Advances in E-commerce User Interface Design

Lawrence J. Najjar

TandemSeven
Austin, TX USA
lnajjar@tandemseven.com

Abstract. To remain competitive, e-commerce user interfaces need to evolve as customer behaviors and technologies change. This paper describes several new user interface features that designers may want to add to their e-commerce offerings. The features include social media connections, storefronts on social media sites, automated product recommendations, dynamic product customization, dynamic product contextual simulation, flash sales, and mobile commerce.

Keywords: E-commerce, user interface design, social media, automated product recommendations, dynamic product customization, dynamic product contextual simulation, flash sales, mobile commerce, m-commerce.

1 Introduction

E-commerce continues to expand in popularity around the world. In 2007, over 85% of Internet users worldwide had made an online purchase [1]. In the United States, by 2014, 8% of retail sales will be via e-commerce and over half of all retail sales will be performed online or affected by online research [2].

User interface design is critical for e-commerce sites and there are detailed suggestions for successful e-commerce user interface design (cf., [3, 4, 5]). But what are the latest trends in e-commerce design? What are the new features that designers may want to add? This paper describes several user interface design features that e-commerce user interface designers may want to include in their current e-commerce sites or other shopping opportunities. These design features include social media connections, storefronts on social media sites, automated product recommendations, dynamic product customization, dynamic product contextual visualization, flash sales, and mobile commerce.

2 Social Media

Social media sites are exploding in growth. Seventy-two percent of Internet users in the world are active in a social media site [6]. Even though it is blocked in China [7], Facebook is now the most popular social media site in the world with over 583 million members [8, 7, 9]. Facebook is used by more than half of all people with Internet access [6]. In 2010, Facebook passed Google as the most visited Web site in the United States and got 9% of all site visits [9]. Twitter has 190 million users, 65

million tweets per day [10]. Other popular social media sites include MySpace, Hi5, Flickr, YouTube, Renren, and Orkut [6, 11].

People want to talk about their potential purchases and the brands they like. People do a lot of their talking using their social networks. In the United States, people spend more time using social media than using e-mail [12], and this trend is growing worldwide [6]. Also, social networking users spend 50% more online than people who do not use social networking sites [8].

So, create a social media presence for your e-commerce site on Facebook, Twitter, YouTube, and MySpace.

Exploit the popularity of Facebook. Include a Facebook "Share" button so users can post a link to your site on their Facebook pages. Display a Facebook "Like" button on product pages like Levi's does. When a visitor with a Facebook page clicks on the "Like" button, the number of people who "Like" your site increases and a link to your e-commerce site appears in the user's activity stream. Then, when the visitor's friends click on the link to get to your e-commerce site, the "Like" button shows which of the friend's friends clicked on the "Like" button. Identify which type of page you are (e.g., book, drink, food, product) by adding semantic markup to the pages with "Like" buttons. That way, the page gets added to the correct category in the user's Facebook profile [13].

Assign a staff member to update and maintain your Facebook page with fresh and inviting information, photos, videos, questions, and polls. When a Facebook user leaves a message on your "Wall" or in a discussion, respond within 24 hours. Mention that you are on Facebook in your marketing print materials [14].

One innovative use of Facebook to increase sales is to allow friends to give gifts to each other via Facebook [15]. The gift-giver buys a voucher or gift card on your company's Facebook page. Your company posts a notification on the gift recipient's wall. When the recipient clicks on the Facebook wall post, the recipient gets a code that can be redeemed for the gift. Sears and Amazon allow gift givers to buy gifts in various amounts. Starbucks lets the gift giver refill the recipient's Starbucks card. Finally, eBay allows a group of friends to go in together on a gift.

Since 22% of Twitter users follow a business on Twitter to learn about promotions [16], tweet once a week about short-term deals. In each tweet, include a Tiny URL (http://tinyurl.com/) that links to the deal. Dell gained over US$6.5 million in sales by tweeting about discounted products [17].

