

The Social Dimension of Mobile Commerce – Engaging Customers Through Group Purchase

Wee-Kek Tan^(✉), Hock-Hai Teo, Chuan-Hoo Tan, and Yang Yang

Department of Information Systems, National University of Singapore,
Computing 1, 13 Computing Drive, Singapore, 117417, Singapore
{tanwk, teohh, tancho, yangy119}@comp.nus.edu.sg

Abstract. Social commerce and mobile commerce have become increasingly popular in recent years because they enhance customer's shopping process and increase businesses' revenue. However, the extant literature does not prescribe sufficient design guidelines for implementing social commerce in a mobile commerce context. This research draws on the idea of group purchase to inject an element of social commerce into mobile commerce. A set of mobile commerce design features is carefully contrived to support group purchase in a process that maximizes social interaction among customers and their shopping partners. This could potentially increase user engagement with the mobile commerce application and encourage customer loyalty and repeated purchase.

Keywords: Mobile commerce · Social commerce · Group buying · Engagement · Design science

1 Introduction

Shopping in the brick-and-mortar sense is typically a social process [1]. Indeed, researchers have found that shoppers who are accompanied by friends or family members tend to spend more time shopping and purchase more products as compared to individual shoppers [2]. Oddly, traditional e-commerce typically provides a relatively lonely shopping experience where customers receive product information from sellers in a one-way fashion and do not have the ability to communicate with friends or family members. Customers find such traditional e-commerce business model to be insufficient and the shopping process to be unsatisfying [3]. Nowadays, there is an increasing desire among customers for more social and interactive ways of online shopping. [4]. Driven by this prominent trend, a new e-commerce model called social commerce that is more shoppers-centric has emerged in recent years [5].

Both businesses and customers can benefit from the adoption of social commerce. Compared to traditional e-commerce, social commerce offers multiple interactive approaches like online chatting, postings and comments [3]. With these social features, customers can better express themselves and share their information with other customers [6], and also consult trusted individuals for shopping advice. Such shared information and experiences contributes to the formation of social knowledge, which other customers can use to make more informed purchase decisions [7]. Businesses also

benefit from the shared social knowledge as they are able to gain more accurate insights into the shopping expectations of customers and develop successful business strategies. With appropriate business strategies that are adapted for social commerce, it is possible for businesses to increase sales and stimulate user engagement [8]. Despite its increasing popularity, researchers have given scant attention to concepts, applications and design features of social commerce. Most studies focus on analyzing social commerce based on current implementations like Groupon and Facebook Starbucks, but limited studies have been conducted to develop a prototype that implements all the desirable and essential features identified to make a successful social commerce application [9]. Current generation of social commerce applications merely feature interactive tools such as online chatting, postings and comments [3] without a coherent business-technology strategy for inducing customers to make purchases over the shopping social process.

Parallel to the development of social commerce, mobile commerce, which is the conduct of e-commerce over mobile devices, has also gained prominence with the rapid development of mobile wireless communication technology [10]. Mobile commerce possesses several advantages over traditional e-commerce such as ubiquity, personalization, flexibility and dissemination that promises businesses unprecedented market opportunities [11]. These qualities make mobile commerce especially suitable for the adaptation of social commerce. The ubiquity nature of mobile commerce allows businesses to link customers with their shopping partners anywhere at any time. The flexibility associated by mobile devices enables customers to multi-task with their mobile devices, i.e., to shop on the go while performing other tasks. The dissemination attribute of mobile commerce allows businesses to broadcast marketing messages simultaneously to multiple customers within a specific geographical area.

Unfortunately, the extant literature has given even lesser attention to social commerce over mobile devices compared to traditional e-commerce. The present research aims to conceptualize a viable business-technology strategy for conducting social commerce over mobile devices from a design science perspective. Specifically, we draw on the idea of group purchase, which has been implemented as a standalone business model by a number of traditional e-commerce websites [12] but has not yet been implemented in social commerce. A set of mobile commerce features is carefully contrived to support group purchase in a process that maximizes social interaction among customers and their shopping partners. Using the seven-stage engagement cycle [13] as theoretical lens, we also explain how incorporating this social element could possibly increase user engagement level with the mobile commerce application and consequently encourage customer loyalty and repeated purchase [8].

