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The “Black Box” of Social Commerce Platforms - A Closer Look at Users’ Activities

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Abstract. Social Commerce (SC), as a subset of e-commerce, leverages Web 2.0 technologies to promote user contributions. Previous studies in this field mainly analyze the evolution of SC, its difference from e-commerce, and the constructs affecting the users’ intention to practice SC. There is no significant research dedicated to the activities of the users and the data elements in these platforms. We conduct a systematic literature review to collect and categorize the users’ activities. We spot several activities in different levels of SC platforms and categorize them into four key categories: social identification, social conversation, social communication, and commercial activities. Our findings contribute to the growing body of literature by addressing the characteristics of users’ activities on SC platforms. Besides, it sheds valuable insights on effectively designing the SC platforms to enhance users’ contributions.

Keywords: Social Commerce, E-commerce, User Activities, Web 2.0

1 Introduction

The rapid development of Web 2.0 and social media has enabled e-commerce platforms to transfer from a product-oriented environment to a social and customer-centered one [1]. This evolution is coined as Social Commerce (SC) that has increasingly drawn the attention of practitioners and academics. The adoption of Web 2.0 enables users to make more informed purchase decisions based on the information provided by e-commerce websites and user-generated content on social networks [1], [2]. Meanwhile, online businesses can develop successful business strategies by capturing users’ behaviors. Considering these reciprocal advantages, e-commerce platforms are adopting a variety of Web 2.0 features, functions, and capabilities to enhance participation to get greater economic value [1].

Understanding the role of users’ overall active behavior in SC platforms is of special importance for both theory and practice, but the complexity of measuring such behavior has created research challenges [2]. The majority of SC studies (61%) [3] are about user behavior which focuses on customers’ contributions and engagement from a social and psychological perspective, such as identifying motivational factors, decision-making, and relationship establishment [1], [4]. User behavior studies are confined to survey-based investigations [5] exploring the effects of SC constructs (ratings and reviews, forums and communications, recommendations, and referrals), variables of the

Technology Acceptance Model (perceived usefulness, perceived ease of use), or technical features of social shopping systems (personalization, social interaction, social presence) on trust (trust in E-retailer, company, Facebook, members, advertising information), on social support (informational and emotional), or on risk (perceived commerce risk, perceived participation risk) as significant antecedents of the intended use or user's intentions (intentions to participate, purchase, adopt advertising information, eWOM intentions, behavioral intentions) [6–20]. Other studies focus on factors determining and motivating impulse buying behavior [21–26].

As implied by the literature, the success of SC platforms relies on user engagement [27], but scant literature has spotted and aggregated the socio-commercial activities and studied their effects on commercial transactions [4], [27], [28]. This focus disconnects from technical perspectives on SC, which depend more on user activities than on implicit user attitudes. Consequently, practitioners know very little about users' activities and how to promote their contributions, which is crucial for the sustainability of their SC platforms [4]. We address this gap by investigating the following research questions: *What activities characterize user behavior on SC platforms? How can these activities be linked together?* To this end, we briefly introduce related literature (section 2), then we conduct an extensive systematic literature review (section 3), and systematically conceptualize the literature covering users' activities in SC platforms (section 4). Our findings contribute to the theoretical and practical implications as they highlight managing and stimulating users' active behaviors in SC platforms (section 5).

2 Related Work

Among the twenty-two different definitions provided in [29], Huang et al. [1] (p. 48) define SC comprehensively and propose a model with four SC design layers: *individual, conversation, community, and commerce* [1]. First, the *individual layer*, representing “the self”, contains information about users' profiles and content generated by them. In the *conversation layer*, individuals exchange with others and express themselves by sharing their experiences and knowledge. *Communities*, comprising the next layer, are networks of individuals or groups with shared interests to support decision makings. Finally, the *commerce layer* leverages the relationships that exist between participants. The individual, conversation, and community layers pertain to traditional online communities. Considering just the individual and commerce layers, we end up with the traditional e-commerce platforms. SC platforms necessitate all four layers.

Considering user activities, Chen et al. [2] take an activity-oriented view and identify 34 online active behaviors on social networking sites (SNSs) using the Delphi method and categorize them into four broad categories: *content creation, content transmission, relationship building, and relationship maintenance*. However, their study focuses on SNSs and does not cover the commercial aspects. AlArfaj et al. [30] fill this gap by mentioning sellers' activities on social media networks within the context of a local social group, but the authors do not cover social aspects. Kumar et al. [27] offer an approach to empirically measure user engagement by using clickstream data and offer four broader categories namely, *social identification, social interactions, social shopping, and transactions*, that help to categorize SC activities. Their study focuses just on a special SC platform and does not cover general user activities. To the best of our knowledge, no study has taken a holistic view and tried to integrate the activities of users on the SC platform. This article aspires to fill this void.