Although corporate blogs are the least trusted medium of communication [18], create a blog with fun, witty, or informative entries that are written by easy-to- relate-to store staff rather than a high-level corporate executive.

Since they are the second most trusted medium [18], be sure to include customer reviews of your products. If you have very technical products, such as cameras, consider asking staff experts to write reviews. To maintain credibility, identify the staffers as employees and give them simple titles such as "editor."

Product videos are a great way to engage shoppers and increase sales. US online shoppers increased their video views on retail sites by 40% from 2009 to 2010 [16]. One study found that fashion sites adding product videos increased their look-to-buy conversion rate by 134% [19]. Fashion shoppers who viewed videos had double the conversion rate of shoppers who did not view videos [19]. Another study found that retail site visitors who viewed videos spent two minutes longer on the site and were

64% more likely to make a purchase [16]. So, make videos of staff members demonstrating features of the products that bring in the top 20% of your revenue. Add tags to facilitate search and post them on your site and on popular video sites such as YouTube, Metacafe, Yahoo Video, and Video.qq (if you have customers in China). For example, WineLibrary.com has hundreds of fun videos of the owner describing the wines sold on his site.

Since they may own and use your products for years, people in social networks may know more about your products than you do [20]. So, write social media guidelines such as "follow current employee guidelines," "be transparent," "respect the audience and co-worker," "add value," and "be polite" [21]. Then, track social media comments about your site using tools such as Radian6 and offer answers or suggestions. Measure success by tracking traffic generated to the e-commerce site, percentage of positive comments, and the number of members who "Like" your page [21]. Use what you learn in social media to improve your products.

Near the bottom of every page of your e-commerce site, display small icon links to the social media pages you created. Add "Share with friends" links that let users tell their friends about your site or a specific product page via Facebook, Twitter, Blogger, and MySpace. Since more than half of Internet users prefer to share via e-mail versus their social networks [22], and e-mail from friends is the most trusted medium of communication [18], include a link to share your site via e-mail. Also, content shared via e-mail is more likely to lead to purchases than content shared via Facebook or Twitter [23].

REVOLVEclothing.com uses a wide variety of social media. Their Home page includes links to a blog, their product videos, their Facebook page, Twitter page, YouTube videos, and a way to sign up for their e-mail distribution list.

3   Social Commerce

Most e-commerce users interact with social media and follow a brand in Facebook [24]. Brand fans in Facebook spend on average US$136.38 a year more on the brand than people who are not fans [25]. Support this interest by letting fans buy from a storefront on your social media page. Use tools from Aggregate Markets, Payvment, Storefront Social, and Usablenet to create a storefront tab on your Facebook page. Present a limited set of special products (e.g., products for Mothers Day). Features vary, but shoppers may search for products in your store, review and comment on products, put selections in a shopping cart on Facebook, and pay on Facebook using credit cards or PayPal [26]. Retailers with Facebook storefronts include 1-800-Flowers.com, Adult Swim UK, Athehof, Brooks Brothers, Delta Air Lines, Drugstore.com, Gap, JCPenney, Madame Bridal Gowns, Old Navy, and Peek…Aren't You Curious.

You can also use tools like Cartfly to embed an Amazon storefront in your Facebook or MySpace social networking page or your Blogger or WordPress blog [27]. Shoppers check out using the Amazon payment system and need an Amazon account to complete a purchase. Probably the most well known Amazon storefront on Facebook is the Procter & Gamble Pampers page. It uses a "Shop Now" tab, allows users to add products to a shopping cart on Facebook, check out using their Amazon ID and password, and get the products delivered to their homes [28]. Pampers offered

a new line of products to fans on its Facebook page and sold out the 1,000 packages in less than an hour [14]. BestBuy also has an Amazon storefront on Facebook.

Here is an even simpler idea. Use a tool like Fluid Fan Shop to create a "Shop" tab on your social networking page. Then list about 15 products with images, prices, and "More Details" links that take social network users to your existing e-commerce, shopping cart, and checkout function like Guitar Syndicate does on their Facebook page.

