Usability + Persuasiveness + Graphic Design = eCommerce User Experience

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51.1 DEFINING eCommerce USER EXPERIENCE

In 1995, most websites were informational rather than transactional, the dot-com boom was in its infancy, and the web development world was only just beginning to rub shoulders with the longstanding field of software usability engineering. That year, Amazon and eBay were launched and Yahoo! was incorporated.

By 2000, the first U.S. dot-coms started to go out of business. But in spite of the bubble bust, over the past 10 years, eCommerce has become ubiquitous on the web, and the field of software usability has become much more visible and active in the web development world. As the web has matured with respect to usability, the field of traditional software usability (which dates back to the late 1970s) has come to recognize—and integrate with—other qualities of what is now referred to as the web “user experience.” As web capabilities increased, graphic design has become a key quality of the user experience. And in the case of eCommerce websites, a relatively new quality of the user experience design has emerged: persuasiveness. At this point, any eCommerce designer or developer needs to recognize the importance of five different qualities of the user experience:

1. Utility
2. Functional integrity
3. Usability
4. Persuasiveness
5. Graphic design

These are defined in Sections 51.1.1 through 51.1.5.

51.1.1 Utility

It is easy to overlook utility as a quality of a website’s user experience, as it is perhaps the most fundamental. The utility of a website refers to the usefulness, importance, or interest of the site content (i.e., of the information, products, or services offered by the site) to the visitor. It is of course relative to any particular site visitor—what is interesting or useful to you may not be to me. It is also a continuous quality, that is, some websites will feel more or less useful or interesting to me than others. For example, many web users love to use social networking sites like YouTube or Facebook, while others find these a total waste of time. I will have no need for a website that sells carpenter’s tools, while my neighbor might visit and use that site on a regular basis.

51.1.2 Functional Integrity

A website’s functional integrity is simply the extent to which it works as intended. Websites may have “dead” links that go nowhere, they may freeze or crash when certain operations are invoked, they may display incorrectly on some browsers
or browser versions, they may download unintended files, and so on. A lack of functional integrity is the symptom of buggy or incorrect code. Functional integrity is a continuous quality—some websites may only have a few insignificant bugs, others may be almost nonfunctional, and anything in between is possible.

51.1.3 Usability

Usability of course refers to how easy to learn (for first time and infrequent visitors) and/or use (for frequent visitors) a website is. A site can have high utility and high functional integrity and still be very difficult to learn or inefficient and tedious to use. For example, the website you use to submit your tax returns may be implemented in flawless code and be relevant to almost every adult, with great potential for convenience and cost savings, but be terribly hard to learn or inefficient to use. Conversely, a site can be very usable, but not very useful, or have low functional integrity. It might be very easy and intuitive to figure out how to perform a task, but the site may consistently crash at a certain point in the task flow so that the task can never be accomplished.

51.1.4 Persuasiveness

Utility, functional integrity, and usability are qualities important to virtually any website based on any underlying business model. When we focus on eCommerce sites in particular, another quality—persuasiveness—becomes very important. Persuasiveness refers to the extent to which the user interface of a website encourages and promotes “conversions.” What constitutes a conversion varies from site to site, and even non-eCommerce sites may be promoting some type of conversion (e.g., newsletter signup, switching to online tax filing). But persuasiveness is a particularly important user experience quality on an eCommerce site, and the primary type of conversion in this case is a sale. So in the case of eCommerce sites, persuasiveness refers mainly to the extent to which the user experience encourages and promotes sales.

Two key aspects of the quality of persuasiveness involve the presence and location of two types of information: vendor information (e.g., company name, physical address and contact information, company history, testimonials of past customers, etc.) and product information (things like product color, material, care instructions, etc.). Visitors look for evidence that they can trust an online vendor, especially if they have never heard of them before. And they are often unwilling to order a product if they do not know everything they need to know to judge whether it will meet their needs. This is why many people will often look for a product on Amazon.com first—because it is a trusted vendor, and it usually provides comprehensive product information, including detailed reviews by other customers. These two types of information are key to persuasion on eCommerce websites. And note that a website can be fully functional, highly usable in terms of task completion, and offer just what a visitor is looking for—but if it lacks key aspects of persuasiveness such as adequate vendor and product information, potential sales may be lost.