2 Theoretical Background

2.1 Social Commerce

Social commerce generally refers to commerce activities that are mediated by social media [14] or by word-of-mouth in online marketplaces [15]. Compared to e-commerce, social commerce is more customer-centric [16] and focuses on facilitating purchase decisions arising out of social interaction. Social commerce is presently implemented

using two major approaches each with different emphasis on either e-commerce or social media [9].

The first approach focuses more on e-commerce and brings social media platform into e-commerce websites. In this approach, the primary goal is to enable purchases and sales conversion. The support for interaction among customers is kept at a minimal level. For instance, an e-commerce website that adopts this approach might share a customer's purchased product on a social media platform in the form of a news feed or post thus leading the interaction away from the e-commerce website to that social media platform. This technique merely provides a topic for the customer's new postings on Facebook, for example. Hence, this implementation approach does not fully support the needs of social commerce in the sense that such use of social media does not facilitate actual sales transactions from taking place. More specifically, customers might have a difficult time finding friends who have purchased the same products that they wish to buy in order to seek advice since the social media platform does not capture the transaction history of customers.

The second approach focuses more on social media and brings e-commerce into social media platforms. The e-commerce elements in social media platforms usually manifest in the form of advertisings and promotions. Using the "like" feature provided by social media platforms, customers could locate friends who are interested in similar promoted products or services. Customers could also comment on the postings or chat privately with their friends. The "tag" function allows other users to alert their friends to newly posted promotions. Hence, this function encourages viral marketing. Despite the rich social interactivity, one limitation of this approach is that social media platforms do not support the actual purchase of products and customers are forced to return back to traditional e-commerce websites to make the purchase.

In a similar fashion, social commerce may also be implemented in the mobile commerce context using either approach. In the first approach, a mobile commerce application could feature plugins provided by different social media platforms. In the second approach, the mobile applications of social media platforms could implement various advertisings initiatives, in particular those that leverage on location-based services. Each implementation approach has its pros and cons. A successful social commerce application should include best practices from both approaches. However, in this research, we will focus more on the first approach since the objective is to delineate effective design feature for mobile social commerce applications.

2.2 Design Features of Social Commerce

Various studies in the extant literature have suggested and summarized a list of features that e-commerce websites should adopt in order to transform themselves into effective social-commerce websites. For instances, Najjar [17] identified social media connections, storefronts, product recommendations, product customization, product contextual simulation, flash sales and mobile commerce as viable features that aspiring social commerce merchants should consider. A more in-depth and systematic study conducted by Huang and Benyoucef [3] classified social media tools into five categories that include social connection, social communities, social media marketing, social shopping and

social applications. Unfortunately, these studies tended to focus on individual features and do not prescribe a holistic framework to guide traditional e-commerce merchants in the adoption of social commerce.

To mediate this problem, Huang and Benyoucef [9] proposed a conceptual model for social commerce design that summarized both the design features of e-commerce websites and social media platforms. The conceptual model extends and improves on Fisher's three layer of social design [18] by adding in a commerce layer. Collectively, these four layers of social commerce features include individual, community, conversation and commerce. The authors validated the effectiveness of the model via an empirical study that examined the designing of both social commerce implementation approaches, i.e., e-commerce focus and social media focus.

According to Huang and Benyoucef [9], there are three design features that are currently not found in both e-commerce focus and social media focus implementation approaches. They are community support, relationship maintenance and group purchase. Out of these three features, group purchase is the most viable feature for engendering purchases over the shopping social process. This research focuses on delineating design features geared towards supporting group purchase that are suitable for implementation in a mobile commerce application. At the same time, relevant design features from all four layers will be synthesized into a coherent social commerce design strategy for the mobile commerce context.

2.3 Group Purchase

The basic and core concept of group purchase is to provide volume discounts [12]. On the one hand, customers are encouraged to bargain together to reach certain aggregated purchasing quantity in order to obtain a lower price [20]. On the other hand, sellers can use this demand aggregation to sell in bulk so as to achieve higher efficiency in term of inventory turnover rate [21]. Consequently, both customers and sellers benefit from the group purchasing process [12]. There are two pricing mechanisms that are commonly used for group buying – namely dynamic pricing [12] and fixed pricing [20] – and these can be implemented using collaborative online shopping technology.

