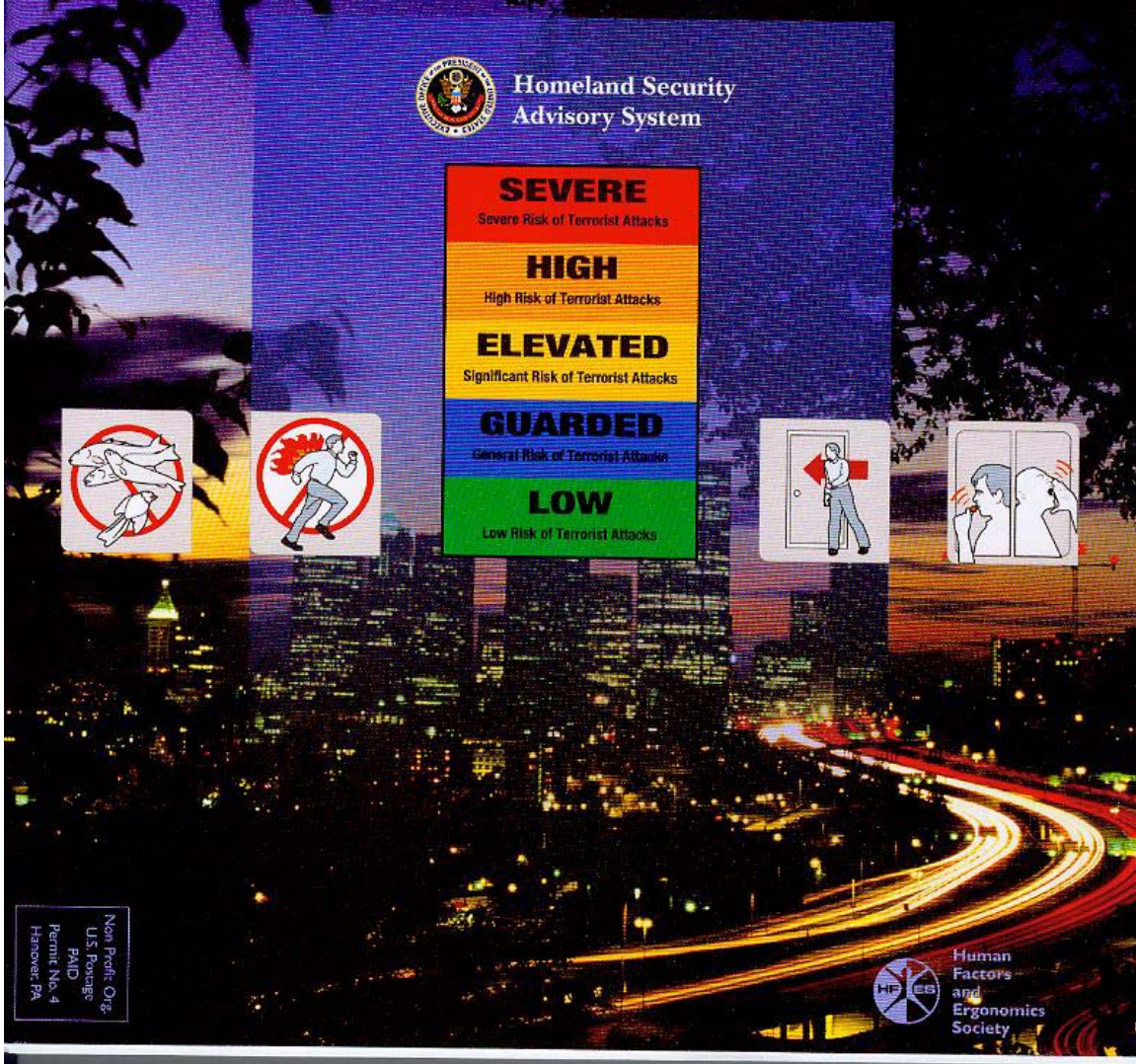


## Homeland Security Safety Symbols: Are We Ready?



Homeland Security  
Advisory System

**SEVERE**

Severe Risk of Terrorist Attacks

**HIGH**

High Risk of Terrorist Attacks

**ELEVATED**

Significant Risk of Terrorist Attacks

**GUARDED**

General Risk of Terrorist Attacks

**LOW**

Low Risk of Terrorist Attacks



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# Designing More Effective Log-In and Sign-In Pages

DIFFERENCES IN THE WAYS THAT WEB SITES REQUIRE VISITORS TO LOG IN MAY BE SUBTLE, BUT THEY CAN SOMETIMES MAKE A DIFFERENCE IN EASE OF USE.

