Coliton/Sphar Form
Usability Study

IDIA 642
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Executive Summary
background

HTML forms have been around since very early in the history of the web. Despite the length of time that people have been using them, though, many still have difficulty filling them out online. In this study, we have observed the use of two pairs of forms, each pair from a different subject domain, and compared the features and design with an eye toward optimal usability.

Objectives

The purposes of this research were:

1. to note differences between form design and determine which is more effective

2..to see ways in which users' mental model can differ and determine useful features for users with differing experience levels.

3. to observe how different form elements were utilized, determine most effective uses of them, and determine optimal proximity to other elements.

4. to ascertain what the optimal progression of form elements is to promote understanding and foreshadowing of subsequent questions.

5..to observe how the general page design and functionality can effect form use.
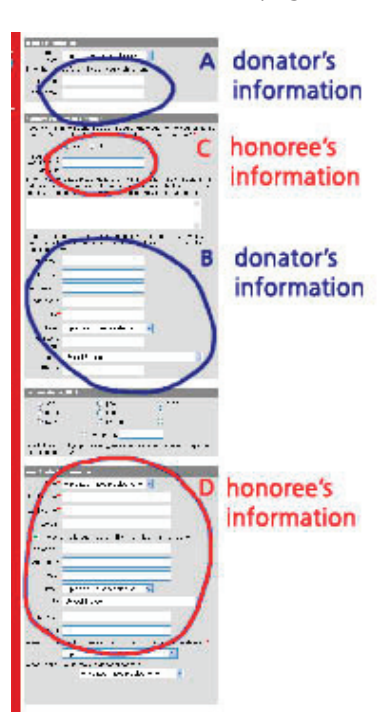
Executive Summary
key findings

1) Establish a clear mental model, meaning that site interactions ought to come natuarally to users.

2) Provide navigation for moderate and advanced users

3) Provide appropriate feedback when errors are encountered

4) Provide appropriate feedback when task is accomplished successfully

5) Once a convention has been established, be consistent

6) Forms should respond to user actions dynamically

7) Avoid links with identical text for cues

8) Provide only valid options in navigation

Research Methods
Form Usability Analysis

a) Object – doctorswithoutborders.org	Observation	Level	Recommendations

Doctors Without Borders
(donation page)

figure 1

Providing a clear and understandable path for making donations is critical to donation success. Since many donations are made to honor friends and family, it is important that the mechanism to achieve that goal be clear and easy.

Figure 1 is a view of a portion of the page used to honor someone with a charitable donation. The fields marked "A" are for the honoree's name; the area marked "B" is for the donator's name; the area marked "C" is for the the honoree's address; and the area marked "D" is for the donator's address. This unannounced and unnecessary switching between

Additionally, clearly labeling what information is expected will help to ensure a quick and easy process. In addition to labeling, when forms are asking for several types of similar information it is important to clearly identify which set of information should be entered at which point, i.e. yours or your friend's.

Figure 2 at left is a full sized view of the transition from part "B" to part "C," in which two different names are asked for but the field labels give little indication of this. Users must take the time to stop and read the accompanying paragraph, which cannot be easily skimmed because of poor contrast between background and text color.

Major

1) Different topics covered by web forms need to be well grouped and labeled in order to clearly differentiate the two informational areas better. For instance, **rather than mixing the donator's and honoree's info (as shown at left, ordered A C B D), it would be better to combine related segments (AB CD).**

2) A further way to prevent confususion would be to **use different font properties (face, weight, etc.) to make form field labels stand out more**. This will allow both novice internet users and more experienced users to scan the page more effectively and still understand which information goes in which fields

Figure 3 shows how font weight could be used to effortlessly call attention to the purpose of form fields.

figure 2

One participant in the study provided his personal information when the honoree's information was expected. When he was then prompted to put in his own he responded "I don't understand, I guess it wants it again." After putting in his information a second time, he didn't get the honoree's information entered until after a failed attempt to submit the form.