3 Research Method

In this section, we explain the literature search and identification phase (our process model is available online at <https://bit.ly/3zG5oy8>). We adopt the guidelines proposed by vom Brocke et al. [31], as a systematic approach, to identify relevant articles which fit our research questions. First, we defined the scope of our work. In 2007, the term “Social Commerce” explicitly appeared for the first time in academic articles [32]. Hence, we look for articles published between 2007 and 2021. To spot the relevant articles in the selected sources, we conducted a keyword search and selected the terms synonymously used to “Social Commerce”, i.e. “Social Shopping”, “F-commerce”, “Facebook Commerce”, “Social E-commerce”, “Collaborative Commerce”, and “Collaborative Shopping” [3], [33–35]. We consider the articles in “English” and excluded the posters, keynotes, abstracts, and tutorials. As well, our search is limited to articles from conference proceedings as well as journal articles in the field of IS. For this purpose, we performed a command search in different databases such as ACM Library, AIS eLibrary, EBSCO, EconLit, IEEE, Proquest, Springer, and Wiley. We further considered the eight Senior IS Scholars’ Basket Journals as well as eight more journals in the field of e-commerce and marketing that have published articles about SC (<https://bit.ly/3zG5oy8>), to capture all major contributions [34], [36]. We also add four more relevant articles that appeared in our initial Google Scholar search.

Our initial search resulted in 647 articles. After removing duplicates using Excel, we obtained a total of 608 unique records in total. To characterize all relevant publications, we manually analyzed each article regarding title, abstract, and keywords, where available. For an accurate exclusion/inclusion, we inspected the full text, where the title, abstract, and keywords were not informative. Articles are assessed at least by two authors and those that do not answer our research questions were excluded. In total, we obtained 76 articles as the basis for our subsequent analysis.

4 Findings

This section explains the literature analysis and the findings of our study. We performed our literature review in line with the guidelines proposed by Webster and Watson [36]. We developed a concept matrix with four dimensions, based on the SC design layers (individual, conversation, communication, and commerce) [1], to provide a systematic review of users’ activities. Three authors individually used the concept matrix to analyze the users’ activities extracted from the included papers. We identified several sub-activities and grouped them into some main activities. Linking the perspectives of Kumar et al. [27] and Huang et al. [1] provided us with a broad theory-based scheme that categorizes the main activities of users in SC platforms into four key categories (Table1): ***Social identification activities*** (*individual layer*), ***Social interaction activities*** (*conversation layer*), ***Social interaction activities*** (*community layer*), and ***commercial activities*** (*commerce layer*). Each category contains some main activities and each main activity consists of several sub-activities. We briefly explain them in the following.

Creating personal, content, and activity profiles [1] are the main activities in the first category, social identification activities (individual layer). To (1) create a personal profile [1] users become a member of a SC platform, provide demographic and personalized information, and create self-description or vision statement texts. They (2) generate content [1] by posting and editing rich social content in various formats. Users’ (3) activity profiles comprise viewing highlighted information, e.g. “Most Viewed” or

activities from active users [1], following threads and updates, reading content such as news feeds or posts on their own or their friends' walls, and clicking on tags [1].

Social interaction activities in the conversation layer focus on exchanging information and opinions with other individuals [30]. In this layer, users interact with each other leading to *content transmission activities* [2]. Users might read content generated by friends, visit friends' profiles [2], and express their interests by pushing the "Like" or "Dislike" button [1]. To enhance interactions with other participants, they might post on friends' walls [2] or comment on content posted by other participants [1]. Users can organize and share content, resources, experiences, and knowledge [1]. To remark their opinions, they can vote products [27], review and rate services, products, or other users' reviews [1]. To facilitate search and organize their favorite content or products, users can apply content tags [1]. They might also create blogs with fun content [1] or mention other participants in posts such as on Instagram [30].

Users might interact with each other at the community level. *Social networking, relationship maintenance, and support collaborations* are the main activities of social interaction activities (community level). To create communities, users need to build relationships through (1) social networking [2]. Accordingly, they need to connect to other participants, groups, or companies in SC platforms [1], virtually hang out or join in social activities [37]. Social relationships are dynamic and some (2) maintenance activities are required for their survival [2]. For this purpose, users send invitations, interact with friends, followers, and groups through chats [2], create and join social events, and lead groups and communications [2]. To (3) support collaborations and collective intelligence, users might build communities, contribute to blogs, mashups, and wikis, and join discussion boards, forums, or even a mentoring group to overcome the uncertainty of decisions [1], [4].