BY ABBAS MOALLEM

Log-in and sign-in pages are important components of most commercial Web sites. Through log-in pages, users can enter data for an application, perform daily tasks, access content, place orders, or view their accounts or the status of their orders. A user might log in to several sites for a variety of reasons. For example, one might log in to a bank Web site to perform transactions, to a brokerage account to trade stocks, or to an e-mail account to view or send e-mails. Consequently, one might log in more than 10 times in a typical day.

The information that users enter on various log-in and sign-in pages is almost identical: their usernames and passwords. Occasionally (sometimes frequently), users forget their usernames or passwords and must either get help to remember them or ask for their information to be reset.

Even though the components of log-in or sign-in pages seem to be almost identical, there are important inconsistencies and differences among commercial and public Web sites, making the user's task more complicated. These include the vocabulary, the physical attributes of the objects, and the configuration of the pages. Besides forgetting their different usernames and passwords, users often must select a different username or password based on the security requirements of each site (Krause 2003; Sasse, Brostoff, & Weirich 2001).

To improve and standardize the log-in page, it is important to investigate current design and user preferences in this domain. In this article, I describe a study whose results I hope will aid designers in making more effective log-in and sign-in pages.

## About the Study

The objective of this study was to answer the following questions:

- What are the similarities among various log-in and sign-in pages?
- What are the differences among various log-in and sign-in pages?
- What do users think about these differences and similarities?

Answers to these questions were used to help determine what the components of a log-in page should be, what the physical attributes of the objects should be, and what designers should avoid when creating log-in and sign-in pages.

I conducted two types of investigations: a comparative study of 30 log-in and sign-in pages, and a user study. In the first, all components of 30 log-in pages – including the vocabulary and the physical attributes of the fields and labels

The screenshot shows the eBay sign-in page. At the top left is the eBay logo. Below it is the heading "Sign In" with a callout number 1. To the right of "Sign In" is a "Need Help?" link with a callout number 7. The page is divided into two sections: "New to eBay?" and "Already an eBay user?". The "New to eBay?" section includes text about registration being fast and free, and a "Register" button. The "Already an eBay user?" section includes text about saving time for bidding, selling, and other activities. Below this text are two input fields: "eBay User ID" with a callout number 2, and "Password" with a callout number 3. To the right of the "eBay User ID" field is a "Forgot your User ID?" link with a callout number 5. To the right of the "Password" field is a "Forgot your password?" link with a callout number 6. Below the "Password" field is a "Sign In" button with a callout number 4. At the bottom of the form is a checkbox labeled "Keep me signed in on this computer unless I sign out." and a link for "Account protection tips | Secure sign in (SSL)".

Figure 1. Components of a log-in or sign-in page.



(such as the case and the alignment of buttons) – from random commercial Web sites were compared and reviewed. In the second, I designed a questionnaire that included four questions and distributed it to two groups (see below).

## Comparing Site Practices and User Preferences

**Comparison study results.** All 30 log-in and sign-in pages selected contained the following objects, as illustrated in Figure 1: title page or section title (labeled #1), username or ID field (#2), password field (#3), button to activate the log-in action (#4), forgotten password option (#5), forgotten username option (#6), and help option (#7).

Even though all the pages that were reviewed had a page or section title, the wording of the titles varied, as shown in Table 1. Generally, two phrases were used with varying spelling and capitalization: *Sign In* (also *Signin*, *SIGN IN*, and *Sign IN*) and *Log In* (also *Login*, *LOG IN*, and *Log In*). Variations of *Log In* made up 63% of the pages, and 30% used different variations of *Sign In*. Overall, *Login* was used on the most pages (33%).

