social networking sites. These followers are usually passionate about the brand, thus more likely to have purchased its products before and to have certain level of brand loyalty. In addition, the two constructs tend to have some conceptual connections with other post-purchase factors like information sharing and brand loyalty (e.g., use of a social networking site to spread eWOM about brands). A number of previous studies also posit that website usage and participation are positively associated with consumers' brand loyalty and eWOM spreading behavior (e.g., [20,84,105,106,110]).

Further, we use Fig. 5 to illustrate the number of studies that examine the factors of each decision-making stage. Note that a study can examine two or more factors associated with different stages. Fig. 5 clearly shows that factors associated with the post-purchase stage are the most investigated in the social commerce literature. This finding is consistent with Edelman's [22] assertion as well as what we derived from Fig. 2. That is, researchers have shown growing and dominant interest in understanding how social networking sites can help companies to influence and bond with consumers after their purchases.

5.3. Antecedents for decision-making stages

Following our framework, we elicit the antecedents of consumer behavior in social commerce[1]. These antecedents are further categorized to show the various components in each decision-making stage. Table 4 depicts the factors that affect consumers' *need recognition* (i.e., attention attraction) in social commerce. Research on this issue is rather limited, and we only identified one relevant study. We found that content characteristics like consumer-focused content and photographs are useful stimuli to attracts consumers' attention in the context of social commerce [14]. This finding also implies that stimulus factors may directly affect response factors.

In Table 5, we show the stimulus and organism factors that influence consumers to *search* for information (i.e., information seeking and browsing) on social networking sites. The stimulus factors include content and interaction characteristics, whereas the organism factors include personal traits, value, self-oriented, and social/relational-oriented perceptions. Among the antecedents, research has shown that information-related factors are important in affecting consumers' searching activities. For instance, information availability and valence are postulated as helpful stimuli [5,70]. Similarly, consumers' susceptibility to interpersonal influence and opinion leadership are also found to significantly affect their information seeking behavior [4].

Table 6 shows that only one study examined the influence of stimulus factor (i.e., tie strength) in the *evaluation* stage. A majority of the other studies focus on explicating various types of organism factors. For instance, many of them show that value perceptions like hedonic, social, and utilitarian value are likely to shape consumers' evaluation (i.e., attitude) on social networking sites (e.g., [57,62,88]). This suggests that consumers tend to achieve favorable evaluations if they are able to recognize the positive values of social commerce. Besides the stimulus and organism factors, we also found that response factors such as information seeking and website usage are important predictors [48, 64]. This confirms that response factors in different stages may be interrelated and not necessarily follow a linear sequence.

Compared with the need recognition, search, and evaluation stages, the purchase and post-purchase stages attract more research attention in the social commerce literature. We find that many studies were interested in investigating the antecedents of consumers' *purchase*

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[1] A list of the antecedents and their definitions is available from the authors upon request.
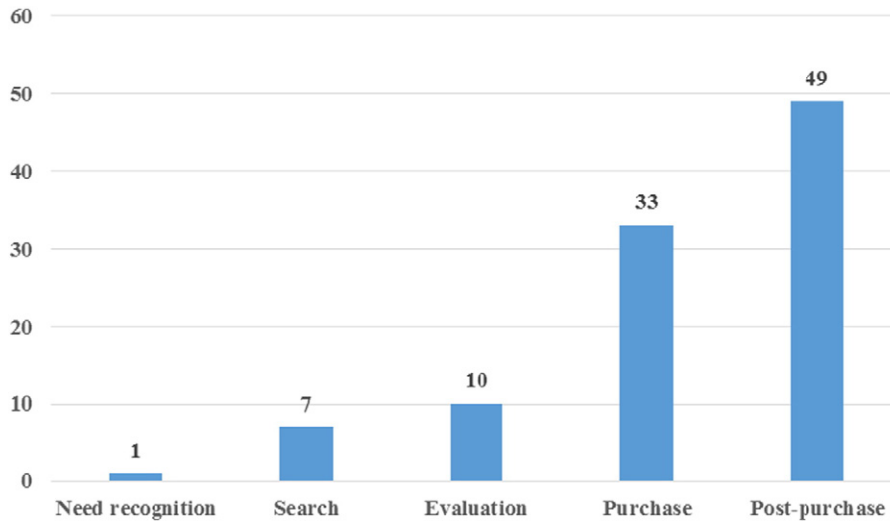
Fig. 5. Number of studies for each decision-making stage.

activities (i.e., purchase behavior, information disclosure, and social commerce intention) on social networking sites (See Appendix A). A number of stimulus, organism, and response factors are identified in this stage. The stimulus factors include content, network, and interaction characteristics. The organism factors include personal traits, value perceptions, affections, self-oriented, and social/relational-oriented perceptions. Finally, the response factors include browsing, information seeking, attitude, information sharing, participation, and website usage. Among the antecedents, we found that hedonic value, utilitarian value, perceived ease of use, and trust are most widely examined given their important roles in the purchase stage (e.g., [52,75,82,83]).

