Designing e-commerce user interfaces

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Introduction

E-commerce is growing rapidly. In the United States (US) from 2002 to 2007 online sales increased at a rate of over 23% each year (US Census Bureau, 2009) and annual e-commerce sales are now about $204 billion (Nielsen, 2008b). The percentage of US retail sales that are made online also increased from 2.8% to 3.2% (US Census Bureau, 2009). By 2012, US e-commerce annual sales are expected to be $229 billion (Poggi, 2009).

Worldwide, 85% of people with Internet connections have made an online purchase, representing a 40% increase in the past two years (Nielsen, 2008a). More than half of Internet users now purchase from an e-commerce site at least once a month (Nielsen, 2008a). In 2012, almost $1 trillion may be spent annually worldwide on e-commerce purchases (BuddeComm, 2008).

By providing quick, convenient access to products, product information, and prices, the Web is turning products into commodities. The ease of use of e-commerce sites is a way to increase customer satisfaction, differentiate a site, increase market share, and enhance a brand (Manning, McCarthy, & Souza, 1998; Tsai, 2009a). Seventy-nine percent of users named easy navigation as the most important characteristic of an e-commerce site (Lake, 2000). Poor navigation and a long and confusing checkout process were some of the reasons people gave for abandoning their shopping carts (Global Millenium Marketing, 2002).

When an e-commerce site is easy to use, sales can increase. For example, after improving usability, a major retailer got a US$3,000,000 improvement in annual revenue (Spool, 2009), IBM got a 400% increase in sales on IBM.com (Battey, 1999; Tedeschi, 1999), and Digital Equipment Corporation reported an 80% increase in revenue (Wixon & Jones, 1992). By making the products easier to access, removing unnecessary graphics, and making product information easier to scan, Liz Claiborne’s Elisabeth.com tripled the rate at which lookers became buyers (Tedeschi, 2002a).

Competing sites are only a click away. An e-commerce site that is easy to use can build consumer loyalty (Najjar, 1999). Loyalty is essential. Two of every three online sales are made by consumers who knew where they wanted to make their purchases (ActivMedia Research, 2000). Sixty percent of users mostly buy from the same e-commerce site (Nielsen, 2008a). For example, on Zappos.com, 75% of purchases are from returning customers (Wroblewski, 2009). Once users start buying online, they increase the amount of their purchases each year (ePaynews, 2003a, 2003b; Hansell, 2002).

Process

A good design process can be more important than a good designer. A good design process is driven by the needs and preferences of users, identifies and controls requirements so design objectives stay consistent, involves users and clients early and throughout the process, and uses repeating design – user feedback – improve design cycles to maximize usability (see Mayhew, this volume). To design efficiently, start with high-level design and work to low-level design, use tools that allow you to make design changes quickly and easily, and communicate your designs using media that allow users and clients to immediately understand the user interface (Najjar, 2002).

The following efficient steps for user interface design evolved from many years of doing commercial user interface design work under significant time pressures. These steps emphasize getting high quality work done in a short period of time. Interaction designers, rather than visual designers, typically perform this work.

1. Define the purpose – Identify the purpose for the site (e.g., generate revenue, change the brand’s image). Determine how the e-commerce site will be different from and better than competing sites. Since the purpose drives the design, document the purpose in a sentence or two and get it approved by the clients.
2. Define the users – Identify the users, their objectives, priorities, terminology, contexts (e.g., home, work), computers, display sizes, display resolutions, browsers, and connection speeds. Design to meet the needs of the users.
3. Define the functional requirements – Identify and prioritize the functions users want on the site. Use tools such as focus groups, interviews (including interviews with your clients), competitive assessments, and contextual inquiries to gather functional requirements. For example, “Registration” may be a functional requirement. Prioritize the functions using criteria that include value to the user, value to the business, differentiation from competitors’ sites, and ease of implementation. Include some functions that may get low priority, but are essential (e.g., “Contact Us”). If there are too many functions for the planned project schedule, move some of the functions into later projects.

4. Write use cases – Break down the functions into more detailed user tasks. For example, break down the “Registration” function into use cases for “Show confirmation,” “Edit registration,” “Remove registration,” and “Show error message.” Prioritize the use cases. Working with software engineers, identify systems (such as databases) that are involved with each task. Use this information to scope the project and to move some use cases into future projects.

5. Develop site structure diagrams – Using products such as Microsoft Visio or the Omni Group’s OmniGraffle, draw diagrams with boxes and arrows that show how the sections and subsections of the application are organized and named. If there are more than about 25 sections, use an indented list instead of boxes and arrows. Review and make changes based on feedback from the clients.