Strive to create a social selling experience and community rather than a simple purchase transaction. Provide product information, discounts, contests, polls, questions, and discussions to encourage fans to engage and talk about your brand. On each social commerce storefront product page display a "Like" button so shoppers can express themselves and other shoppers can see how many other people liked the product. Provide a way for users to review and comment on products or the store. Offer special deals to fans.

4   Automated Product Recommendations

To personalize the user interface, to display products that are likely to interest shoppers, and to encourage additional purchases use automated recommendation tools such as Baynote or Certona that suggest products that may interest the user. Base the recommendations on a combination of the user's past behavior, the past behavior of similar users, or the item itself [29]. Amazon.com and Netflix.com are examples of well-known e-commerce sites that very successfully utilize recommendation tools to increase sales.

A simple way to participate in one of the most popular product recommendation systems in the world is to list some of your products on Amazon.com [30]. Your products get added automatically to some other product pages as "related products."

5   Dynamic Product Customization

To engage shoppers and spur social networking discussions of your e-commerce site, allow users to dynamically customize some of your products. Allow shoppers to select the product, make choices to personalize it, view the results as they make their choices, and purchase the customized product. NikeID.Nike.com lets users design and order customized running shoes. On LaudiVidni.com users create and buy tailored handbags (including style, design options, lining, and zipper) then zoom in to see details, see the handbag held by a virtual model, send the image to their social network, and purchase the customized handbag. Mattel Shop My Design allows girls to design and purchase their own customized Barbie – doll, clothes, accessories, even a doll-sized t-shirt with the girl's name on it.

6   Dynamic Product Contextual Simulation

Dynamic product contextual simulation allows online shoppers to see customized products on simulations of themselves, their group, or their living space. The idea is

to make it fun for users to choose from many product options to personalize a product then simulate the product in a realistic environment that makes it easy for the shopper to make a purchase decision.

Seventeen.com and JCPenney created an innovative virtual dressing room that allows teen girls to use their laptop cameras and hand gestures to "try on" various clothes that are overlaid on their live camera images, identify the items they like so they see similar clothes, e-mail an image of themselves in the clothes, post the image on their Facebook pages, and link to JCPenney.com to purchase the items.

StilaCosmetics.com is a makeup site allows users to upload a straight-on photograph of themselves (or select a model's photo); select a variety of products for face, eyes, lips, and cheeks; adjust the amount of the makeup; print, e-mail, or share the made-up image to Facebook or Twitter; and view and purchase the products used.

On the Davidsbridal.com site, brides simulate the appearance of each member of the wedding party (bride, groom, bridesmaids, groomsmen, mother of the bride – even children) to create a wedding party "look." The simulation allows the bride to select the physical attributes of wedding party members (sizes, facial features, skin tones, hair styles, hair lengths, hair colors), select from a huge assortment of dresses (styles, colors), tuxedos, and accessories (shoes, headbands, veils veil lengths). The application allows the bride to see the entire party together in a simulated wedding party photo (including selectable backgrounds), save and e-mail the "wedding photo," and print the selected products for purchase during an appointment at the local store.

On Art.com you can upload a photograph of your room (or use a model room); use a ruler to specify dimensions and see the size of the art change automatically to fit in with the room proportions; select and customize the frame, mat, and glass of wall art; place the customized art in the room; change the wall colors if the shopper chose a model room; drag the art around on the wall; and buy the customized art.

Dynamic product simulations appear to improve sales and reduce returns. HawkesandCurtis.com men's shirt simulation allows users to enter their measurements and "try on" various shirts and shirt sizes on a matching "robotic mannequin." The retailer got a 57% increase in the look-to-buy conversion rate for shoppers who used their Virtual Fitting Room compared to shoppers who used their traditional style and size guide [31]. Quelle.com's virtual dressing room increased their clothing sales an average of 3.1 times and decreased the number of packages returned by 28% [31, 32].