In dynamic pricing, the price of product changes according to customers' activities and customers have the power to negotiate the price with sellers in an active manner [12]. However, dynamic pricing mechanism suffers from two pitfalls [22]. First, dynamic pricing models are often difficult for general consumers to understand and merchants must spend time, effort and financial resources to educate their customers. Second, dynamic pricing models could involve a lengthy waiting period that prevents impulsive buying and discourage customers with urgent demand.

Fixed pricing mechanisms can address the problems that are associated with dynamic pricing. Sellers set a fixed price lower than the retails price and a required group size to make the purchase. Fixed pricing delivers a clear and easily understood message to customers on the discount that they could get for a certain number of participants. Moreover, shorter time limit motivates potential customers to act fast on purchasing and monitor the websites on a daily basis to learn about new deals.

Synthesizing the pros and cons of both dynamic and fixed pricing mechanisms, a successful group buying model should feature a simple and readily understandable pricing model in conjunction with a short waiting time period. We further propose that in order to leverage on the ubiquity and personalization nature of mobile commerce, additional enhancements could be made such as providing an even shorter time frame for customers to complete all group buying related activities and additional reward for bringing additional customers to participate in the group purchase.

2.4 Collaborative Online Shopping

Besides featuring an attractive pricing model, another critical success factor for group purchase is an efficient communication tool for customers to propagate the deal information to their social network. This enables a deal to be closed rapidly such that everyone can enjoy the group discount [20]. Various approaches has been suggested by researchers with collaborative online shopping featuring co-browsing and shared navigation concept being cited as one of the most popular ones.

Co-browsing enables two or more users to share the same view in their browser in real-time [23]. By allowing one user to view the movements and activities of others, co-browsing provides a new way of communication between users in remote locations. It has been applied to the e-commerce context to facilitate interactive shopping activities among users in distant locations, i.e., collaborative online shopping. Co-browsing increases users' perception of the psychological presence of their shopping companions. This in turn leads to greater engagement level in the online shopping task [24]. Compared to a chat-only approach, this psychological presence also gives users a more satisfying shopping experience.

Shared navigation support is defined as the way that collaborative shopping companions use to navigate to products of common interests. For instance, it enables remote users to view a same web page through their browsers. Shared navigation is superior to separate navigation in reducing the occurrence of uncoupling and facilitating the resolution of uncoupling [23]. Uncoupling is a state in which collaborative shoppers lose coordination with their shopping companions. With fewer uncoupling incidents, a group of customers can communicate more efficiently to identify potential customers who are interested in purchasing the same products. Moreover, visible browsing behavior of the other parties and the awareness of the shared context enhance shoppers' perceptions that their shopping companions are socially close to them [25]. In this research, co-browsing and shared navigation will be purposefully adapted to a mobile commerce app context that relies on a touch-screen interface.

2.5 Engagement

The notion of engagement has been well studied by scholars from a wide variety of disciplines, including marketing, management, social psychology and information systems [26]. O'Brien and Toms [27] suggest that engagement provides a holistic framework for understanding the integration between users and the system. Through the use of this framework, users' experience with the system can be improved from purely

functional to pleasurable and memorable. In the context of e-commerce, engagement refers to a multi-stage process of gaining customers' interest and sustaining such interest sufficiently in order to gain their attention on product or brand [23]. Through this process, customers create deep connection with the seller, brand or product and are more driven to make purchases and interact with the seller or other customers overtime [28]. Similarly, Bowden [26] defined engagement as a psychological process that contributes to the creation of loyal and returning customers who are likely to make repeated purchases. For most businesses, customer engagement is an important sales driver and is widely regarded as a predictor to business success [29]. Thus, social commerce applications should be designed for engaging customers in order to be successfully. A possible approach to achieve customer engagement is the seven-stage engagement cycle for making IT applications more engaging [13].