6. Create static page drawings – Since they are quick, easy, and cheap to change, use a tool like Visio and its Software Common Controls shapes to draw the interaction design of most screens. Do not show the visual design. Your goal is to figure out how the e-commerce site works, not how it looks. Form follows function (American Heritage Editors, 2000). Define the functional user interface first, and then design the visual interface. Document most of the use cases with a series of page drawings. Show which user interface controls and what information is on each page. Put interaction notes in the margins of the drawings via callouts. Improve the drawings with frequent design reviews with the client and domain experts.

7. Get user feedback – To get early feedback on the interaction design, set up reviews with representative users. Print out the page drawings without the callouts. Ask users to perform about five typical use case tasks and to tell you what they would do on the paper pages to perform each task. Request that users think out loud so you can get more ideas to improve the interaction design. Ask what they like, don’t like, and would change. Use the early user feedback to improve the drawings.

8. Build interactive mockups – Interactive user interface mockups are a powerful way to show the proposed design to clients. If the schedule allows, develop an interactive, hypertext markup language (HTML) mockup that shows the organization of the application, the functions on each page, and how each function works (Najjar, 2000). Show functionality. Show entry fields, buttons, dropdown menus, hyperlinks, confirmation windows, and error messages. Do not show graphics (Fuccella & Pizzolato, 1999) because they distract reviewers from the functional design and take too long to create and change.

Do not take the time to create robust, complete, professional HTML. Instead, use an HTML authoring shell such as Macromedia Dreamweaver. Show fake data. Do not connect the HTML to actual databases. Like the page drawings, the purpose of the interactive mockup is to show clients how the site may work, not how it may look.

Conduct iterative design reviews of every representative page of the mockup with the clients. Put the interactive mockup behind a firewall so that remote clients can access it during teleconference design reviews, examine it in detail, and show it to their colleagues. Once the clients approve the first two or three pages of the mockup, the visual designers can create their visual compositions. The “comps” are based on the approved interaction design but use the company’s approved color palette, logos, and images to add emotion and branding.

9. Test the usability of the interactive mockups – Add graphics to several typical, important, or hard-to-use pathways in the mockup. Get representative users and test the usability of the mockup. Take this user feedback and improve the interactive mockup. Ideally, perform this test-redesign cycle several times before programmers write a single line of code. That way, you know the user interface is good and the user interface design drives the programming.

10. Write functional design specifications – To allow the front-end programmers to do their work, capture an image of each page in the interactive mockup and place it into a Microsoft Word document. List each of the controls on the page. Then describe how each control works (e.g., default state, available choices, result of control activation, changes that occur if users are registered, changes that occur when users perform each action, error messages). Work with your programmers to make sure you give them the information they need to bring the design to life. Since you quickly and cheaply iterated the design based on feedback from users and clients, the programmers should be able to do their work right the first time.

11. Perform user acceptance tests – Perform a usability test of the final version of the site. Connect the site to databases. Add the graphics. Look carefully at download times and the alignment of images and text in different browsers. Make sure there are no user interface dead-ends. Since you already iterated the design with representative users and the clients, this test should go well. Make any needed changes to the final code, then “go live.”

Other steps you might want to add to the process include reviews of competitor’s sites and a usability expert review of the existing site. After the site is live, regularly review site metrics (such as where users exit the site) to identify opportunities for improvement.
Design

Designing the user interface for an e-commerce site is very challenging. E-commerce sites must accommodate nearly all users, include a significant amount of user interactivity, and still be easy to use. Major sections to design include the overall page format (see Tullis et al., this volume), navigation, catalog, registration, personalization, checkout, and customer service. Also, use social media, social networking, search engine optimization, and site analytics to promote the site and make it more attractive to potential shoppers. Design for users with disabilities.

Page Format. Do not use plug-ins like Flash (Ragus, 2000b, 2000c; Nielsen, 2000) that users have to download. Do not use Java because it requires users to download a special runtime environment and to enable Java, plus there are Java compatibility issues with different Web browsers.

Horizontal scrolling is annoying and makes users work too hard. Except for a product comparison tool, never require users to scroll horizontally. Avoid forcing users to scroll vertically on the home page. However, it is acceptable to put closely related information (e.g., product details, checkout fields) on a vertically-scrollable page (Sacharow & Mooradian, 1999). Put important information “above the fold” (above the vertical scroll line) so users can see it immediately.