Similarly, we find that many studies shed light on the antecedents of the *post-purchase* (website usage, participation, information sharing, and brand loyalty) on social networking sites (See Appendix B). The antecedents of this stage also share similar components with those of the purchase stage, which implies that the two groups of studies may have comparable theoretical insights. Meanwhile, we notice that more factors are investigated in certain components of the post-purchase stage, such as the component of content characteristics and social/relational-oriented perceptions. This suggests a growing interest in the informational and social elements of social commerce. Among the antecedents in this stage, we found that the influences of informational content, hedonic value, social value, utilitarian value, normative influence, trust, and consumer engagement are extensively studied (e.g., [8,60,61,88]).

Our framework has provided a process-oriented view to understand the antecedents of consumers' decision-making stages. We further posit the need to consider *moderating factors* in the process. This is consistent with the contingency perspective in social commerce [104]. That is, the strength of the main antecedents may vary under different conditions (i.e., contingency factors). Table 7 depicts the moderators we identified in the social commerce literature. We found that a number of moderators are proposed for the evaluation, purchase, and post-purchase stages. For instance, culture is a salient factor that plays a moderating role across the three stages [64,98].

5.4. Complete theoretical framework

Finally, we summarize the factors in each decision-making stage by providing a detailed framework for consumer behavior in social commerce. Building upon Fig. 4, a holistic view of our complete theoretical framework is depicted in Fig. 6.

6. Discussion

The purpose of this study is to conduct a systematic review of the literature on consumer behavior in social commerce. Social commerce has been shown to exercise a noteworthy influence on consumers' behavior, while research on this issue is new and largely fragmented. The definitions of social commerce are also inconsistent throughout the extant literature. We concur with Yadav et al.'s [104] conceptualization of social commerce, and we focus on reviewing empirical research

Table 4
Antecedents of the need recognition stage factor.

Category	Component	Construct	Studies
Stimulus	Content characteristics	Consumer-focused content	[14]
		Photograph	[14]
	Other characteristics	Credential	[14]

Table 5
Antecedents of the search stage factors.

Category	Component	Construct	Studies
Stimulus	Content characteristics	Customized advertisements	[70]
		Information availability	[70]
		Information valence	[5]
		Trend discovery	[70]
	Interaction characteristics	Socializing	[70]
	Other characteristics	Adventure	[70]
		Authority and status	[70]
		Convenience	[70]
		Product selection	[70]
Organism	Personal traits	Brand consciousness	[48]
		Brand-loyalty consciousness	[48]
		Confusion from overchoice	[48]
		Consumer susceptibility to interpersonal influence	[4]
		High quality consciousness	[48]
		Impulsiveness	[48]
		Novelty consciousness	[48]
		Price consciousness	[48]
		Recreational orientation	[48]
	Value perceptions	Hedonic value	[70,83,102]
		Social value	[47]
		Utilitarian value	[70,83]
	Self-oriented perceptions	Consumer self-confidence	[47]
	Social/relational-oriented perceptions	Consumer opinion leadership	[4]
		Normative influence	[47]
	Other factors	Culture	[102]

Table 6
Antecedents of the evaluation stage factors.

Category	Component	Construct	Studies
Stimulus	Network characteristics	Tie strength	[99]
Organism	Personal traits	Brand consciousness	[48]
		Brand-loyalty consciousness	[48]
		Confusion from overchoice	[48]
		High quality consciousness	[48]
		Impulsiveness	[48]
		Novelty consciousness	[48]
		Price consciousness	[48]
		Recreational orientation	[48]
	Value perceptions	Hedonic value	[57,62,88,105,106]
		Social value	[57,105,106]
		Utilitarian value	[57,62,88]
	Affections	Arousal	[62]
		Valence	[62]
	Self-oriented perceptions	Behavioral control	[105,106]
	Social/relational-oriented perceptions	Altruism	[57]
		Market mavenism	[105,106]
		Normative influence	[105,106]
		Identification	[99]
		Trust	[57]
	Other factors	Involvement	[99]
		Perceived ease of use	[57,62]
		Reputation	[57]
Response	Evaluation	Information seeking	[48]
	Post-purchase	Website usage	[1,63,64]