The engagement cycle consists of seven stages including connection, interaction, satisfaction, retention, commitment, advocacy and eventually engagement. A social commerce application is considered to have successfully engaged customers when they form a stable social network and make repeated purchases in the future thus generating a sustainable stream of revenue. Moreover, engaged customers would continue to recruit new customers through word-of-mouth or referral and thus creating a new iteration of the customer engagement cycle in an iterative and incremental manner. We adapted the definition of each stage to fit our present context of social commerce. In the next section, we will discuss at length how various design features could be incorporated into a mobile application for enabling social commerce in a manner that engages customers effectively.

3 Requirements Analysis and Design

3.1 Feature Set of Social Commerce Mobile Application

Using the engagement cycle as the theoretical lens, we will (1) delineate a set of features for a social commerce mobile application that is primarily based on group purchase, (2) highlight the relationships between these features and the social commerce design conceptual model [9]; and (3) explain how these features collectively lead to effective customer engagement. These features are grouped into eight modules altogether including five modules of features that are related to social commerce, two modules that are specifically related to group purchase and one basic features module that supports the other seven modules. They are listed in Table 1.

3.2 Basic Features

The basic features are designed according to the corresponding individual design principle of Huang and Benyoucef's [9] conceptual model for social commerce design. They provide users with personal profile, content profile and activity profile. In terms of supporting engagement, the basic features provide a basis for a customer to connect with other customers and therefore serve as a preparation for establishing connections using the friend list features [13]. Most of the basic features are supported by both implementations of social commerce applications.

Table 1. Proposed features of social commerce mobile application

Feature group	Brief description	Conceptual design feature	Engagement Stage
Basic features	Personal profile Update buyer profile Provide product information profile Perform order and transactions Provide transaction histories	Personal Profile, Content Profile, Activity Profile, Ordering, Payment Mechanism	Connection
Friend List	Add new friend through friend request by username Approve friend requests Add follow request by username Chat with a single user	Connection	Connection, Interaction
Group Chat	Create a chat group from friends in the friend list Chat within a group Add new members to group	Community support	Connection, Interaction
Referral	Refer friends from friend list to other friends Refer purchased products to friends	Information sharing	Connection, Advocacy
Rating and Comment	View ratings and comments from follower Bookmark ratings and comments Like ratings and comments View number of followers who liked and bookmarked certain rating and comment	Social Content Presentation, Topic Focus, Content Creation, Information Sharing, Social Proof	Connection, Interaction, Retention, Commitment
Notification	Notify unviewed friend referral Notify product referrals from friends Show liked rating and comments Show unfinished group purchase transactions	Notification, Relationship Maintenance	Connection
Co-shopping	Co-browsing among group members via scrolling and tapping on screen Chat among group members via text messages Request to lead the co-browsing activity	Topic Focus, Community Support, Connection, Group Purchase, Reciprocity, Participation	Connection, Interaction
Group Purchase	Basic group purchase deal Time limited group purchase deal Increasing discount group sales deal	Topic Focus, Relationship Maintenance, Group Purchase	Satisfaction, Commitment

3.3 Social Commerce Related Features

The friend list features proposed are based on the connection design features in the community layer of the conceptual model. The friend list establishes connections between users by creating, storing and displaying the contacts of users. Users can chat via text messages with their friends in a one-to-one manner or in a group format. The friend list features collectively fulfill the engagement stage of connection as it maintains all the user's contacts. Moreover interaction is improved through the perform e-commerce, e.g., Facebook, it is not supported in e-commerce websites that utilize social media platforms.

The group chat features allow users to create chat groups freely and users can group their friends into a community to achieve their own shared objectives. The referral features support two types of referral, which are friend referrals and product referrals. For creating friend referrals, users can refer friends from their friend list to other friends via the chat box. Users receiving the friend referral can use it to create friend requests. When requests are approved, new friends will be added to the friend list. Users can also create product referrals from the products that they have purchased to their existing friends. The rating and comment features support four out of the five design features proposed in the conversation layer of the conceptual model. Users can give ratings and write comments on products and the corresponding sellers after making purchase. The ratings and comments are considered as social contents created by users and therefore satisfy the requirement of the content creation feature. Users who are followers can easily view the ratings and comments on products purchased by the users whom they are following. Moreover, ratings and comments from other users that an individual is following provide social proof under the commerce layer in terms of recommendations and advice to help potential buyers to make purchase decisions. There are four types of notifications including friend referral, product referral, liked rating and comments and unfinished group purchase transactions.