To make it easy for users to interact with the Web site, format the pages so that user interface elements are in familiar locations (Bernard, 2001). Put the return-to-Home hyperlink in the top, left corner. To make it serve double-duty as a branding element, use the company’s logo as the hyperlink. Put global navigation controls for the major sections of the site across the top of the page (Pastore, 1999). Place local navigation controls that work inside each major section along the left side of the page. Put cross-sell and up-sell promotions on the right side or across the bottom of each product page. Locate the search entry field and a toll-free customer support telephone number near the top of every page.

Users need to know what is in their shopping carts. Except for the shopping cart page and checkout pages, put a shopping cart summary on each page. In the shopping cart summary, show a short hyperlinked product name for each item, the quantity of each item, the price, and a cost subtotal (Chaparro, 2001; Pastore, 1999; Ragus, 2000a). Also include a link to the complete shopping cart, the wish list, and checkout.

To easily accommodate registered members, include sign-in entry fields on the home page and a sign-in hyperlink on every page. Display the user’s name (e.g., “John Doe”) or sign-in name (e.g., “john.doe”) inconspicuously near the top of the home page so that registered users know they are recognized and are receiving member benefits such as express checkout. Be sure to put a “Contact Us” hyperlink on every page, perhaps at the bottom. A good way to attract new users is to put on each product page a link to a simple referral form in which users need to enter only sender and receiver names and e-mail addresses (e.g., Kohls.com’s “E-mail to a friend”) (Reichheld & Schefter, 2000). E-commerce users are very concerned about providing their personal information online. To reduce this concern, provide links to your privacy and security policies at the bottom of every page, but also show the links more obviously where users are entering private information in the content area of the registration and checkout pages (Stanley, McCarthy, & Sharrard, 2000).

Design the user interface to encourage purchases. On the home page and the first page of each major section, include promotions for products such as products that were highly rated by your customers and will appeal to most of your visitors. Show the promotional product names, images, very short descriptions, and prices. Design the product names and images to link to the complete product description pages.

Navigation. To make it easy for users to move through your site, design navigation that is simple, intuitive, and obvious. Put the navigation controls in the same locations on each page. Use navigation to tell users where they are, how they got there, and where else they can go (Fleming, 1998). This is especially helpful to users who arrive at the page not from the home page, but via a search or hyperlink. Provide “breadcrumb” navigation on the site (Rogers & Chaparro, 2003). Breadcrumbs are small, hyperlinked page titles at the top of each page, usually above the title of the current page. These hyperlinks show the location of the page in the site organization and often match page titles that users came through to get to the current page (e.g., “Home > Men’s Apparel > Shirts >”). Like the breadcrumbs dropped by Hansel and Gretel (Grimm & Grimm, 1999), the breadcrumb navigation controls allow users to easily retrace their steps.

To make the site more inviting, provide up to about seven intuitive names for the major sections of the site. Familiar names make it easier for users to quickly browse through the site to a desired product. These names serve as the global navigation controls. Design the navigation so that users can browse to any product in five clicks or fewer (Tracy, 2000). It may be better to provide more category names at each level (a broad design) than to provide more levels to click through (a deep design) (Selingo, 2000). On a product category landing page (such as “Men’s Shirts”), allow users to filter products in a category by useful measures such as specific features, price ranges, brands, discounted products, and customer ratings. For example, DSW.com allows users to filter products by gender, clearance, luxury, size, width, color family, brand, price range, material, and heel height. Also, provide specialized browse functions to meet user needs. For example, RedEnvelope.com and 1-800-FLOWERS.com list products by “Occasion.”

Search is an extremely important navigation technique. Forty-three percent of users (eMarketer, 2001) said that search was the most important online shopping feature. Unfortunately, many e-commerce sites do not design, maintain, or even evaluate their search functions (Hagen, Manning, & Paul, 2000). One study (Gunderson, 2000) found that 42% of e-commerce sites had inadequate search functions. Another study (Nielsen & Tahir, 2001) found that 36% of the time users could not find what they were looking for when they used the search function on 25 e-commerce sites.
To improve search, use meta tag tools, thesauruses, alternate spellings, and database search engines. For example, the advanced search function on TowerRecords.com allows users to enter a variety of information (e.g., title, cast/crew). The Tower Records search engine doubled the rate at which users made purchases (Guernsey, 2001). Allow users to search by product name, product category, brand, model/item number, and price (Consumer Reports, 2003). To make it easy for shoppers to focus their search on one area of your site, to the left or right of the search field display a dropdown menu that lists the major sections of the site like Walmart.com does. If your site includes products that are very similar, such as electronics or shoes, provide a filter to focus search. For example, Zappos.com has a helpful page that allows users to search for shoes by specific style, size, width, color, and price.