7   Flash Sales

Flash sales are very limited time offers on very highly discounted products. To build excitement, increase members, and encourage users to visit your site frequently and make purchases there, occasionally offer a specific item at a steep discount (e.g., 70% to 85% off) for a short period of time (e.g., 72 hours). Post the flash sale information on your site, but also notify members via Twitter, Facebook, and e-mail. The limited time offer creates excitement, encourages shoppers to tell their friends about the sale, and promotes immediate purchase decisions. Display the flash sale on your "Home" page and include a time remaining countdown clock on the flash sale product page. Make sure your systems can support a huge, short surge in activity. E-commerce sites holding flash sales include eBay's FashionVault.com, HauteLook.com, Kmart (bluelight

specials on Saturday), NeimanMarcus.com, Vinfolio.com, and WineShopper.com. The Outnet.com puts the flash in flash sales by occasionally hosting one-hour-long sales.

People who visit flash sales sites buy two to five times more than other online shoppers [33]. In the travel industry, 27% of active travelers took at least one leisure flash sale trip during the past year [34].

8   Mobile Commerce

Mobile commerce (or m-commerce) refers to purchases made by users over their mobile phones. The popularity of m-commerce is growing rapidly. China's m-commerce market was estimated at US$163 million in 2006 and $953 million in 2010 [35]. In the United States, m-commerce was about US$396 million in 2008, US$1.2 billion in 2009 [36], and expected to reach US$2.42 billion in 2010 [37].

Japan is leading the m-commerce sales revolution with over US$10 billion in 2009 [36], a stunning 17% of all Japanese e-commerce purchases [38]. By 2015, worldwide US$199 billion of goods and services will be purchased via smartphones – 8% of all e-commerce purchases [39].

In the United States, nearly half (48%) of US mobile phone users surveyed have made a purchase via their mobile phones [40]. M-commerce revenue will be $23.8 billion – 8.5% of all US e-commerce revenue by 2015 [41].

From mid-2009 to mid-2010 Amazon had sales of US$1 billion from customers purchasing via mobile devices [42]. In 2009, eBay had US$600 million in m-commerce and expects US$1.5 billion in 2010 [43].

There are several reasons for the growth of m-commerce. The biggest reason is probably access. Over three-quarters of the people in the world have a mobile phone subscription [42]. By 2011, over 85% of new handsets will include a Web browser and by 2015 over one billion people will access the mobile Web via their handsets [42]. More of the high-volume data plans needed to shop on the Web are becoming available, the speed of cellular networks is increasing, and retailers are increasing the number of mobile commerce Web sites and apps [36]. Finally, the mobile phone is handy when and where shoppers need it, even when shoppers are away from home and their laptop computers.

There are tradeoffs when choosing whether to develop a mobile phone app or Web-based mobile commerce site. Since they reside on the mobile phone, apps are a better choice for weaker bandwidth networks, slower phones, or very loyal shoppers who will find and download your app. However, it can be challenging to get users to download your app. Since the operating systems and runtime environments in mobile phones can be quite different, you may have to create and maintain several different apps (e.g., for Apple iPhone, Google Android, or RIM Blackberry).

A cleverly built Web-based mobile commerce site (e.g., focused on the WebKit rendering engine for browsers and using HTML5 and mobile phone-specific stylesheets) can run on many mobile phones [44]. So, skip the apps and build a Web site that is optimized for mobile phones. The m-commerce site will be easier for shoppers to find using popular mobile search (Google found a 5X increase in mobile search from 2008 to 2009 [45]). The site will be cheaper to build and manage (for example, the application and data are stored on the cloud vs. each user's phone) and you can exploit the powerful new functions of HTML5 (such as accessing the user's

camera as a 2D bar-code reader). If a user is accessing your e-commerce site with a mobile device, use an automatic redirect to load the optimized mobile commerce site. Retailers with mobile commerce sites include 1-800-Flowers, Amazon, Carrefour, Crocs, eBay, Marks & Spencer, Saks, Target, Victoria's Secret, and Sears.