The commercial layer of SC platforms distinguishes SC platforms from online communities. The features in this layer initiate commercial activities, supposed to harness community effects [1]. Users can (1) *apply social ads and applications* to participate in branded online applications such as social games [1], [2] or advertise the products through social ads [1]. Users (2) *collect social proof* to encourage engagement or support them to make purchase decisions. They might seek expert advice as shopping assistance [1], [28], or evaluate recommendations obtained from their online friends or SC platforms [1]. To (3) *buy products*, users search and browse products [28], screen out interesting alternatives [38], customize the products [1], share and recommend their favorite or personalized products [39], create a wish list, add to cart [40], create style [28], or bid on products [35]. Then, users make purchases by checking out [1] and selecting the delivery slot [27]. Finally, they can perform post-purchase activities such as tracking the order [27], [35]. Some SC platforms, such as Groupon, facilitate (4) *group buying* [41]. Here the users share the deals to create and construct a preferred identity for themselves [41]. They create wish lists [1], [35] or plan events and activities [1] with people in their shopping network by sharing a shopping deal or the wish list [1]. Finally, the (5) *selling* activities at the C2C level involve seller profile presentation, posting content on SC platforms, interacting with followers by direct messages, answering questions, and advertising their accounts [30]. Sellers aim to reach potential users by using hashtags, following users, writing comments under influencers' posts, and sponsoring [30]. They need to gain trust by presenting themselves professionally, participating in social events or physical stores, posting their training certificates, registering on e-commerce platforms, and reflecting other users' feedbacks [30], [42]. Sellers might personalize their products and share content or products and create a treasury list [35], [42]. Finally, they can sell their products at the C2C level [37].

Table 1. Main SC Activities – Abridged Overview (Full Version: <https://bit.ly/38tkQBo>)

	Main Activities	Example Sub activities	Example References
Social Identification (Individual Layer)	Create personal profile	Sign up; Log in; Provide personalized information; Self-description	[1], [2], [4], [27], [29] [43], [44], [38], [30], [40], [45]
	Create content profile	Generate, Post, Edit contents	[1], [2], [4], [28], [27], [30], [45], [46]
	Create activity profile	View contents; Read news and articles; Follow new threads and updates	[1], [2], [27], [43], [38], [30], [35], [47], [48], [49],
Social Interaction (Conversation Layer)	Content transmission	Read notifications; Share, Like/Dislike; Comment; Vote, Review, Rate	[1], [2], [4], [28], [27], [29], [43], [44], [30], [40], [35]
Social Interaction (Communication Layer)	Social networking	Connect with friends and followers; Virtually hanging out	[1], [2], [4], [28], [27], [29], [45], [50], [35], [42], [37]
	Maintain relationships	Interact with followers, friends, and groups; Create social events, Lead groups	[1], [2], [28], [27], [30], [51], [49], [52], [53], [54], [55]
	Support collaboration	Build communication; Visit or join discussion board; Contribute to blogs, wikis, or forums	[1], [2], [4], [28], [27], [29], [35], [42], [56], [57], [58], [48], [59], [60]
Commercial Activities (Commerce Layer)	Apply social ads/applications	Participate in branded online applications; Apply adv. services	[1], [2], [27], [43], [30], [35]
	Collect social proof	Evaluate recommendations; Seek expert advice	[1], [4], [28], [40], [35], [50], [61], [56], [62], [57]
	Buy	Customize products; Search; Screen alternatives; Evaluate & recommend products; Create wish list; Purchase	[1], [4], [28], [27], [38], [40], [45], [35], [47], [39], [63], [64], [37], [61], [65]
	Group buying	Identity construction; Connect with people who have similar shopping interests; Create and share a wish list	[1], [35], [41], [56], [57], [48], [66], [67], [52], [68], [54], [69], [70], [55], [71]
	Sell in C2C level	Self-presentation; Reach potential customers; Share contents; Customize and personalize products; Sell	[30], [35], [37], [64], [42], [72], [73], [74], [75], [48], [76], [77], [78]

5 Discussion and Outlook

This work contributes to the theory by stepping beyond the abstract concept of user behavior and provides a systematic account of users’ activities and the essence of users’ contributions to the SC platforms, grounded in the literature. We spotted a paucity of academic literature studying interconnections between different activities in SC platforms. To extend our findings, future studies can focus on these disconnections, link SC activities, and inspect the interdependencies between different activities from different layers of SC platforms. Our findings allow researchers to theorize and focus on descriptive and predictive analysis aiming at identifying influential user activities on the customer journey, purchase behavior, and revenue on these platforms. Our work provides a basis for further investigating data elements in SC platforms that might help optimize social recommender systems. In addition, different platforms can be compared in terms of covering all the activities, and a comprehensive framework using design science approaches can be created. We contribute to practice by helping practitioners to understand customers’ activities, examine and identify crucial elements, and use suitable SC design features to effectively design sophisticated interfaces of SC platforms aiming at enhancing users’ engagements and contributions. Accordingly, managers can spot the weakness of their platforms and correspondingly use personalization technologies, attractive applications, or games on their platforms to increase users’ active time that might enhance trust and users’ contributions. Moreover, investigating the impacts of each activity on the users’ active time in different SC platforms might be an interesting topic for practitioners. Finally, our findings can provide a foundation for the User Activity Monitoring (UAM) process to detect suspicious activities and prevent spreading sensitive data.

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