If, for example, I can easily find an attractive suit on an apparel site and easily check out, but I cannot tell if the suit requires dry cleaning, I will probably not order it. Similarly, if I cannot tell what the shipping charges will be before entering my credit card number, I may not order it. It is not that I cannot figure out how to complete the purchase process (usability), nor that I am put off by the look and feel of the website (graphic design), nor that the site crashes during the checkout process (functional integrity), nor that I cannot find a product I want (utility). What happens in these examples is that the website fails to give me adequate product information, or fails to keep me engaged in the purchase process by failing to give me the information I need (shipping costs) when I need it to make my buy decision.

51.1.5 Graphic Design

Finally, the “look and feel”—that is the graphic design—of a website can be a key part of the user experience. The graphic design of a website—primarily the way colors, images, and other media are used—involve emotional reactions in visitors that may or may not contribute to the site’s goals. A website’s graphic design may strike a visitor as appealing, entertaining, or pleasing, or it may impress them as unprofessional, boring, or even offensive. As with other user experience qualities, each visitor’s reaction to a given graphic design may be different. You may be bored by soft pastel colors while I may feel reassured and calmed by them. You may find a straightforward and simple graphic design boring while to me it may feel professional and reassuring. I may be put off by sound and animation, while you may find it exciting and appealing.

While utility and functional integrity are fairly independent qualities, the lines between usability, persuasiveness, and graphic design are more blurred. Clearly, usability and effective graphic design will contribute to persuasiveness, and graphic design can contribute significantly to usability. Nevertheless it is useful to consider these qualities separately to understand their importance and apply them effectively during design.

51.2 Achieving a Great User Experience

On eCommerce websites, a great user experience is achieved by optimizing each of the user experience qualities defined earlier, relative to the intended market. Whole professions have evolved around each of these qualities.

The prerequisite of a great eCommerce website user experience is of course utility. Nothing else will help if a site does not offer anything of use or interest to a given visitor or market. Website businesses that do not do the research to determine the viability or competitiveness of particular products or services will not succeed regardless of other qualities of their site design. The age-old profession of market research is the relevant discipline to use here. Potential web-based businesses need to establish that they have a product or service that there is a market for and that they can compete with current vendors effectively.

Clearly, web businesses must insure that in the end, before launch, their website is comprehensively debugged and works
without problems on at least the major browsers/browser versions used by their intended market. Nothing is more frustrating, and feels more unprofessional, than a website that breaks down. Visitors are not likely to return. Competent web development professionals are necessary to ensure functional integrity.

eCommerce websites need to be intuitive or at least easy to learn for first time and infrequent visitors, and if a website has them, efficient and easy to use for power visitors. **Software and web usability engineering** is the expertise needed to achieve the quality of usability in eCommerce user experience design.

eCommerce websites need to provide all critical information to support visitor decision making around their needs and desires and to provide it at the right time in the conversion task flow. There is a currently small but growing field of experts with experience applying marketing and persuasion psychology to eCommerce web design.

Finally, an eCommerce website needs a graphic design that inspires trust and is appealing and motivating to its intended market. **Graphic design** professionals specializing in website design provide the design skills and expertise in branding that eCommerce businesses need.

The real key here, beyond simply finding resources with the above skill sets, is to build an effective interdisciplinary design team. Often, professionals with these different backgrounds and skill sets are unfamiliar with the other disciplines and how they must work together to achieve an optimal user experience design for a given market. At the very least, eCommerce businesses need team members respectful of the expertise of others and with a willingness to learn to collaborate effectively to achieve the common goal of an optimized user experience design.