Provide the functions m-commerce shoppers use most often such as locating a physical store (80%), comparison shopping (70%) often done from within a brick-and-mortar store [36, 46], reading product reviews (65%), and getting product information (56%) [40]. M-commerce shoppers also use their mobile phones to determine whether a specific product is in stock at a local store and to check the status of an order [46]. To encourage mobile shoppers, allow them to sign up to receive notifications of special sales online and at local stores and to Tweet their purchases.

For your mobile site, design a very lean, scaled down version of your e-commerce site. Since mobile phone screens are small, cellular networks can make browsing a painfully slow experience, and users want it, display a prominent search field at the top of each mobile site page. Display another search entry field at the bottom of search results so users don't have to scroll to the top to search again [37]. Since there are more typos on tiny mobile phone keyboards, account for typing errors in search entries.

To speed browsing, show helpful category names (e.g., "Men's") and product filters (e.g., "Button down shirts" within "Men's shirts"). Display short, textual product descriptions. Since mobile users often check for product reviews while in a physical store, display product reviews on each product page. To minimize touch errors, leave white space around links that users need to touch to select [37]. To accommodate slow page loads use very few images except for product photos [31]. If you have local brick-and-mortar stores, use a phone's global positioning system function to display localized products, prices, store locations, and the availability of a product at the local store. By 2014, almost half of all mobile subscribers will make m-payments [42], so create your own secure mobile payment system, link to your e-commerce site checkout page, or team up with Amazon, Google, Tania Solutions, or PayPal [47].

Exciting new user interface features are available to engage your shoppers and increase sales. Keep your e-commerce site interesting and up-to-date by adding the features your users will appreciate most.

References

1. Nielsen Company,
   `http://th.nielsen.com/site/documents/`
   `GlobalOnlineShoppingReportFeb08.pdf`
2. Schonfeld, E.:
   `http://techcrunch.com/2010/03/08/forrester-forecast-online-`
   `retail-sales-will-grow-to-250-billion-by-2014/`
3. Najjar, L.J.: E-commerce user interface design for the Web. In: Smith, M.J., Salvendy, G., Harris, D., Koubek, R.J. (eds.) Usability evaluation and interface design: Proceedings of HCI International 2001, vol. 1, pp. 843–847. Lawrence Erlbaum, Mahwah (2001)
4. Najjar, L.J.: Designing e-commerce user interfaces. In: Proctor, R.W., Vu, K.-P.L. (eds.) Handbook of human factors in Web design, pp. 514–527. Lawrence Erlbaum, Mahwah (2005)
5. Najjar, L.J.: Designing e-commerce user interfaces. In: Vu, K.-P.L., Proctor, R.W. (eds.) Handbook of human factors in Web design, 2nd edn. Lawrence Erlbaum, Mahwah (in press)

6. Van Belleghem, S.:
   http://www.slideshare.net/stevenvanbelleghem/
   social-networks-around-the-world-2010
7. Tabuchi, H.:
   http://www.nytimes.com/2011/01/10/technology/
   10facebook.html?_r=1&adxnnl=1&ref=todayspaper&
   adxnnlx=1294664570-ldhwCd9KwwXiaJzPdQpnAg
8. comScore,
   http://www.slideshare.net/yesonline/
   state-of-the-us-online-retail-economy-in-q1-2010
9. Saba, J.:
   http://www.msnbc.msn.com/id/40855800/ns/
   technology_and_science-tech_and_gadgets/
10. Wauters, R.:
    http://techcrunch.com/2010/06/23/twitter-international-growth/
11. Worswick, H.:
    http://www.suite101.com/content/
    the-most-popular-social-networking-sites-worldwide-a292097
12. Nielsen Company,
    http://blog.nielsen.com/nielsenwire/online_mobile/
    what-americans-do-online-social-media-and-games-dominate-
    activity/
13. Calore, M.:
    http://www.webmonkey.com/2010/04/
    adding-facebook-like-buttons-to-your-site-is-damn-easy/
14. Boatman, K.:
    http://www.inc.com/internet/articles/201004/facebook.html
15. Linn, A.:
    http://www.msnbc.msn.com/id/40533821/ns/
    business-holiday_retail/
16. comScore,
    http://www.slideshare.net/comScoreInc/
    state-of-the-us-online-retail-economy-in-q2-2010
17. Ionescu, D.:
    http://www.pcworld.com/article/184076/
    dell_makes_money_from_twitter.html
18. Bernoff, J.:
    http://www.forrester.com/imagesV2/uplmisc/Josh_blogging.pdf
19. Internet Retailer Magazine,
    http://www.internetretailer.com/2010/07/22/
    fashion-retailers-using-treepodia-video-report-conversion-gains
20. Bucholtz, C.: http://www.ecommercetimes.com/story/70835.html
21. Forum One, http://www.onlinecommunityreport.com/2010/09/
    social-media-strategy-monitoring-research/
22. eMarketer, http://www.emarketer.com/Article.aspx?R=1007998
23. eMarketer, http://www.emarketer.com/Article.aspx?R=1007434
24. Adregate Markets, http://www.adgregate.com/press/
    pr-20100420-Adgregate-Markets-ShopFans.html