To make the site convenient for users, always try to get the most relevant hits in the first page of search results. On the search results page display the searched-for keywords and allow users to perform another search, refine the search results, and sort the search results using helpful product attributes such as price range (e.g., NetGrocer.com), style, size, and customer review rating. Let users filter the results using familiar factors such as bestselling and department name. For example, Sidestep.com allows users to click on checkboxes to filter flight search results by number of stops, flight periods, airlines, and airports. To make it easier to browse the search results, let users click on a dropdown menu to increase the number of items displayed on each search results page (e.g., 25, 50, 100, All).

Catalog. Make it easy for users to see products. Never require users to register to see the product catalog. Avoid requiring users to select a city or enter a ZIP code to see a product catalog or the availability of a product (e.g., Lowes.com requires users to enter a ZIP code to see product prices and availability). Instead, let users get directly into the product catalog without performing extra steps. Allow users to immediately see product prices and availability (e.g., HomeDepot.com). To make it easy for users to browse for products, organize the product catalog the way users expect the products to be organized (e.g., organize clothing by gender). Since users only look at the first two or three pages of a list of products, allow users to narrow down a long list of products by using helpful filtering tools (Nielsen & Tahir, 2001). For example, allow users to reduce a list of shoes by showing only a particular shoe size or style. Provide a way to sort the products by highest customer product rating.

Users spend six minutes or more on helpful product pages (Freedman, 2008a). On each product page, show a small image of the product, provide links to a larger image and other images, and allow users to zoom in and move the image to see product details (Freedman, 2008a). Possibly using tabs below the product image, display a textual product summary, specifications, and customer reviews and ratings. Provide engaging how-to videos, ideally associated with specific products as HomeDepot.com does.

To avoid frustrating users, show only products that are in stock. If you cannot do this, clearly identify the color or product versions that are out of stock. Offer to send an e-mail note to users when the product is available. To prevent user confusion, never allow users to put out-of-stock products into the shopping cart.

To make them easy to find on product pages, display graphical “Add to shopping cart” and “Check out” buttons with larger fonts and brighter colors. When users put a product into the shopping cart, update the cart summary at the top of the page and provide a confirmation window or expand-down window (such as on Gap.com) with a message like “You successfully put the product into your shopping cart.” In case members prefer to make a purchase later, display a link on the product page below the “Add to shopping cart” button to move the product into a member wish list. Also, to improve sales, provide a link that allows users to e-mail the page to someone else who may purchase the product. To encourage comparison shoppers to complete the purchase on your site, provide regular gift-with-purchase promotions as BarnesandNoble.com does. Using personalization information, show tailored product suggestions or one related cross-sell, one more expensive up-sell product, or related products on each product page. Shoppers love a bargain. If the product is on sale, show the original price, the current price, and the cost savings. To make it easy for users to make a purchase decision, display a link to the site’s guarantee (e.g., 30 day money-back guarantee), describe any promotions (such as free shipping for purchases over $50 or a limited-time offer), and show an estimated shipping cost for the product. Since the inability to talk to someone to get questions answered was the biggest online shopping frustration (Opinion Research Corporation, 2009), include a toll-free customer support telephone number so users can get answers to any questions that may delay their purchases.

BareNecessities.com has a good product page (Figure 1). The page shows an attractive image of the product, several alternative images, image zoom, available colors, product details, the price, cost savings, a size chart, other matching products, and cross-sell products. There are links to send the page to a friend, the return policy, shipping information, and privacy and security measures. The page also shows a toll-free customer support number, the number of items in the shopping cart, and a link to the full shopping cart.

The Crutchfield.com electronics product page shows the number of customer service representatives currently available to take a toll-free call, plus add to cart, add to wish list, free scheduled shipping, payment options, and a tremendous amount of helpful product information including customer reviews and “What’s in the box.”