that examines all consumers' decision-making stages on social networking sites. A total of 77 journal articles are identified through a systematic and rigorous search in prominent academic databases and journal outlets. The collected literature shows an increasing publication trend in the emerging area of social commerce. In our review, we categorize the studies in two groups by elucidating how they interpret the research contexts. Further, we discuss what important theories and methods are adopted and how they are adopted, and finally we propose an integrative framework to understand the literature on consumer behavior in social commerce. Our framework is built upon the SOR model and the five-stage consumer decision-making process. It explains that stimulus factors can affect organism factors, which further lead to responses factors. The five decision-making stages compose the response factors. We apply this framework to show how different antecedents affect the various stages in social commerce. This enables us to achieve a holistic understanding of consumer behavior in this setting.

6.1. Implications

We believe that the findings of this study carry several important implications. *First*, to the best of our knowledge, this is the first study to conduct a thorough literature review on consumer behavior in social commerce. While existing studies in this area are emerging, their findings are fragmented and come with inconsistencies and ambiguities. It is thus difficult to obtain conclusive insights regarding how social networking sites influence consumers. In this respect, we provide an overview of the current state of the literature and uncover the research

Table 7
Moderators in different stages.

Stage	Moderators	Studies
Evaluation	Content type, need for uniqueness, culture	[63,64,99]
Purchase	Brand-loyalty consciousness, price consciousness, product-related risk, culture	[47,75,98]
Post-purchase	Content type, gender, user expertise, interaction frequency, involvement, retailer reputation, service ambidexterity, culture	[7,64,75,84,109]

contexts, theories, and methods. More importantly, we propose a theoretical framework to show and synthesize the antecedents of consumers' decision-making stages. This can advance our knowledge of how consumers behave in social commerce, as well as provide a notable theoretical foundation for future research.

Second, ours is one of the very few studies that conceptualize social commerce with the various decision-making stages. This broad view directs us to achieve a more comprehensive understanding of social commerce and to examine consumers' activities occurring before, during, and after purchases in this context [104]. Our findings, as shown in Section 4.1 and Fig. 5, reveal that different research emphases are placed on the decision-making stages, with less emphasis on the need recognition stage and more on the post-purchase stage. This indicates the significance of the post-purchase activities in social commerce. To leverage the marketing potential of social networking sties, companies are thus advised to pay particular attention to the post-purchase stage. In fact, a recent study further contends that companies may contemplate the shift from pre-purchase to post-purchase investments on these sites [22].

Third, the stimulus and moderating factors identified in our integrative framework are likely to help companies to better harness the power of social commerce. The stimulus factors concentrate on content, network and interaction characteristics. Thus, companies may consider manipulating the factors of these aspects to stimulate consumers' behavior on social networking sites. Meanwhile, the influence of moderators, such as consumers' demographics (e.g., gender), personal traits (e.g., price consciousness), content characteristics (e.g., content type), and culture, suggests that the antecedent factors may vary their impacts under different contingency conditions. On one hand, it may help to explain the inconclusive impacts from key predictors in previous studies. On the other hand, it informs companies on the crucial roles of these contingency factors, which may aid them to realize when they could effectively leverage the marketing potential of social networking sites.