Major

figure 3

b) Object – blockbuster.com	Observation	Level	Recommendation

Sign in/sign up page

figure 4

Blockbuster allows registered users to put movies in their "queue" and have them sent out when the current movies are returned. In order to put movies into a queue users must first either sign-up or sign-in. The image at left shows a portion of the screen where a user makes that choice. The option to sign-up is the small blue link in the second line of the paragraph (circled and marked with an "A"), while the option to sign-in is the large blue box in the center of the screen

As we observed, the majority of participants seemed to scan the page from left to right and thus entered their email before reading the fine print or even looking at the graphic to the right. Some then reviewed the screen

Major

The best way to prevent this type of frequetly occuring error is to add a web script that uses basic logic to figure out user intent. On form submittal, the script would detect whether a valid email/password combination had been entered. If one had, the person would be logged in. If not, the user would be taken to the register page where the e-mail and password would be transferred to the new page and prepopulate the corresponding fields.

and saw the link to create a new account before hitting the "Submit" button, but many did not.

Allowing new customers to successfully register and then begin renting movies begins with the very first interaction the customer has with a site. Pages designed for both new and returning users need to very clearly identify what the new user should do first, since they will need the most guidance. Once the new user's needs have been addressed, then the returning user can be handled in a quick and efficient manner.

c) Object – blockbuster.com	Observation	Level	Recommendation
Home page search bar figure 5	While many internet users understand how search boxes work for most web pages, it was observed that novice users may interpret text already in the search box (**figure 5**) on page-load too literally. One participant who had only been using the Internet sporadically for between 6 months and one year had trouble with this. When he first tried to use the search, he just hit go. Provided with useless results, he then typed 'actor' into the search field. After receiving another useless page, he figured out that he could be more specific despite what the "instructions" said to do.	Minor	**Change the text in search box from, "Search by movie, cast, or character," to "type name of movie, actor, director, or character" or "type search term and hit 'go'"**
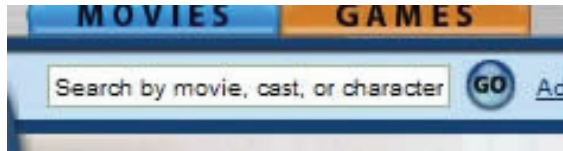
2) Provide navigation for moderate and advanced users

a) Object – IMDb.com	Observation	Level	Recommendation

IMDb home page layout

figure **6**

The Internet Movie Database, has typically 100 to 200 links on its home page. With this many links it is important to provide a structure to the navigation that promotes quick and easy access to information. A sample page is shown at left (**figure 6**) with 183 links, four of which are to try their professional site, which is a fee-based service.

In order to draw customers to their fee-based service, it is important that visitors see the benefits of the service. IMDb does this by providing a great deal of information for free, and letting users know that more is available in the fee-based service. In fact, on one opening screen of IMDb there were 84 words that were not hyperlinked, and 147 words that were. This huge number of links can be overwhelming

With so much information, the search features of the site become a very important feature for users seeking specific information. When one user was asked to use the site he went straight to the search box located on the top left corner of the page and located the requested movies.

However, it is important not to overdue the search boxes. One page on IMDb has three separate search tools: one for the IMDb site, one for the entire Web, and one for US zip codes to find theatres. Many users missed

Major

When a site has a lot of features, it is important to design the page for easy access by moderate and experienced users. Even when a page has hundreds of links, an experienced user often looks for a search box, and uses that tool to quickly locate the information they are seeking.

The search-by-area search box should be placed near the top left since that is where visitors typically start scanning a page. The best thing to do would be to replace the google web search box with the area search box on at least the pages related to searching for movies by area and possibly on every page.

the third box since it was located down the page and on the right.

3) Provide appropriate feedback when errors are encountered

a) Object – IMDb.com	Observation	Level	Recommendation

Registration response screen

figure 7

Error checking is a critical task of all dynamic Web sites. Not only does the error have to be detected, but then it must be communicated in a form and language that the user can understand   This is especially true for successful e-commerce websites.

Today, many users jave come to expect that they will be told how to do something correctly. One participant stated, "I almost always make mistakes. Usually it will come back and say, 'you forgot your address.'" This reliance on error checking by the form was seen again and again in the study.