Make the member wish list work like the shopping cart. In the wish list, show product names and thumbnail images that link back to the product description pages. Allow users to change product quantities, remove products, update the wish list, and move products from the wish list to the shopping cart.
Since 34% of users say a product comparison tool increases the chances that they will buy from a site (eMarketer, 2001), allow users to select and compare products side-by-side on important, differentiating features (e.g., eBags.com’s compare selected items tool). Do not limit the number of products that can be compared. Provide links from the comparison back to each product’s detail page. Make it easy for users to remove products from the comparison.
To make the site more helpful, interesting, and “sticky,” provide customer reviews via tools like Bazaarvoice and PowerReviews. Nearly half of users look at customer product reviews when making a purchase (Palmer, 2009). Allow users to enter simple product ratings (such as 1 to 5 stars), comments on products—both positive and negative, and to rate the value of other comments. Remove only offensive entries. Show the number of reviews for a product and the average rating. Let users sort ratings various ways (such as newest, oldest, highest, lowest, highest value rating), find other product reviews on the site by the same author, and search the reviews (such as for mention of a particular product feature). Allow users to flag inappropriate content. Promote the highest rated products via special sales or a product category (e.g., “Top-rated products” on REI.com).

Many shoppers research products online before making a purchase. One study found that 79% of online shoppers rarely or never make a purchase without getting product information first (Schiff, n.d.). If the product information is poor, 72% of online shoppers will go to a competing site to get the product details they want. So, provide detailed product specifications on each catalog page, but reduce visual clutter by using a separate tab to display them.

Since gift certificates are very popular, include them in the product catalog. Allow customers to e-mail gift certificates and to mail plastic stored value gift cards. Gift certificates can be very profitable because about 15% of gift certificates do not get redeemed (Tedeschi, 2002c). One study (Nielsen, 2007) found that 30% of e-mailed gift certificates were deleted as spam.

**Registration.** The more streamlined the registration process, the more likely users will register and buy (Agrawal, Arjona, & Lemmens, 2001). Even when they are on it, most users will not read or complete the registration page, and half the users leave on each succeeding registration page (Sacharow & Mooradian, 1999). To reduce the number of registration user entries and to make it easier for users to remember their sign-in names, require users to enter only an e-mail address and a password. Ask users to make explicit clicks on checkboxes to give permission to send e-mail notifications (e.g., sales, new products) (Charron, Bass, O’Connor, & Aldort, 1998) and to leave a cookie (e.g., “Remember me when I return”). Provide a link to the privacy and security policies.

Gather other user information during checkout. If you require users to register before checking out, 34% of them may abandon their shopping carts (Goldwyn, n.d.). Instead, let unregistered users enter shipping and billing information during checkout. At the end of checkout, tell users the benefits of registering (e.g., quicker future checkouts, personalization, order status, wish list, sale notifications), ask unregistered users to register by utilizing the information they just entered during checkout, and ask unregistered users to provide only one password (Nielsen, 1999).

Give users control of their personal information. Allow users to edit the registration information and to un-register. For security reasons, never show the entire credit card number; show only *s and the last four digits.

**Personalization.** Passive personalization is based on the user’s registration information, purchase history, and browsing history. Active personalization asks users to answer questions, like clothing size and style preferences. With this information, you can tailor the e-commerce site for each user. Personalization is very powerful. It can provide a more compelling user experience, reduce an overwhelming number of choices (e.g., reduce the 100,000 Netflix.com movies to a subset that is likely to interest the user), increase sales (Grau, 2009), and lead to higher conversion rates, more repeat visits, greater loyalty, and stronger brands (Agrawal et al., 2001; Cooperstein, Delhagen, Aber, & Levin, 1999; Freedman, 2008b; Reichheld & Schefter, 2000).

Display the user’s name at the top of the page. Personalize the suggested products on the Home page, category pages, and product pages. List the products the user viewed most recently. One site (BirkenstockExpress.com) lets users see the shoes that are available in the users’ style, gender, arch, material, color, and size. As shown in Figure 2, the MyShape.com fashion site allows users to record their style preferences, body measurements, and fit preferences, then suggests tailored wardrobe tips, provides a “Personal Shop,” and displays search results that match the user’s profile.

To make them more effective and less annoying, personalize the e-mail notifications you send to registered users. Send notifications only for products and services that interest each registered user. Allow users to forward the promotional e-mail to a friend or their social network (eMarketer, 2009b). Also, reward members by sending them unique offers. For example, the eBags reward club sends five offers per year to members. To comply with the US Controlling the Assault of Non-Solicited Pornography and Marketing Act of 2003 (CAN-SPAM), allow recipients to opt out of receiving your promotional e-mails and remove them from your distribution list within 10 days (Federal Trade Commission, 2008). In Europe, recipients must opt in to receive promotional e-mails (L-Soft, n.d.).