Besides forgetting their different usernames and passwords, users often must select a different username or password based on the security requirements of each site.

All the pages had a field in which users entered their username or ID. The field label varied among the different pages. Besides the Web sites that used an e-mail address as the username, there were eight different wording variations for this field label (see Table 2). Overall, 30% of the pages used variations of *User Name* (also *User Name* and *Username*) as the field label, and 20% used *User ID*. All other variations (such as e-mail address log-in ID, and so on) represented 40% of the pages.

TABLE 1. LOG-IN PAGE TITLES

Page or Section Title	# of Sites	% of Sites
Log In	7	23
Log-in	10	33
LOG IN	2	7
Sign In	7	23
Sign in	2	7
SIGN IN	0	0
Others	2	7
Total	30	100

Four different labels were used for the password field in the 30 pages studied: *PASSWORD*, *Password*, *PIN* (personal identification number), and *Passcode*. Overall, *Password* or *PASSWORD* was used on 87% of the pages.

The labels for the buttons that activate the log-in action were different among the 30 pages. From among the eight labels represented, *Log In* was used on 43% of the pages and *Sign In* was used on 20% of the pages.

Almost all the pages offered a "forgot password" option in the form of a link, a button, or a question mark (?) icon to help users remember or reset their passwords. The wording of the option varied, but most used *Forgot your password* and some used *Forgotten password* or *Forgot my password*.

Many Web sites provided a link to help users find their usernames or IDs and a help link for additional information. The help link was generally worded as *Learn more*, *Help*, or *?*. The physical attributes of the fields and labels varied, and the general style sheet of the Web site did not always justify these differences. In general, 47% of the pages displayed the label above the field and 53% displayed the label to the left of the field. Plain text characters were used on 53% of the pages and bold characters on 48%. The label included a colon on 43% of the pages; on 47% of the pages, no colon was included.

**User study results.** The first user group comprised 50 technical consultants (52% women, 48% men) in a computer company; their primary working language was English. About 46% ranged in age from 31 to 45 years, 42% were under age 31, and 12% were over 45. The highest level of education included 52% with college degrees, 42% with graduate degrees, and 6% with high school degrees.

The second group comprised 23 participants (17% women, 83% men) from an international conference; their primary working language was not English. The age range included 39% between ages 31 and 45, 39% under age 31, and 22% over 45 years. The highest level of education included 13% with college degrees, 74% with graduate degrees, and 13% having completed some education.

TABLE 2. USERNAME FIELD LABELS

Field Label	# of Sites	% of Sites
User ID	6	20
User Name	6	20
Username	3	10
Log-in ID	3	10
Online ID	1	3
Customer ID	2	7
Email Address	6	20
Log in USER NAME	1	3
Others	2	7
Total	30	100

The combined groups consisted of 41% women and 59% men aged 31–45 (44%), under 31 (41%), and over 45 (15%). The highest level of education included 40% with college degrees, 52% with graduate degrees, 1% with high school degrees, and 7% with some other education.

The questionnaire presented four questions to gather the participants' preferences for log-in page objects. Following are the questions and responses.

**Question 1: When you first enter an application or specific section of a Web page, what should the title be?** In the first group, 53% of the respondents chose *login*. Of the other titles, 13% chose *Log In*, 6% chose *LOG IN*, 13% chose *Sign In*, 6% chose *SIGN IN*, and 9% chose other titles. Overall, 72% chose variations of *Log In*, and 20% chose variations of *Sign In*.

The physical attributes of the fields and labels varied, and the general style sheet of the Web site did not always justify these differences.

In the second group, 48% of the respondents chose *login*, 22% chose *Log In*, 9% chose *LOG IN*, 14% chose *Sign In*, and 13% chose other titles. With both groups combined, 51% of the respondents chose *login*, 16% chose *Log In*, 7% chose *LOG IN*, 12% chose *Sign In*, 4% chose *SIGN IN*, and 10% chose other. Overall, 74% chose variations of *Log In*, and 16% chose variations of *Sign In*.