On IMDB.com, when a user attempts to register, one of the requirements is to provide an email and then confirm that email address by typing it again. If the two emails do not match, an error screen, similar to the one at left, is generated. This error reporting was something that helped many participants, as shown in the following example:

When one user was asked to register at IMDb he typed in an email with a comma separating the domain and top-level domain names (**figure 7**). When he was told, "The confirmation e-mail did not match the initial e-mail" he thought it was comparing it to

Moderate

When generating an error message (especially when two fields that should match don't) a simple graphic that shows the two fields and that they do not match is more successful than just using the names of the fields. Some users may need an arrow showing them where the mistake is, without demeaning them or insulting their intelligence. Another possibility is that the graphic could show a larger version of the text entered with the differences highlighted (see **figure 8**).
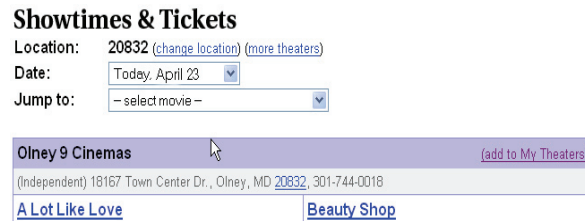

figure 8

an email he had typed on a prior page. He never was successful in getting registered in this site since he never noticed the comma instead of a period. Better error reporting could have prevented this misunderstanding.

4) Provide appropriate feedback when task is accomplished successfully

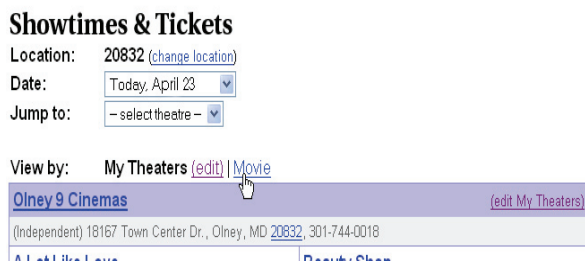| a) Object – IMDb.com	Observation	Level	Recommendation
Non-personalized IMDbpage. **Showtimes & Tickets** Location: 20832 (change location) (more theaters) Date: Today, April 23 Jump to: – select movie – Olney 9 Cinemas (add to My Theaters) (Independent) 18167 Town Center Dr., Olney, MD 20832, 301-744-0018 A Lot Like Love Beauty Shop Personalized IMDB page. **Showtimes & Tickets** Location: 20832 (change location) Date: Today, April 23 Jump to: – select theatre – View by: My Theaters (edit)	Movie Olney 9 Cinemas (edit My Theaters) (Independent) 18167 Town Center Dr., Olney, MD 20832, 301-744-0018 figure 9	Allowing for the personalization of a page is a major advantage that many dynamic web sites have over static pages and if a company has invested the time, expertise, and money to create a dynamic site, they certainly want users to know about and be able to use its features. When participants were asked to set a local movie theatre to appear each time they visited the IMDb site, almost all were at least partially successful. Unfortunately, the feedback was such that none of them left the site feeling confidant that they had accomplished that task. One user was successful at adding the theatre to his favorites, but did not realize it, and concluded with "it doesn't look like it is easy to get it to do this." If the users had left the site knowing that they had succeeded in the task, it would have completely changed their impression about the ease of use and usefulness of the site.	Moderate	As important as it is to make a site easy to use, it is equally important to provide feedback to users indicating when they have successfully accomplished a task. **Success can be shown in many ways such as with a dynamically generated text message or header.** Either way, something needs to be generated to inform the user they were successful and can now proceed to wherever their next task might take them.

10

a) Object – blockbuster.com	Observation	Level	Recommendation

Site registration form

figure 10

Using custom "shorthands" or similar conventions to communicate the same information over and over can be very effective for facilitating form completion, particularly when the convention is already used by many other web sites. A good example of this is the red asterisk which is often used to indicate a required field (see **figure 10**). Once established, however, they must be rigorously adhered to or else the users will begin to doubt the veracity of the guidelines they are being asked to follow.