Consider providing a way for users to be part of a community (e.g., Wine.com’s free “Community” and fee-based “Wine Clubs”). This feature may improve user loyalty, user time on the site, and site revenue. After users join an online community, offer tailored information, tools, and message boards.

**Checkout.** On the shopping cart page, provide users all the information they need to complete the purchase. Show hyperlinked product names and thumbnail images so users can link back to see product details. Show entry fields with quantities that users can change. Provide links for removing products (use “Remove” rather than forcing users to enter a quantity of “0” for a product) and moving products into the user’s wish list. Place convenient buttons above and below the shopping cart list to refresh the cart page. Display the price of each product and a total. Users are more likely to complete checkout if they know the shipping costs before checking out (Campanelli, 2009; Hill, 2001). So, allow users to enter a ZIP code and provide a dropdown menu of shipping choices (such as FedEx, UPS, and USPS), delivery speeds (such as next-day,
two business days, three business days, and regular seven to 10 business days), and costs. A sample shipping menu choice might be “FedEx Ground, 5 business days, US$5.00, Continental US only.” To encourage users to increase their order sizes and to complete their purchases, offer free shipping for purchases over a specific amount, such as $50. If you include temporary discount coupon codes in your marketing materials, display a field for users to enter discount coupon codes. Allow users to re-compute and display the order total (including accurate shipping costs, discount codes, and taxes). Do not show cross-sells or up-sells on shopping cart and checkout pages because they clutter the page, take users away from the checkout process, and may distract users from completing their purchases.

Include a “Continue shopping” button that returns users to the page from which they came to the shopping cart. Display a graphical “Check out” button with large font and bright colors. Also provide reassuring links to pages that describe your guarantees, return policy, and privacy and security measures.

If registered members leave the site without checking out, automatically save their shopping cart contents for up to 90 days (e.g., Amazon.com). To encourage users to purchase the items they left in their shopping carts, send an e-mail alert when an item is close to being sold out, as Zappos.com and Overstock.com do.

In one study (Rehman, 2000), checkout was the reason 40% of users failed to complete an online order. Twenty-seventy percent of users abandoned an order because the site required them to complete cumbersome forms (Sacharov &
So, as described in the “Registration” section, do not require users to register before checking out (Rehman, 2000).

On the checkout page, provide entry fields so registered members can conveniently sign in. If the users are signed-in members, automatically fill in the checkout fields using the members’ registration information. If the billing address is the same as the shipping address, do not require new users to enter the same information again in the billing address fields. Instead, allow users to click a checkbox near the billing address for “Use shipping address for billing address.” Then, to keep the user interface very simple and obvious, refresh the page and show the shipping information in the billing address fields.

Try to put all the checkout fields on a single, vertically scrollable page. This reduces user confusion and makes it easier to change the order. To allow users to review and change their selected products, provide a link from the checkout page back to the shopping cart page. If your e-commerce company also has a brick-and-mortar store, provide a checkbox so customers on the e-commerce site can elect to pick up online orders at the nearest store (e.g., REI.com, Sears.com) and avoid shipping charges (Tedeschi, 2002b). Display the shipping dropdown menu and the choice the user made on the shopping cart page so users can change their shipping choices. Be sure to ask for an e-mail address so you can send an order confirmation.

Identify required fields with a red asterisk and a footnote explaining that the fields with red asterisks are required. When users make an error or leave empty a required field, show the checkout fields page, put an obvious error message at the top (e.g., “We had a problem processing this page. Will you please fix the fields that are marked with a red ‘Problem?’”), then above each field that had an error show red “Problem” text and briefly explain what the trouble was and how to fix it.

Make it easy to take users’ money. Provide easy, safe, and reliable ways to pay. One study found that sites offering four or more ways to pay in addition to credit cards increased their conversion rates (Ward, n.d.). Design checkout to accept several payment methods (e.g., Bill Me Later, credit cards, debit cards, eBillMe walk-in, eCheck, e-mailed gift certificates, Google checkout, PayPal, and stored value gift cards). Allow users to place and pay for an order via a toll-free telephone number. For credit cards that require a security code, display a link to a popup window that explains via text and images where to find the security code on different cards.

Twenty percent of users said they stopped an online purchase because they felt the site was not secure (Hill, 2001). Get the site’s privacy and security certified by consumer groups, such as TRUSTe or BBBOnline, and show their logos on the checkout page. Use Secure Socket Layer (SSL) to encrypt sensitive personal information. Also, provide links that promote consumer protection features such as privacy policy, security protection, a no-questions-asked return policy, delivery guarantees, and customer service e-mail response time guarantees (Agrawal et al., 2001; Rhodes, 1998).