**Question 2: What should the label for a registration name field be?** In the first group, 50% of the respondents chose *User ID*, 24% chose *User Name*, 4% chose *Username*, 18% chose *Log-in ID*, and 4% chose other. In the second

group, 26% of the respondents chose *User ID*, 30% chose *User Name*, 4% chose *Username*, 18% chose *Log-in ID*, and 4% chose other. With both groups combined, 42% of the respondents chose *User ID*, 26% chose *User Name*, 8% chose *Username*, 16% chose *Log-in ID*, and 7% chose other. Overall, 43% chose variations of *User ID* and 34% chose variations of *User Name*.

**Question 3: What should the label for the secret code field be?** In the first group, 88% of the respondents chose *Password*, 6% chose *PASSWORD*, and 6% chose other. In the second group, 83% of the respondents chose *Password*, 13% chose *PASSWORD*, and 4% chose other. With both groups combined, 86% of the respondents chose *Password*, 8% chose *PASSWORD*, and 5% chose other. Overall, 95% chose *Password* over other labels.

**Question 4: What should the label for this push button be?** In the first group, 30% of the respondents chose *Submit*, 14% chose *Go*, 14% chose *Enter*, 14% chose *Log-in*, 12% chose *Log In*, 12% chose *Sign In*, and 4% chose other. In the second group, 4% of the respondents chose *Log In*, 13% chose *Log-in*, 9% chose *Sign In*, 26% chose *Go*, 13% chose *Submit*, 22% chose *Enter*, and 13% chose other. With both groups combined, 10% chose *Log In*, 14% chose *Log-in*, 11% chose *Sign In*, 18% chose *Go*, 25% chose *Submit*, 16% chose *Enter*, and 7% chose other.

## User Preferences Indicate Areas of Improvement

The results from the two user groups show the same trends, so I will analyze the results of the combined groups. *Login* appears to be an appropriate label for the log-in page or section title. Among the ways of writing this title (*Log In*, *LOG IN*, *Log In*, and *Login*), users seem to prefer *Login* as one word (51%) versus *Log In* (22%).

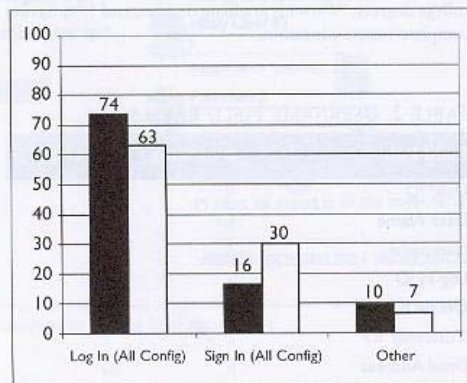


Figure 2. Comparison of page/section title between the comparative study and the user study. Black bars represent the user study and white bars represent the comparative study.

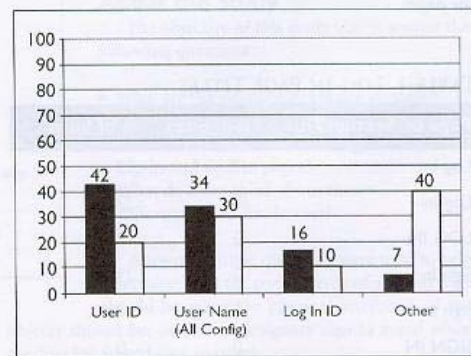


Figure 3. Comparison of log in field label between the comparative study and the user study. Black bars represent the user study and white bars represent the comparative study.



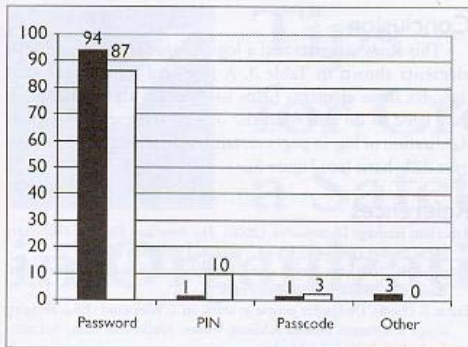


Figure 4. Comparison of password field label between the comparative study and the user study. Black bars represent the user study and white bars represent the comparative study.