When the format of a question changes from text box to check box, it is particularly easy for users to miss a subtle clue that a field is required. When there is no clue at all then mistakes are inevitable. The indication that fields are required needs to be present and easily discernable when question types change.

Blockbuster requires visitors to register before they are allowed to add movies to their queue. On the register page they indicate that required fields are identified with a red asterisk. They then identify every field except 'Gift/Promotion Code" and acceptance of the terms and conditions with a red asterisk. When participants were presented with this page almost every one of them skipped the check box for acceptance of the terms and conditions only to be told that that it is a required field.

One user skipped both the password and terms

Moderate

One solution would be to increase the size of the key, as shown in figure 11.

figure 11

and conditions and when presented with two corrections to be made only caught the missing password. It wasn't until she had tried twice to proceed without accepting the terms that she realized it is a required field.

6) Forms should respond to user actions dynamically

a) Object – doctorswithoutborders.org	Observation	Level	Recommendation
Donation ammount area figure 12	Whenever possible an on-line form should respond to the user's actions when the intent is obvious. This is especially true when asking for donations since it is particularly important that the process be as simple as possible. Doctors Without Borders includes a donation form that allows the user to select from a pre-determined amount or provide their own. While filling the form out, if a user puts in an amount other than the preset values, they must also select the "Amount" radio button, even though it seems obvious that they want to donate some other amount. Some users reached this point, provided an alternative amount, and did not select the radio button – which when submitted caused an error message and some level of confusion as the participant determined what they had to do to make a donation.	Moderate	When creating a form that uses JavaScript to verify the data before submitting it, **add a script that reacts according to perceived user intentions. If an amount is entered into a text box, and a radio button is also required, the act of entering the text should trigger the radio button to be selected.**

a) Object – doctorswithoutborders.org	Observation	Level	Recommendation

Donation page

figure 12-1

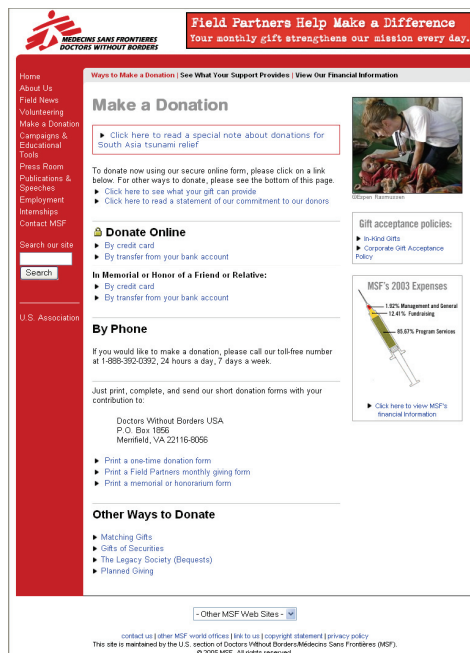wClose up view of the donation links

figure 12-2

Allowing visitors to donate is important to the existence of this organization. One of the key motivations for donating is to honor or celebrate a friend or associate. Doctor's Without Borders understands this motivation, and provides a mechanism for doing exactly this activity.

Doctors Without Borders allows users to donate using a number of mechanisms including credit card, bank transfer, and by mail. The number of options included on the screen shot shown a left (**figure 12**) includes eleven hyperlinks, a phone number, and a mailing address.

When one participant was asked about this page she said "There's just too many options of like whether to donate by credit card or transfer from your bank account or all of these other ones here." (**figure 12**) Once she decided on credit card she stated "and then there was this other category…I just didn't understand the difference between these two at first."

Moderate

Clearly label the links that allow a person to take an action, particularly when there are links to similar actions available on the same page. This identification can be done with visual effects like boxes, borders or shading to distinguish the categories (**figure 13**).

figure 13

a) Object – blockbuster.com	Observation	Level	Recommendation

Minor
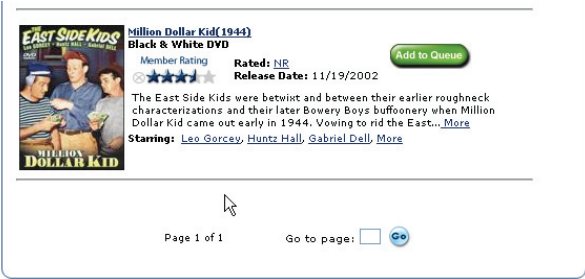
Blockbuster.com – search results

figure 14

Being able to search a site successfully is very important when the site extends beyond just a few pages. Blockbuster allows a visitor to type in a page number to quickly jump deep into the results of a search. Although the idea is different, for new users, this can be problematic since the page choice field is also displayed when there is just a single page of results (**figure 14**). A sample is displayed at the left.