3.4 Group Purchase Related Features

Co-shopping adopts the concept of shared navigation and co-browsing. It allows users to form co-shopping groups with respect to a specific group purchase deal. After a co-shopping group has been created, members of the group can start to co-browse the product information. To enable members to communication with each other besides co-browsing, co-shopping also enables members to perform group chatting in the chat box beneath the group purchase deal. After all members have reached a consensus, they can proceed to make the purchase.

The basic idea of co-browsing as explained in the earlier discussion on collaborative online shopping is to enable multiple users to view each other's activities on a browser, which in our context has been replaced with mobile screen. User activities that are synchronized among co-shopping group members are scrolling and tapping gestures. A combination of both actions performed by a particular user is sufficient for other users to locate the position s/he is currently focusing on. In this way, coordination and interaction are improved. However, when multiple users try to scroll or tap the screen

simultaneously, the mobile application's screen might become confusing. To avoid this problem, every co-shopping group has an owner who is also the default leader. The owner can appoint other members to be the leader temporarily and the new leader would have the power to synchronize the movement and actions with the rest of the group members.

Besides co-browsing, text chatting is also included in co-shopping to facilitate communications among members. The chat feature that is supported in co-shopping is similar to that supported in group chat. The only difference is that the customers can swipe the chat box down to hide it at the bottom of the screen when they want to browse the product information. This design element is added after considering the screen size limitation of the mobile device by hiding unused user interface elements outside the view of users and bringing them back when they are needed.

Group purchase features collectively provide three different deal mechanisms, namely basic sales, time-limited sales and increasing discount sales. Our design features address the long duration and high complexity limitations of the original pricing mechanisms. Moreover, to leverage on impulsive buying, the features are also designed to motivate and facilitate customers to close the deal as soon as possible. Each basic sales deal has an expiry date in duration of days and can be defined by the seller based on the product nature or promotion objectives. All basic sales transactions must be completed before the expiry date. Unsuccessful customers cannot purchase the same deal again. This provides customers with incentives to complete the group purchase within the specific deadline. The basic sales mechanism also requires a minimum number of customers to participate. Customers in a particular group can purchase the deal whenever it has met the quorum. This approach shortens customers waiting time and encourages them to communicate among themselves to complete to deal as early as possible. Time-limited sales mechanism has an important distinction from the basic sales mechanism, i.e., a fixed time frame to complete the deal. When the first member in a group chooses to purchase the deal, the timer will start and every member must complete the deal before a certain short period of time to successfully purchase the deal. Otherwise, the deal will be cancelled and the members in the co-shopping group cannot participate in the same time-limited sales again. This approach is to induce impulsive purchase behavior in customers and reduce the sale time for sellers. An increasing discount sales deal offers a lower price when more customers participate, i.e., the concept of dynamic pricing. To avoid a long waiting period, users can make the purchase as long as they meet the minimum group size.

4 Design Science Artifact

Design science research emphasizes the creation of artifacts in the form of a construct, a model, a method or an instantiation. This research focuses on methods of the group purchase social process and instantiation of the mobile commerce application.

Methods are a set of steps used to perform a task. We have defined several methods that lead to the successful conclusion of a group purchase transaction. These include adding a friend by the customer, creating a group chat, co-shopping and co-browsing