After users enter their checkout information, provide a complete, read-only purchase summary. If users want to make a change, provide a “Change” button that takes users back to the single, vertically scrollable, editable, checkout information page. To avoid forcing users to retype information, retain the information users entered earlier on the checkout information page. After the system accepts the order, provide an order confirmation that includes the products, product quantity, cost breakdown, cost total, order number, payment method, last four digits of payment card (if applicable), instructions for canceling the order, directions for tracking the order and shipment, expected delivery date, customer service information (e.g., e-mail, telephone number), and a way to print the page (Ragus, 2000a). Ask unregistered users if they would like to register. Send a confirmation e-mail that includes all the order confirmation information. After the product ships, send another notification with the planned delivery date, return/exchange information, and a link to the shipper’s delivery tracking status for the product.

Customer Service. Design the site to provide outstanding customer service. The best support is available 24 hours a day, seven days a week, in real-time (Agrawal et al., 2001; InternetWeek, 2002). Display a toll-free customer service telephone number at the top of every page. Provide FAQs (questions and answers to frequently asked questions) on topics such as checkout, privacy, security, and returns.

On the “Contact Us” page, provide the toll-free telephone number, e-mail address, live chat (e.g., Godiva.com Live Assistance), “call me now” function that allows a user to request a call from customer service (e.g., Amazon.com Help > Contact Us > Customer Service > Phone), facsimile number, and mailing address (not a post office box). Users prefer live chat to customer service for simpler questions on topics such as order status or shipping choices (eMarketer, 2009a). For complicated or sensitive information, technical support, and questions when large amounts of money are involved, users prefer to talk to someone on the phone. On the “Contact Us” page, make your site more personal by showing a photo of the support staff and the building.

Make returns as easy as possible. If the company has an online site and brick-and-mortar stores, allow customers to return online purchases to the stores. With each shipped order, provide a pre-printed shipping label (and possibly a mailing envelope) so it is easy for users to mail a return (e.g., Nordstrom.com). Zappos.com is the world leader on returns. They provide free shipping for returns 365 days from the purchase, free shipping on the next order, choice of shipper, and the ability to print out a return shipping label to use on the original shipping box.

Access for Disabled Users. About 10% of the world’s population (or about 650 million people) is disabled (United Nations, n.d.). In the United States, 20% of the population experience some form of disability (McNeil, 1997; US Census Bureau, 2000). Almost everyone will experience a temporary disability due to illness, accident (such as a broken arm), or circumstance (such as a loud or dim environment) (Martin, 2002; McNeil, 1997).
The Americans with Disabilities Act (US Department of Justice, 1990) (28 C.F.R. Sec. 36.303; 28 C.F.R. Sec. 35.160) and section 508 of the Rehabilitation Act Amendments of 1998 (General Services Administration, 2003) require that electronic and information technology (such as Web pages and software applications) for US federal sites be accessible to people with disabilities, unless doing so would impose an undue burden on the department or agency. Many state (Georgia Tech Research Institute, 2006) and city governments have similar laws (Williams, 2001). Other countries and international organizations also encourage or require accessibility of Web sites (International Organization for Standardization ISO 9241-171: 2008, ISO/IEC 24786:2009; W3C, n.d.(a)). However, in the United States, accessibility is not required for private, e-commerce Web sites (Schwartz, 2002). Lawsuits were filed against sites such as Priceline.com, Ramada.com (International Center for Disability Resources on the Internet, 2004), and Southwest.com (McCullagh, 2002) but the rulings did not require other US e-commerce sites to be accessible.

Accessibility is good business. By designing your site to be accessible (see Stephanidis & Akoumianakis and Vanderheiden, this volume) you increase the number of people who can purchase from the site. Plus, the simple designs required for accessibility often improve ease of use and work well on other devices such as Web-enabled cellular telephones and personal digital assistants. To improve accessibility, design user interfaces that conform to the World Wide Web Consortium’s Web Content Accessibility Guidelines (W3C, 2008; W3C, n.d.(b)) and perform accessibility evaluations with representative users with disabilities.

Social Media. Social media includes customer reviews, product ratings, blogs, and discussion boards. Use social media to improve your relationship with customers, identify opportunities to improve products, and enhance your brand. People trust their peers. Reviews, ratings, and discussions by other customers can be perceived as more trustworthy than information from the retailer.