25. Taylor, V.: http://blogs.forbes.com/marketshare/2010/06/11/a-brand's-facebook-fans-are-valuable-consumers/
26. Chaney, P.: http://www.practicalecommerce.com/articles/1971-Social-Commerce-Spotlight-Payvment-a-Facebook-Storefront-Provider
27. MacManus, R.: http://www.readwriteweb.com/archives/current_e-commerce_trends.php
28. Perez, S.: http://www.readwriteweb.com/archives/amazon_launches_facebook_e-commerce_store.php
29. MacManus, R.: http://www.readwriteweb.com/archives/e-commerce_top_internet_trends_of_2000-2009.php
30. Titlow, J.P.: http://www.readwriteweb.com/archives/how_small_businesses_can_take_advantage_of_recommendation_engines.php
31. Demery, P.: http://www.internetretailer.com/2010/07/01/virtual-model-cinches-higher-conversions-retailer-hawes-c
32. Fits.me, http://fits.me/content/benefits-retailers
33. Keane, M.: http://econsultancy.com/us/blog/5998-comscore-flash-buying-sites-are-making-people-spend-more-money-online
34. Yesawich, M.: http://blog.ypartnership.com/?p=301
35. Paul Budde Communication, http://www.telecomsmarketresearch.com/research/TMAAATXC-Buddecom-Global-Digital-Economy-ECommerce-MCommerce-Trends-Statistics.shtml
36. ABI Research, http://www.abiresearch.com/press/3373-Shopping+by+Mobile+Will+Grow+to+$119+Billion+in+2015
37. Ryan, S.: http://www.ecommercetimes.com/story/71015.html
38. Dusan, http://www.intomobile.com/2010/12/21/abi-research-us-mobile-commerce/
39. Ferrante, A.: http://www.retailtouchpoints.com/cross-channel-strategies/548-new-m-commerce-guide-suggests-strategies-to-leverage-smartphones-for-conversion.html
40. Lightspeed Research, http://www.lightspeedresearch.com/press-releases/the-mobile-shopping-revolution/
41. Deatsch, K.: http://www.internetretailer.com/2010/07/23/3-out-4-retailers-have-mobile-strategy-place-study-find
42. mobiThinking, http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats#internet-phones
43. Deatsch, K.: http://www.internetretailer.com/2010/11/17/mobile-moving
44. Warren, C.: http://mashable.com/2010/07/13/mobile-web-optimization/
45. Wojcicki, S., Gundotra, V.: http://googleblog.blogspot.com/2009/11/investing-in-mobile-future-with-admob.html
46. Tonti, A.: http://ssb.mofusepremium.com/blog/mobile-web-tools
47. Travlos, D.: http://www.forbes.com/2009/11/10/travlos-apple-amazon-intelligent-investing-mobile.html