To make the differences between the different user experience qualities—and the disciplines behind them—more concrete, let us look at some existing eCommerce website pages with these qualities in mind. We will focus on the three qualities that are most visibly part of the user experience:

1. Usability
2. Persuasiveness
3. Graphic design

### 51.2.1 Usability

Figure 51.1 shows the home page of a hotel site (http://www.harbor-view.com/). At the top you may notice that the large image area is in the process of fading out of one photograph into another. This area offers an automatic slide show of lovely and appealing images of the hotel and surrounding areas. In fact, if visitors would like to, they can take control of this slide show by clicking anywhere in the image area; then the automatic slide show ceases and subsequent clicks will move through the images at the visitor’s preferred pace. However, how would a visitor know this? There are no instructions and no visible control to click on. This is an example
of a usability issue known as “invisible functionality”—there is nothing visible on the page to let visitors know that this functionality is available or how to invoke it. While the graphic design is appealing and the photos certainly contribute to the persuasiveness of the site, this invisible functionality represents a shortcoming in usability.

If visitors scroll down, as shown in Figure 51.2, they may note a number of images at the very bottom and in the left hand nav (navigation) bar. Are these just pictures or are they in fact active links? It is true that if visitors roll the cursor over an image, the cursor will let them know if an image is a link by changing shape (e.g., in MS IE, from an arrow to a hand icon). But there is nothing in the design of the images themselves to help the visitor distinguish between images that are links and images that are not. In fact, in this case, the “Best of the Vineyard” and “Best of New England” images are just images, while the other three are active links.

In addition, two of the image links shown in Figure 51.2 take you to another internal page on this site, while the third takes you outside this site to another website. Can you tell which does what? In fact, there is no cue to distinguish between internal and external links. In this case, the “Editor’s Pick” image takes you to an external site, while the others take you to internal pages. In a related example, the logo shown at the top of Figure 51.1 is not a link. Since having a logo represent a link to a site’s Home page has become a de facto standard on websites, this may violate visitors’ expectations. Being able to quickly determine what on a web page is an active link and what is not, as well as which links are internal and which external, is an aspect of usability. Links designed to make it clear they are links and clarify important differences in their behaviors are said to have good “affordances.”

Other examples of poor affordances can be seen back in Figure 51.1. In the left hand nav bar, sometimes all caps are used to designate headers (Special Offers, Upcoming Events), while other times they are used for text links (Click Here for Reservations). Also, sometimes text links are displayed with no underline but take on an underline when a visitor points to them (Online Concierge, HV Newsletter), while other text links are displayed underlined and do not change in any way when pointed to (Valentine’s Weekend Getaway, Martha’s Vineyard Gourmet Getaway). Generally speaking, there is very little consistency in the way text links are designed across this site, making it hard for visitors to learn and remember which text phrases are links and which are not.

Now imagine visitors to this hotel site go to an internal page, say the “Water Activities” page, which is available from a drop down menu from the “Activities” link on the main nav
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bar under the slide show area, shown in Figure 51.3. Let us say they scroll through this page reading for a while, then perhaps are interrupted for a while, then eventually return to viewing this page, scrolling back up to the top where they can see the main nav bar.

What page are they on? How did they get there? There is no way to tell. No meaningful page title. No breadcrumbs. Not even a cue in the main nav bar to tell them they are somewhere down the “Activities” link pathway. Cues that help visitors get oriented and learn their way around a site’s information architecture are known as “you are here” cues. They are especially important for first time and infrequent visitors. This site lacks them. Visitors get lost, cannot find their way back to content of interest, and miss finding a lot of content on sites lacking “you are here” cues.

The above examples represent poor usability. Now let us visit a site that follows a number of principles of usability: the multiple-award-winning (http://www.crunchbase.com/company/netflix) mail order movie rental site Netflix (http://www.netflix.com/). Figure 51.4 shows the Netflix home page as of this writing.

First, note the two levels of navigational links at the top and the embedded “you are here” cues that let you know where in the information architecture you are at the moment (white in the tabbed top level, gray in the second level menu bar). Next, note the personalization on this page once you are logged in. This is very helpful information to regular visitors, making it easier to find movies of interest in a huge product space. Now let us look in the visitor’s movie queue, shown in Figure 51.5.