One participant conducted a search that resulted in one page of results. When he did not find the movie he was looking for (since it hasn't been released to DVD yet) he tried to access the next page of results by typing in a "2" in the "Go to page:" text box. When this did not work, he looked at the page for a while and tried it again (and it still did not work).

The idea of letting a user jump to a specific page in the results is useful, but may also be confusing if the proper constraints are not given. **Whenever there is only one page of results the option to jump further should not even be visible.**

This study was conducted on five volunteers in sessions lasting nearly an hour. For two of the participants, Camtasia was used to record their experience. For two Morea, an application that records the screen as well as voice and video, was used. For the last three we used equipment that tracked their eye movements and recorded the location of their gaze, although the recording for only one of these sessions turned out. Two of the participants were each paid $20 and the rest asked for nothing in return.   The dates on which the studies occurred varied because of dificulty is finding a mutually suitable time for the moderators.

The tests were conducted at the University of Baltimore's usability testing lab, located at 1130 N. Charles. The computer used looked fairly normal but was actually a special piece of equipment that could track the participant's eye movements. Even though two of the recordings were lost, the one that did turn out was very helpful in seeing which parts of a web page did a better job of drawing the eye.

Before beginning the test, each participant filled out a brief questionairre (see Appendix C) which was used to guage experience level. While all of them did have experience using the Internet, there was a fairly large difference between the most experienced and the least.

The script (see Appendix D) consisted of questions looking at forms from four different sites: Habitat for Humanity, Doctors Without Borders, the Internet Movie Database, and Blockbuster video. For each pair of similar sites, a similar task was devised for the participants to try to accomplish. Very loose time guidelines were set to be sure that users got to all four tasks.

The physical condition of the lab was excellent and most users seemed to feel comfortable in it. There were, however, semi-frequent disturbences as the lobby and front door to the building were actually the next to the lab. The participants, though didn't seem to mind.

Appendix B

summary of partici-

	Participant 1
sex	male
age	over 45
use int. since	less than 5 months
freq. of int. use	a few times a week
use of Int. forms	almost never
use int. for	search for information

	Participant 2
sex	male
age	25-34
use int. since	6 months to 1 year
freq. of int. use	a few times a week
use of Int. forms	never
use int. for	follow current events and entertainment, dealing with band website

	Participant 3
sex	female
age	25-34
use int. since	more than 2 years
freq. of int. use	multiple times a day
use of Int. forms	never
use int. for	local events, music, sales in stores, places to travel

	Participant 4
sex	male
age	over 45
use int. since	more than 2 years
freq. of int. use	multiple times a day
use of Int. forms	once a week
use int. for	research, shopping, work, posting to web sites

	Participant 5
sex	female
age	over 45
use int. since	more than two years
freq. of int. use	multiple times a day

	Participant 5 (con't)
use of Int. forms	once in a wile
use int. for	searching sites, dictionary, news, weather, bill pay

Appendix C
screening questionaire

User Profile
Participant #.................

How long have you used the internet (please check one):
·   less than 5 months
·   6 months to 1 year
·   1 – 2 years
·   more than 2 years

In a typical week, how often do you use the internet (please check one):
·   multiple times a day
·   once a day
·   a few times a week
·   once a week
·   never

Describe briefly the sorts of task you carry out on the internet, not including email:.....
_____

How often do you fill out online forms (registering with websites, shopping, taking online surveys, etc.) (please check one):
·   multiple times a day
·   once a day
·   a few times a week
·   once a week
·   never

If I can buy something online rather than going to an actual store, I will get it online.
___Always   ___ Most of the time   ____ Occasionally   ____ Never

If I have the option of registering for anything online rather than doing it on paper in person, I do it online.
___Always   ___ Most of the time   ____ Occasionally   ____ Never

Thanks for coming!