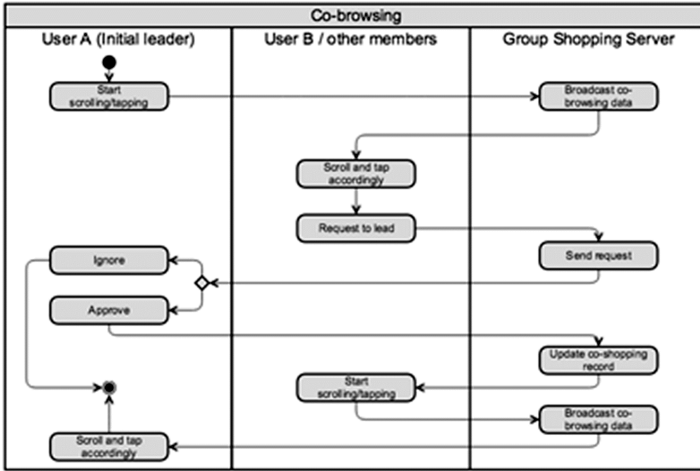


Fig. 1. The co-browsing method

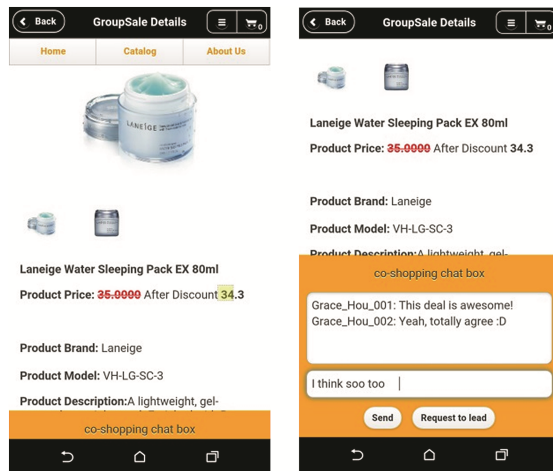


Fig. 2. Screenshots of the mobile commerce application showing co-shopping and co-browsing

with existing chat groups, making group purchases and receiving notification on unfinished group purchases. An important recurrent theme among these methods is the emphasis on the social interaction between a customer and his/her shopping partners. A process diagram of the co-browsing method is shown in Fig. 1. Instantiations are realized information systems built according to the specification of the three preceding artifacts. A fully functional prototype of a mobile commerce application that incorporates all the group purchase social design features delineated in Table 1 was developed together with a supporting server-side backend. Screenshots showing the co-shopping and co-browsing methods are shown in Fig. 2.

5 Conclusion

In summary, this research proposes a holistic framework that prescribes concrete design guidelines for implementing Huang and Benyoucef's [9] conceptual model for social commerce design within a mobile commerce application context. In addition, we explicitly addressed the three design features that are currently not found in both e-commerce focus and social media focus implementation approaches of social commerce. They are community support, relationship maintenance and group purchase. Collectively, the entire design feature set can help businesses to increase the degree of engagement with its customers that could lead to better customer loyalty and repeated purchase in the long-term.

Acknowledgements. The authors gratefully acknowledge the research assistance of Yifeng Hou and Yisi Fu in the development of the prototype.

References

1. Evans, K.R., Christiansen, T., Gill, J.D.: The impact of social influence and role expectations on shopping center patronage intentions. *J. Acad. Mark. Sci.* **24**(3), 208–218 (1996)
2. Sommer, R., Wynes, M., Brinkley, G.: Social facilitation effects in shopping behavior. *Environ. Behav.* **24**(3), 285–297 (1992)
3. Huang, Z., Benyoucef, M.: User preferences of social features on social commerce websites: an empirical study. *Technol. Forecast. Soc. Chang.* **95**, 57–72 (2015)
4. Gutzman, A.: Real-time Chat: What are You Waiting For?, 16 March 2000. https://www.researchgate.net/publication/247341900_Real-time_Chat_What_are_you_waiting_for
5. Liang, T.P., Ho, Y.P., Li, Y.W., Turban, E.: What drives social commerce: the role of social support and relationship quality. *Int. J. Electron. Commer.* **16**(2), 69–90 (2011)
6. Parise, S., Guinan, P.J.: Marketing using web 2.0. In: 41st Hawaii International Conference on System Sciences, Big Island, Hawaii, p. 281 (2008)
7. Constantinides, E., Fountain, S.J.: Web 2.0: conceptual foundations and marketing issues. *J. Dir. Data Digit. Mark. Pract.* **9**(3), 231–244 (2008)
8. Lee, S.H., DeWester, D., Park, S.R.: Web 2.0 and opportunities for small businesses. *Serv. Bus.* **2**(4), 335–345 (2008)
9. Huang, Z., Benyoucef, M.: From E-Commerce to social commerce: a close look at design features. *Electron. Commer. Res. Appl.* **12**(4), 246–259 (2013)
10. Wu, J.H., Wang, S.C.: What drives mobile commerce? an empirical evaluation of the revised technology acceptance model. *Inf. Manage.* **42**, 719–729 (2005)
11. Siau, K., Lim, E.P., Shen, Z.: Mobile commerce: promises, and research agenda. *J. Database Manage.* **12**(3), 4–13 (2001)
12. Kauffman, R.J., Wang, B.: Bid together, buy together: on the efficacy of group-buying business models in internet-based selling. In: Lowry, P.B., Cherrington, J.O., Watson, R.R. (eds.) *The E-Business Handbook*, pp. 99–137. CRC Press, Boca Raton (2002)
13. Sashi, C.M.: Customer engagement, buyer-seller relationships, and social media. *Manage. Decis.* **50**(2), 253–272 (2012)
14. Curty, R.G., Zhang, P.: Social commerce: looking back and forward. *Proc. Am. Soc. Inf. Sci. Technol.* **48**(1), 1–10 (2011)