The pop up movie summary shown is invoked by hovering the cursor over a movie title in the list for about a second. No click is required to either invoke or close this pop up, just mouse movement. This provides a very efficient way to browse a little more content about movies, compared to using the movie title links to navigate to another page and then navigate back. Visitors can slowly drag their cursor down the list and get summaries of any movie quickly, then move on quickly, without losing the context of the whole list.

It is also true that if the visitor drags the cursor more quickly down the list, the pop ups would not come up, which is equally important, to avoid a lot of pop ups coming and going when the visitor is really just trying to move the cursor to another movie title.

51.2.2 Persuasiveness

Next let us look at some examples of eCommerce website persuasiveness. Recall that one important aspect of persuasiveness is establishing trust, especially for vendors that are


not already well-branded and known to visitors. Figures 51.6 and 51.7 show the home page of a garden supply vendor (https://www.tomatogiant.com/).

Note that when you arrive on this site, while there is a reference to what looks like a company name (Gardener’s Choice), there is no “About Us” page, no “Contact Us” page, and no corporate address. It is hard to judge who this vendor is, and in fact the website seems to offer only a single product. With website scams becoming more and more common, more and more visitors will be skeptical of unfamiliar brands and will be looking for evidence that a website vendor is trustworthy. This site does not do a good job of establishing trust.

Second, as visitors read through the product information on this page, they may find themselves a little confused about what this product actually is. Is it seeds? A partially grown plant? If a plant, how big: 1 inch? 1 foot? Do you grow it in what it comes in, in a pot, or in a garden? Indoors or outdoors? Most of the images on the page show individual tomatoes. Only when the visitor scrolls down to the bottom of the page do they see one small image of a tomato plant (and you cannot tell if it is growing in an included container, a pot, or a garden) and read in the fine print that the product comes in “nursery packs.” The product is frequently referred to as a “tomato” or a “tree tomato,” rather than as a “tomato tree” or “tomato plant,” adding to the uncertainty. There is also a statement in the middle of the page that reads “Each Set You Order Contains Plants!” Each set of what? Tomatoes? Plants?

All in all, it is likely a visitor will be left quite uncertain about what this product actually is. At best, it takes reading every word on the page to come to a conclusion about what it probably is. And if a visitor cannot tell who the vendor is and cannot tell what the product is, what is the likelihood of a sale?

By contrast, let us take a look at a site offering flower delivery. Figures 51.8 and 51.9 show the home page of the Pro Flowers website (http://www.proflowers.com/), which has a conversion rate of over 30% (http://www.grokdot-com.com/2009/03/18/top-10-online-retailers-by-conversion-rate-february-2009/).

Here you see both “About Us” and “Contact Us” links (although at the bottom of the page and perhaps not as noticeable as they should be), and if you follow them, you can read trust-building information, such as the fact that the company has been in business since 1998 and currently has over seven million customers (although apparently no physical address). On the home page there is a reference to an endorsement by the Wall Street Journal, a very credible entity, and also a prominently displayed phone number at the top. These elements help establish credibility and trust.

In addition, if visitors drill down to inspect particular flower arrangements, there is ample product information including excellent photographs of the arrangements and vase choices, and listings of exactly how many of what types of flowers and greens are included. The combination of evidence of trustworthiness and adequate product information with attractive and clear product photographs surely accounts in part for the very high conversion rate on this website.

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51.2.3 Graphic Design

Finally, let us look at some examples of graphic design, starting with the website of a well-known and very successful vendor of gourmet coffee: Starbucks (http://www.starbucks.com/). Figure 51.10 shows the Starbucks home page.

The graphic design on this page seems unlikely to invoke any positive emotions or associations. It is boring, pedestrian, and uninspired. It fails to exploit the possibility of creating a positive, appealing coffee shop “ambiance”—the dominant imagery does not even include coffee or a coffee shop. Instead, it is very businesslike and likely leaves visitors cold. Internal pages on the site do no better, the design is very perfunctory.

By contrast, consider the home page of a competitor’s website: New England Coffee (http://www.newenglandcoffee.com/), shown in Figures 51.11 and 51.12.