[Familiarization with Habitat for Humanity]

Without leaving the home page, take a moment to look at this site and tell me what it is:

What is its purpose?

What can you do on this site?

Allow 1 min

Tasks for Habitat for Humanity]

Now lets pretend that It's your friends, **Bob and Heather Smith's**, wedding. As a gift you want to do something a little different.

Make a $10 donation to Habitat for Humanity in their honor. Make sure that they both receive notification of the gift. –**When they get to part where they ask for address of honoree, give them HfH prompt-**

 Allow 10 min

Talk about anything that really stood out to you as particularly useful or confusing.

Appendix D

script

[Familiarization with Doctors Without Borders]

Without leaving the home page, take a moment to look at this site and tell me what it is:

What is its purpose?

What can you do on this site?

Allow 1 min

[Tasks for Doctors without Borders]

Now lets pretend that it's your friend, **Lynn Walters'** birthday and you want to donate $10 to DwB in her name. Make a $10 donation in thanks to her.

--when they get to the address section for where the card should be sent, give them DwB prompt--
12min

Talk about how you felt about that whole process.

Talk about the experience in comparison to that with HfH

Appendix D

script

[Familiarization with Internet Movie Database]

[IMDB.com]

Without leaving the home page, take a moment to look at this site and tell me what it is:

What is its purpose?

What can you do on this site?

[Tasks for Internet Movie Database]

You've been hearing good things about the most recent Clint Eastwood movie, and would like to see it. Using this web site can you find out when the next showing is in your neighborhood?
5 min

Can you set this site so it will display movies from your favorite theatres every time you log in. **They then will have to figure out what they need to do, which is register. Give them** gaugeusability@yahoo.com **as the e-mail they should use** – (password is **password**)
12 min

Talk about anything how you felt about using Internet Movie Database.com. (What was easy or what was difficult?)
1 min

script

[Familiarization with Blockbuster]

[Blockbuster.com[

Without leaving the home page, take a moment to look at this site and tell me what it is:

What is its purpose?

What can you do on this site?

[Tasks for Blockbuster]

[Caution participant that although they may need to sign-up for the service to complete some of these tasks, they will stop short of confirming the action so nothing will be saved on the Blockbuster site.]

Having enjoyed his most recent movie, now you want to know how many Clint Eastwood movies are available for rent.
3 min

See if "Dirty Harry" is available for rent. If it is, add it to your list of movies you want to watch.
**- They then will have to figure out what they need to do, which is register.
Give them** gaugeusability@yahoo.com **as the e-mail they should use** – (password is **password**)
10 min

Now tell me what you thought about usingBlockbuster.com. (Did anything stand out as being particularly easy or difficult?)
1 min

(H4H)

Bob and Heather Smith

bandh@yahoo.com

**Your <u>VISA</u> credit card: 4634 7865 9200 4637
expires 07/05**

(DwB)

Lynn Walters
100 A St
Washington, DC 20001

Email: l_walters@yahoo.com

**Your <u>VISA</u> credit card: 4634 7865 9200 4637
expires 05/06**

task prompts (con't)

(IMDB & BB)

your email: gaugeusability@yahoo.com

to get your email: mail.yahoo.com
user: gaugeusability
password: password

**Your <u>VISA</u> credit card: 4634 7865 9200 4637
expires 05/06**

Appendix F
severity scale

Major	The most critical level, where the user is unable to successfully complete the task. Some problems that might be included in this level are Poor labels and controls that the user cannot figure out how to use. These errors should be fixed before further work is pursued
Moderate	At this level, the user is significantly impeded from successfully completing a task. These errors typically account for a high incidence of support requests
Minor	Minor problems that may not account for a significant ammount of lost time but can seriously erode user experience and likelyhood of returning to the site. Such problems arise when users can't find items or controls due to labeling problems
Good	Indicates a well designed site object