6.2. Opportunities for future research

Our literature review also enables us to highlight some opportunities for future research. *First*, our review shows that a majority of the empirical studies adopt the survey method (see Fig. 3). In contrast, research
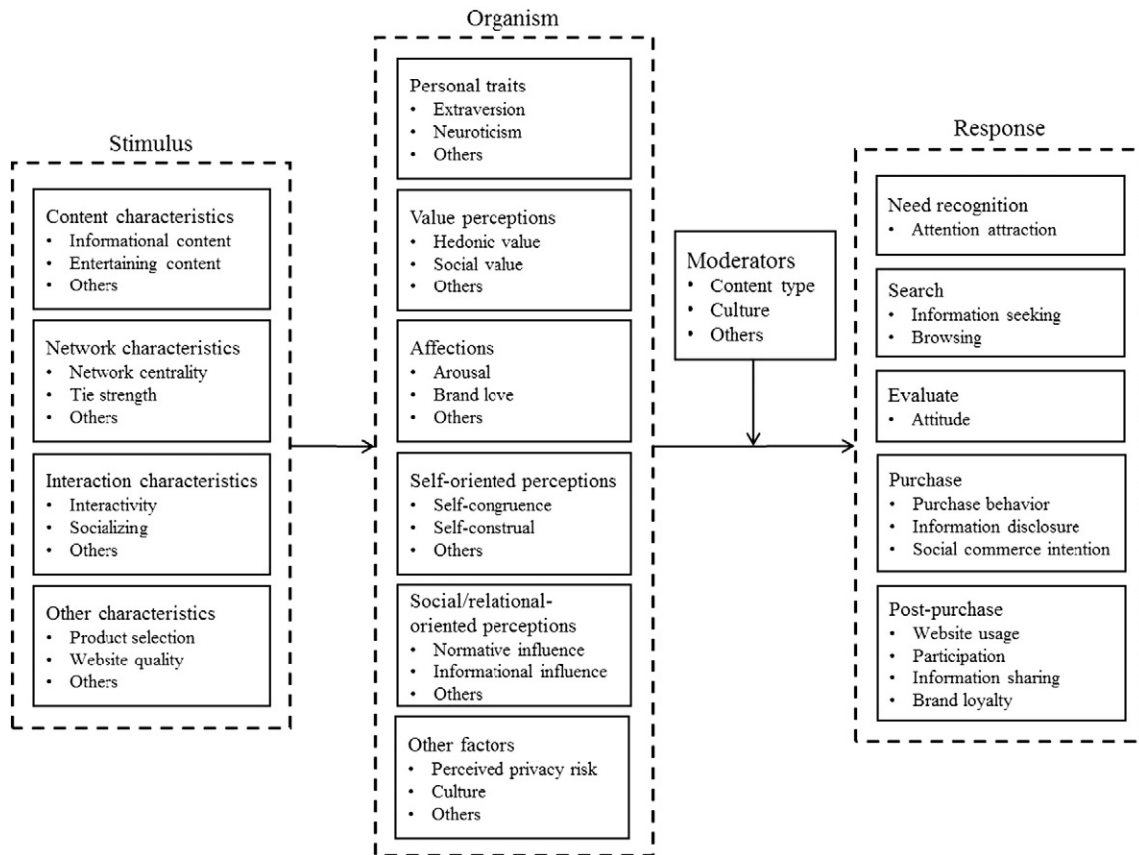
Fig. 6. Complete theoretical framework for consumer behavior in social commerce.

methods such as qualitative (e.g., focus group interview) and other quantitative methods (e.g., experiment) are relatively less adopted in the literature. This suggests that diversifying research methods in future studies may be useful to uncover more and different empirical evidence with respect to consumer behavior on social networking sites. In addition, we observe that two prior studies adopt mixed methods. Future research may thus consider similar approaches. For instance, it could integrate the panel data and survey methods to collect both objective and perceptual measures. This can minimize common method bias and provide more rigorous and convincing findings.

Second, this study shows that a number of theories have been adopted to explain consumer behavior on social networking sties (See Table 2). The purpose of many empirical studies is to test theories and develop explanatory models. Nevertheless, future research should also consider the importance of generating exploratory insights in social commerce, for example, using qualitative methods. This is because social commerce is a new and fast-evolving area, where existing theories may be insufficient to provide accurate and complete under-standings. In addition, given that a large quantity of panel data can be collected on social networking sites, predictive analytics may become a useful tool for further studies to perform exploratory data analysis and predictive modelling. Shmueli and Koppius [89] posited that predictive analytics is more data-driven and can further help to generate new theory, compare existing theories, and assess the predict-ability of a phenomenon. Thus, one possible direction for future research is to adopt this tool to detect new behavioral patterns, identify complex relationships between variables, and finally generate a new theory for social commerce. Predictive models of users' participation behavior may be developed to help companies assess users' engagement levels after conducting marketing campaigns on social networking sites.

Third, this study utilizes the integrative framework to identify a wide range of antecedents for each of the decision-making stages. It shows that many of these factors are actually studied only once (see Tables 4 to 6, Appendices A and B), which indicates that the emerging social commerce literature is rather disjointed. Therefore, future research should allocate more effort to identify the key factors and resolve possi-ble inconsistent effects from them. Our integrative framework is an initial attempt to pinpoint and classify the important antecedent factors. We hope that more research can be conducted to synthesize prior studies and provide conclusive empirical findings about the influences and interrelations of key factors.