The imagery on this home page immediately conjures up the delights of good coffee in a way that is even season-specific (the screen shot was taken in mid-winter). The photographs create images in the mind and evoke smells, tastes, and even the pleasurable sensation of heat. The brown and cream color palette—more apparent on internal pages such as that shown in Figure 51.12—help to evoke the experience of good coffee. Reputation, usability, and persuasion aside, the New England Coffee site is simply much more enjoyable to visit than the Starbuck’s site and more effective at invoking an appetite for good coffee.

51.3 Measuring the Impact of the User Experience

The impact of the quality of eCommerce website usability on the bottom line is well established. Cost Justifying Usability—An Update for the Internet Age (Bias and Mayhew 2005) provides many examples. Several impressive anecdotes are reported in one chapter (Rohn 2005). According to the first, Dell Computer applied usability principles to an eCommerce site, which resulted in sales increasing from $1 million to $34 million per day within 6 months. In a second, Skechers (a shoe vendor) moved its product selection closer to the home page, resulting in a sales increase of over 400%. And in a third, IBM invested in a site redesign, resulting in a 400% sales increase and an 84% decrease in use of the Help button.

There is also ample research to support the importance of persuasion and graphic design principles as well, although not much of it was conducted specifically in the context of eCommerce website design. While we do not have research that teases out the impact of each of these three qualities on eCommerce conversion rates, it seems likely that they are somewhat cumulative, that is, that adding in optimized...

FIGURE 51.11 Graphic design: ambiance. http://www.newenglandcoffee.com/
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persuasion and graphic design could improve conversions even more than optimizing usability alone.

In an example completely justified by research and experience (see Bias and Mayhew 2005), suppose an eCommerce website for a small business currently has the following:

- 1500 monthly visitors (a very small business)
- A 2% conversion rate
- An average $50 in revenue per online order

Annual revenue from this site is thus on average $1,500 \times 0.02 \times 50 \times 12$, or $18,000$.

A very modest prediction would be that improving the usability of the site could increase the conversion rate from 2% to 3%, which would result in an annual revenue of $1,500 \times 0.03 \times 50 \times 12$, or $27,000$, an increase of $9,000$ in revenues. It seems likely that optimizing persuasiveness and graphic design as well could bump this conversion rate up even higher, increasing conversions and revenues even more.

What we do know is that statistically speaking, there is a great deal of opportunity to improve conversion rates on eCommerce websites. According to [http://index.fireclick.com](http://index.fireclick.com), the average eCommerce conversion rate in March 2009 was 1.87%. That is, more than 98% of visitors left eCommerce websites without buying. Similarly, the same source cites the shopping cart abandonment rate as 40%, meaning that 40% of visitors left sites even after putting items in their shopping cart. While some of these conversion failures will be due to things like unqualified leads coming to the site (i.e., lack of utility to incoming traffic) or lack of functional integrity, surely some significant percent are due to suboptimal usability, persuasiveness, and/or graphic design.

51.4 DEFINING A PROCESS FOR GREAT eCommerce USER EXPERIENCE DESIGN

Over 10 years of experience with website developers suggests that in many organizations, sites typically evolve the quality of their user experience over releases, in a particular order represented in the pyramid in Figure 51.13.

Often a business starts with a plan for products or services and a target market, which may or may not be supported by research or already established in a bricks and mortar business. Then they may focus on getting up a functioning eCommerce website as soon as possible. If the business already exists, often the website is created directly from brochures and other traditional marketing material and catalogs, with
little attention paid to the online user experience. That is, they start with the basics of utility and functional integrity, and launch.

Of the three remaining qualities of user experience, the one most familiar to web developers is graphic design, so often this is the first thing addressed in enhancements once a site is launched. Bricks and mortar businesses in particular are already familiar with the importance of good graphic design from their hardcopy marketing materials designers, and so this is a natural next step. It may take a business a while to figure out that what works on hardcopy does not necessarily work as a part of an online user experience, but at least as an organization they may be familiar with the value of graphic design and have the graphic design skill set already in house.