It is first important to determine whether the page title (or field or button label) should be a noun or a verb, because the correct spelling is sometimes different for the noun and verb forms of the same word. *Log in* is the correct spelling for the verb form (for example, in the phrase "log in to the system"). However, *login* (or *log-in*, depending on the dictionary) is generally considered the correct spelling for a noun. Also, according to the *American Heritage® Dictionary* (2000), the correct spelling is *Log In*, which is a phrasal verb. *Log in* (or *log on*) is used in computer science and is defined as to "enter into a computer the information required to begin a session." The word *login*, according to WordNet® (Princeton University, 2003), refers to an "object-oriented deductive language and database system integrating logic programming and inheritance." The word *login*, according to the same source, "is also the Unix program which reads and verifies a user's username and password and starts an interactive session." [Ergonomics in Design follows Merriam-Webster's Collegiate Dictionary, Eleventh Edition, in which the verb form is *log in* and the noun form is *log-in*.]

Despite the fact that the correct spelling for *Log In* is two words, users seem to prefer the word *Login* as equivalent in meaning. The phrase *Sign In* seems to be less attractive to users because it is used in only 30% of the Web sites, and only 16% of the surveyed users chose it as the best label, versus 74% who chose *Log In* (see Figure 2).

The user study suggests that the label for the username field should be *User ID*. Although only 20% of the reviewed Web sites used *User ID*, versus 30% that used *User Name*, 42% of the users in the user study preferred *User ID*. From a content point of view, this makes sense because the username is not necessarily the name of the individual user; rather, it can be a number or a selected name (see Figure 3, page 22).

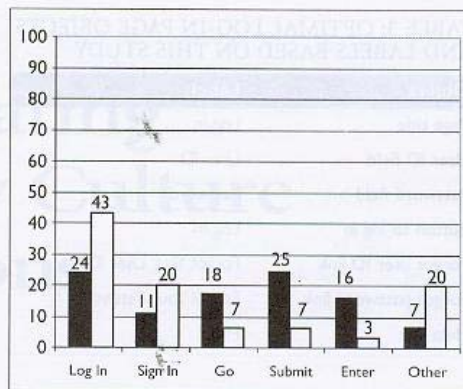


Figure 5. Comparison of push button label between the comparative study and the user study. Black bars represent the user study and white bars represent the comparative study.

Both the user study and the comparative study suggest that the label for the password field should be *Password* and not *PIN*, or any other word, such as *passcode* (see Figure 4).

I did not investigate the physical properties of the labels for the fields in the user survey. The comparative study, however, shows that the majority of the Web sites used left alignment and plain text fonts for the labels.

The user study suggests that the label for the username field should be *User ID*.

Preferences for the label of the button that performs the log-in action seem to vary among the Web sites and the users we surveyed. However, *Log-in* and *Submit* appear to be preferred more than other variations (see Figure 5). Using consistent text for the log-in page or section title and the label of the button that performs the log-in action seems to be a good design idea.

Figure 6. A typical log-in page

TABLE 3: OPTIMAL LOG-IN PAGE OBJECTS AND LABELS BASED ON THIS STUDY

Object	Label
Page title	Log-in
User ID field	User ID
Password field	Password
Button to log in	Log-in
Forgot user ID link	Forgot Your User ID?
Forgot password link	Forgot Your Password?
Help link	Help?

Using standard wording for the Forgot User ID? or Forgot Password? link seems to be an essential factor in a log-in page. Designers should avoid other wording, such as *Forgot my password?* or *Forgotten*. Users who are not familiar with these phrases might interpret them differently and have a harder time recognizing the purpose of the link.

Having a Help link by which the user can navigate to a help section for the log-in page seems to be a useful option.

## Conclusion

This study suggests that a log-in page should contain the elements shown in Table 3. A standard log-in page that includes these elements helps users easily understand what they need to do and what the objects represent. The standardization of log-in pages certainly affects users' experiences on a daily basis (see Figure 5).

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