15. Dennison, G., Bourdage-Braun, S., Chetuparambil, M.: Social Commerce Defined. White Paper No. 23747, IBM Corporation, Research Triangle Park, NC (2009)
16. Wigand, R.T., Benjamin, R.I., Birkland, J.L.: Web 2.0 and beyond: implications for electronic commerce. In: 10th International Conference on Electronic Commerce, Innsbruck, Austria, p. 7. ACM Press, New York (2008)
17. Najjar, L.J.: advances in E-Commerce user interface design. In: 1st International Conference on Human Interface and the Management of Information, Part II, Orlando, FL, USA, pp. 292–300 (2011)
18. Fisher, E.: Social Design, Facebook Developers (2010). <https://developers.facebook.com/socialdesign>
19. Rayport, J.F., Jaworski, B.J.: Introduction to E-Commerce. McGraw-Hill/Irwin, Boston (2002)
20. Ni, G., Luo, L., Xu, Y., Xu, J., Dong, Y.: optimal decisions on group buying option with a posted retail price and heterogeneous demand. *Electron. Commer. Res. Appl.* **14**(1), 23–33 (2014)
21. Li, C., Sycara, K.: Algorithm for combinatorial coalition formation and payoff division in an electronic marketplace. In: 1st International Joint Conference on Autonomous Agents and Multiagent Systems, Part 1, pp. 120–127. ACM, New York (2002)
22. Cook, J.: Venture Capital: Where Mercata Led, Consumers were Unwilling to Follow, Seattle Post – Intelligencer, 12 January 2001. <https://seattlep-i.nwsourc.com/business/vc122.shtml>
23. Zhu, L., Benbasat, I., Jiang, Z.: Let's shop online together: an empirical investigation of collaborative online shopping support. *Inf. Syst. Res.* **21**(4), 872–891 (2010)
24. Seedorf, S., Thum, C., Schulze, T., Pfrogner, L.: Social co-browsing in online shopping: the impact of real-time collaboration on user engagement. In: 22nd European Conference on Information Systems, Tel Aviv, Israel (2014)
25. Kraut, R.E., Fussell, S.R., Siegel, J.: Visual information as a conversational resource in collaborative physical tasks. *Hum.-Comput. Interact.* **18**(1), 13–49 (2003)
26. Bowden, J.L.H.: The process of customer engagement: a conceptual framework. *J. Mark. Theor. Pract.* **17**(1), 63–74 (2009)
27. O'Brien, H.L., Toms, E.G.: What is user engagement? a conceptual framework for defining user engagement with technology. *J. Am. Soc. Inf. Sci. Technol.* **59**(6), 938–955 (2008)
28. Forrester Consulting: How Engaged are Your Customers?, 9 March 2011. http://www.adobe.com/engagement/pdfs/Forrester_TLP_How_Engaged_Are_Your_Customers.pdf
29. Neff, J.: OMD proves the power of engagement. *Advertising Age* **78**(27), 3–4 (2007)