Fourth, our integrative framework also covers several components that categorize different stimulus and organism antecedents. Among them, context-specific components such as network characteristics, interaction characteristics, and social/relational-oriented perceptions appear to be what distinguish social commerce from traditional e-commerce. Future studies should pay more attention to factors in these components. This research effort will allow academics to delve into the social and interactive nature of social commerce. It will further bring new context-specific insights to the academic research and provide im-portant practical guidelines to harness the power of social commerce.

Finally, our framework uses five decision-making stages to explore consumers' response activities in social commerce. We find that most of the previous studies examine only one or two stages. Future research should be aware of such decentralized investigations and try to under-stand the full process of consumer behavior on social networking sites. It will also be interesting to investigate when and how consumers move from one decision-making stage to another and then to highlight the interrelationships between different stages. In addition, Yadav et al. [104] noted that consumers actually do not need to follow the sequence of the five stages in social commerce. Thus, it may be useful to look into

non-linear activities such as impulse buying behavior in consumers' decision-making process within this context.

6.3. Limitations

An important limitation of this study is that our findings are largely subject to the pool of journal articles that meet our selection criteria. For instance, we only consider social networking sites as representative of social commerce websites. We collect empirical studies without incorporating non-empirical ones. In addition, conference proceedings (e.g., some with a reputation of quality) are not included in our review. Thus, further literature review studies could enlarge the pool of articles and elicit more insights about consumer behavior in social commerce. Another limitation is that this study primarily focuses on consumers' behavior. It will also be interesting to include some aspects of companies in social commerce. In this case, future studies could achieve a more complete understanding regarding how social commerce brings substantial influences to both consumers and companies.

6.4. Conclusion

This study provides a systematic review of consumer behavior in social commerce. We derive insights through a discussion of the research contexts, theories, and research methods of these studies. Moreover, we propose an integrative framework to elicit stimulus, organism, and response factors in consumers' decision-making process. We believe that our literature review and theoretical framework will contribute to the understandings of this domain and inspire more related research in the future.

Acknowledgements

Appendix A. Antecedents of the purchase stage factors

Category	Component	Construct	Studies
Stimulus	Content characteristics	Customized advertisements	[70]
		Information availability	[70,74]
		Information valence	[26]
		Informational content	[26]
		Personalization	[108]
		Trend discovery	[70]
	Network characteristics	Homophily	[78]
		Network centrality	[78]
		Network density	[78]
		Tie strength	[78,98,99]
	Interaction characteristics	Interactivity	[108]
		Social media marketing	[50,51]
		Socializing	[70,108]
	Other characteristics	Adventure	[70]
		Authority and status	[70]
		Convenience	[70,74]
		Product selection	[70]
		Social commerce constructs	[32]
		Website quality	[65]
Organism	Personal traits	Brand consciousness	[48]
		Brand-loyalty consciousness	[48]
		Confusion from overchoice	[48]
		High quality consciousness	[48]
		Impulsiveness	[48]
		Novelty consciousness	[48]
		Price consciousness	[48]
		Recreational orientation	[48]
	Value perceptions	Brand equity	[50]
		Hedonic value	[3,34,52,53,57,62,70,83,102]
		Social value	[47,52,57]
		Utilitarian value	[3,31,52,53,57,62,70,83,87]
		Value equity	[50]
	Affections	Arousal	[62]
		Familiarity	[75]
		Flow	[108]
		Intimacy	[51,75]
		Valence	[62]
	Self-oriented perceptions	Brand engagement in self-concept	[81,82]
		Consumer self-confidence	[47]
		Knowledge creation	[53]
		Perceived ownership	[87]
		Perceived personality match	[81,82]
	Social/relational-oriented perceptions	Altruism	[57]
		Identification	[53,57,99]
		Normative influence	[47,103]
		Online social connection	[57]
		Perceived social presence	[57,108]
		Perceived surveillance	[87]
		Relationship equity	[50]
		Relationship quality	[30,65,81]
		Social support	[30,65,108]
		Trust	[27,31,32,35,47,51,57,75,82,102]

(*continued*)

Category	Component	Construct	Studies
	Other factors	Consumer engagement	[41]
		Culture	[27,63,102]
		Involvement	[41,78,99]
		Perceived diagnosticity	[98]
		Perceived ease of use	[34,57,62,87]
		Perceived linkage	[87]
		Perceived privacy risk	[87]
		Perceived relevance	[87]
		Privacy apathy	[87]
		Reputation	[57]
Response	Search	Browsing	[70,83,102]
		Information seeking	[47,48]
	Evaluation	Attitude	[48,57,62]
	Post-purchase	Information sharing	[27,35]
		Participation	[83]
		Website usage	[27,31,64]