Create and frequently update a blog with interesting information and limited offers. Instead of asking the CEO to write the blog entries, ask the staff to share their tips (e.g., Walmart’s checkoutblog).

To maintain that trust, do not compensate bloggers from independent sites for their opinions. If you provide free product samples to bloggers, insist that the bloggers include that information in their postings. Do not censor customer reviews or discussion boards, except to remove offensive content.

Respond to positive and negative comments in selected product reviews and discussions. These responses show that you are listening, build a sense of community with your customers, encourage others to contribute, and enhance your brand (Alvarez, 2008). Customer inputs can also be a great source for product improvements or new products.

Allow users to submit photos of themselves with your products (e.g., Patagonia.com) and video demonstrations of the products (e.g., Newegg.com), but screen the submissions before posting them. Display this user-submitted content in a separate product page tab (e.g., Description, Specifications, Reviews, Customer Photos). If you have a well-known brand, create a YouTube channel and populate it with professional-quality videos. Or, create a contest in which customers upload product videos onto a specific YouTube channel and viewers vote to determine the winner.

Social Networking. Social networking is exploding in popularity. Sixty-five percent of worldwide Internet users aged 15 and older visited at least one social networking site during the month of a survey (ComScore, 2009b). That was over 734 million people. Almost 20% of US Internet users interact with Twitter or another service to send and receive updates (Fox, Zickuhr, & Smith, 2009). Use Twitter to send compelling promotional messages, such as Tiny URLs (Tiny.cc) and coupon codes for limited time or quantity discount products and to drive people to the e-commerce site. For example, Dell posted links to discounted products on a Twitter account and measured over $3 million in sales (Gonsalves, 2009).

Facebook.com is the most popular social networking site and the seventh most visited Web site in the world (ComScore, 2009a). Encourage people and their friends to build a relationship with your brand by building a Facebook page so you can share helpful information (such as special offers, photographs, and videos) and users can post comments, share their photographs with your products, participate in polls, and get their questions answered, as Patagonia and Victoria’s Secret PINK do. Use Flash (e.g., Lacoste Parfums) or videos (WARN Video) to showcase your products. Include product descriptions, frequent links to your online store, a fan offer that displays an e-commerce discount code, and a tab that shows a small Facebook store (e.g., 1-800-FLOWERS Shop). Add links from your online store to your Facebook page and Twitter account.

Search Engine Optimization. People need to find you to buy from you. Design your e-commerce site to maximize matches with search engines. Your goal should be to get as high as you can on the first page of Google search results. For page titles, meta keywords, meta descriptions, section titles, product names, and product descriptions, use simple, familiar, meaningful phrases that prospective customers are likely to use in a search. For example, Diapers.com changed a section title from “Playtime” to “Toys and Books” (Tsai, 2009c). Do not use the site name as the title for every page. Use full product names and model numbers. Encourage others to link to the site by providing useful content in employee expert blogs, product information, and customer reviews. Place customer reviews and their valuable search key words on the product pages rather than on a separate mini-site (Tsai, 2009b). Write helpful articles and submit them to Ezinearticles.com and other online article directories (Practical eCommerce, 2007).

Analytics. Use analytics to improve site usability. About 73% of e-commerce businesses use Web analytics tools such as Google Analytics, Omniture, or WebTrends to understand user behavior on their sites (Tsai, 2009d). Key
performance indicators include abandonment (where users leave your site), page stickiness (the rate at which people stay on your site after arriving at a specific page), average page views, percent returning visitors, conversion rate, average order size, and number of new customer product reviews (Nimetz, 2006, 2007). This information can help you identify opportunities to improve the user interface (such as on which page most visitors leave the site), to retain visitors, and to encourage visitors to make purchases.

Conclusions

To be successful, e-commerce user interfaces must be very easy to use. To improve usability, follow an efficient, iterative, user-centered design process. Use proven user interface designs for browsing and searching the product catalog, registering, personalizing, and checking out of an e-commerce site. Design for accessibility. Use social media and social networking to increase traffic to your e-commerce site. Optimize your site for high placement in search engines. Use site analytics to identify ways to improve your online store.

References


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Acknowledgements

Lawrence Najjar is a user interface designer with over 25 years of experience. He worked on the Campbell Soup Company intranet, Home Depot’s online store, NASCAR.com, and the US air traffic control system. Lawrence has a Ph.D. in engineering psychology from the Georgia Institute of Technology.