Less familiar to web developers and their organizations is the quality and discipline of usability. Usually this quality is not pursued until and unless there is some sort of “pain,” such as an inordinate amount of website customer support calls or high bounce rates and low conversion rates.

Finally, in spite of the fact that established business organizations usually use marketing and sales professionals, persuasiveness is the least familiar user experience design quality to web developers, and even graphic design and usability experts may be unaware of this field and the importance of this quality to user experience design. Thus, this quality is often the last addressed or never addressed at all.

Evolving a website’s user experience in the typical order described above and in Figure 51.13 is inefficient and expensive. It is more efficient and effective as well as less expensive to use a design process that addresses all the user experience qualities right from the start and in a logical order. The optimal order in which to address the five user experience qualities is illustrated in Figure 51.14. As the figure implies, designing and building a house provides a good metaphor for designing and building a website.

Utility does make sense as a first step. Every house building project starts with a “blueprint,” which captures the basic needs and desires of the future occupants, such as the need for a certain number of bedrooms and the desire for a dining room large enough to accommodate a certain number of people.

Similarly, every business—traditional or web-based—should have a clear and well researched business plan that defines products or services, intended market, competition, competitive edge, and so on.

In homebuilding, an early next step involves designing a foundation, which will support the framework of the house, given the blueprint. No choices of building materials or interior decoration are necessary at this point. Similarly in web design and development, usability requirements are incorporated into an information architecture “wireframe,” which is the foundation of a user experience design. No persuasive elements or graphic design are specified at this point. Without basic usability, they will not be very effective.

Next, the outside of the house is designed—shingles or brick, roofing color and material, doors and windows. These are all designed to make a home appealing from the outside, you might say to make it attract entry. Similarly in eCommerce website design, persuasive design elements are laid
over the information architecture design. Certain persuasive design elements appear on a site “home” page, where their purpose is to motivate engagement and encourage entry into the internal pages of the site. As illustrated earlier, persuasive elements that create trust and encourage engagement—such as credible recognitions and awards, company history, a physical business address, testimonials and the like—go beyond usability, but are more fundamental than the graphic design of those elements.

Once the framework, foundation, and exterior of a house are designed, decoration of the interior is planned to appeal to the tastes of the future occupants. Curtains, furniture, lighting, rugs, and the like move the house beyond adequate and usable, to homey, appealing, and an expression of personality and taste. Likewise, the graphic design of a website is the dressing over the framework of usability and persuasiveness. It makes the difference between a functional “house” and an emotionally satisfying “home.”

Finally, the house—or website—is built. This is where functional integrity comes into the process. Just as the house is fully designed before it is built, it is premature and potentially disastrous to build a website before it has been thoroughly and well designed. You do not want to be well into decorating your bedrooms before discovering that you do not have enough for your family or build your dining room only to find that a table for 12 simply would not fit in it. Similarly, you do not want to be doing graphic design and building your eCommerce website before you are sure it will serve the needs of your visitors (usability) and engage them and encourage conversions (persuasiveness).

Getting the detailed design right before implementation is invariably more cost-effective than redesigning after launch. Adding a bedroom or enlarging the dining room is a lot cheaper and faster on paper than it is after the house is already built. In the case of eCommerce websites, if stakeholders rush to launch with little investment in the user experience and then redesign and relaunch later with an improved user experience, not only will it be more expensive, but in addition, visitors who had a bad experience with your first launch may simply never return.

51.5 SUMMARY

To summarize, while the term “user interface” is heavily associated with the specific quality of usability, the term “user experience” is more useful to eCommerce web designers and developers because it encompasses all the elements that impact a visitor’s experience using a website, and in particular that impact the likelihood of a conversion. This chapter offered an optimal process (at a high level) for designing great user experiences and identified the set of skills that will increase the likelihood of success. In addition, it offered the insight that an eCommerce website development project team needs not only to be an interdisciplinary team, but also to be a team of members who all know how to work collaboratively with very different disciplines to achieve the common goal of a great user experience.

REFERENCES