Appendix B. Antecedents of the post-purchase stage factors

Category	Component	Construct	Studies
Stimulus	Content characteristics	Argument quality	[7]
		Customized advertisements	[70]
		Entertaining content	[17,19]
		Information availability	[70]
		Informational content	[8,17,19,90]
		Links	[86]
		Photograph	[86]
		Position	[19]
		Posts attractiveness	[7]
		Posts popularity	[7]
		Time	[17,36,86]
		Trend discovery	[70]
		Valence of comments	[19]
		Videos	[86]
		Vividness	[17,19]
	Network characteristics	Homophily	[13]
		Number of followers	[36]
		Tie strength	[13]
	Interaction characteristics	Freedom of expression	[6]
		Interactivity	[17,19,58]
		Openness	[58]
		Rewards and recognition	[6,17]
		Socializing	[70]
	Other characteristics	Adventure	[70]
		Authority and status	[70]
		Convenience	[70]
		Product selection	[70]
		Supplier salesperson and retailer social media usage	[84]
		Website quality	[6,65]
Organism	Personal traits	Broadcasting	[46]
		Communicating	[46]
		Consumer susceptibility to interpersonal influence	[4]
		Extraversion	[46]
		Neuroticism	[46]
		Openness to experiences	[46]
	Value perceptions	Brand community value	[6,60,93]
		Co-creation value	[20]
		Hedonic value	[3,7,20,28,42,49,70,83,88,93,105,106]
		Monetary benefits	[28,49,93]
		Perceived benefits	[24,110]
		Perceived costs	[9,110]
		Social value	[20,28,42,49,61,93,105,106]
		Utilitarian value	[3,7,9,20,49,70,83,88,93]
	Affections	Brand love	[9,93]
		Brand page experience	[9]
		Emotional attachment	[44]
		Satisfaction	[24]
	Self-oriented perceptions	Behavioral control	[105,106]
		Brand engagement in self-concept	[81,82]
		Brand use	[60]

(*continued*)

Category	Component	Construct	Studies
Organism	Selfriented perceptions	Community engagement self-efficacy	[61]
		Perceived personality match	[81,82]
		Self-congruence	[20,109]
		Self-construal	[61]
		Social media dependence	[95]
	Social/relational-oriented perceptions	Commitment	[109,110]
		Consumer opinion leadership	[4]
		Identification	[95]
		Impression management	[60]
		Informational influence	[13]
		Market mavenism	[105,106]
		Normative influence	[13,88,105,106]
		Obligation to society	[60]
		Parasocial interaction	[58,95]
		Partner quality	[109]
		Relationship quality	[44,65,81]
		Shared consciousness	[60]
		Shared rituals and traditions	[60]
		Social networking	[60]
		Social support	[42,65,88]
		Trust	[13,24,60,82,88,109]
	Other factors	Consumer engagement	[6,20,28,60]
		Culture	[12,27,95]
		Involvement	[20]
		Perceived ease of use	[9,93]
		Perceived privacy risk	[96]
Response	Search	Browsing	[70,83]
	Evaluation	Attitude	[88,105,106]

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Kem Z.K. Zhang is an associate professor at the University of Science and Technology of China. He has visited the University of Ottawa. He received his PhD in Information Systems from the joint PhD program between the University of Science and Technology of China and City University of Hong Kong. His research interests include electronic commerce and human behaviors in emerging social media. He has published papers in a number of international journals and conferences, such as *Decision Support Systems*, *Computers in Human Behavior*, *International Journal of Information Management*, *Electronic Commerce Research and Applications*, *Journal of Electronic Commerce Research*, *International Conference on Information Systems*, *Hawaii International Conference on System Sciences*, *Americas Conference on Information Systems*, and *Pacific Asia Conference on Information Systems*.

Morad Benyoucef is a full professor at the University of Ottawa. He specializes in e-business and management information systems. His research interests include online marketplaces, online trust, Web 2.0, and e-Health applications. He has published articles in several international journals, including *Group Decision and Negotiation*, *Computers in Human Behavior*, *Supply Chain Forum*, *Knowledge-based Systems*, and *Electronic Commerce Research*. He holds a Master's from Rochester Institute of Technology and a PhD from Université de Montréal.