A Study of Online Forms: Usability Evaluation Results

Research Methods
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EXECUTIVE SUMMARY

This study examines users' interactions with online forms, and seeks to identify both common problems and best practices. Unlike most usability studies, ours asked participants to visit several websites. Each contained at least one complex form. All shared a common theme and process in terms of what information they required from the user, and what the user needed to do to complete a task.

To provide a context for visiting these very different sites, participants were given two scenarios, both starting with ordering tickets for an event which required date, time, and seat selection; then booking travel arrangements which also required date, time, and seat selection. The following common themes emerged as we observed people performing the required tasks:

Find the Event

The sites provided various means to find an event: searching, browsing, lists, and calendars. Most of the time participants were able to find the target event. When problems did occur, it was usually as a result of poor labeling, or visual clutter in the layout. On one site, not all informational pages on events are linked to the critical path of purchasing tickets, so while users found the target event quickly, they had to look for another route to purchase tickets. A task scenario asking participants to order food for a concert raised the question of when or how to present items or activities that are supplementary to the target event. Participants typically did not notice the option to order food because it was presented while another process – ordering tickets – held their attention. At the same time, this option was mentioned nowhere else on the site.

Recommendations

Link all informational pages on events to the critical paths of purchasing tickets. Multiple routes to information is a good way to accommodate different people's and audiences' mental models of the site, but there should only be one destination for each event listing, containing all of the information and access to ticket ordering.

To avoid visual and informational clutter and allow users to locate event schedules and listings at a glance, consider implementing an information architecture with few top level categories, links to all of which can fit comfortably above the fold of the homepage. Utilize white space to improve readability and to emphasize the information hierarchy. Make sure links to show and ticketing information are called out visually as well. Simplifying the presentation of information will benefit all users, but will especially help older users and less experienced users who may not be adept at quickly scanning a page to find what they need.

Options to purchase items and activities that are supplementary to an event should be presented as a discrete step that the user can explicitly choose to take or avoid. For example, after tickets have been secured, offer the user a link such as "I'd like to order food for this event. Show me the options." This approach allows users to focus without distraction on their primary goal–ordering tickets–while also making the supplementary options more clearly noticeable. In addition, make sure information about these supplementary items and activities is accessible from the main menu, Help/FAQ pages, and via search, thereby allowing users to discover and purchase these items at their convenience.

Login/Register

All of the sites prompted users to log in or create an account at some point in the process, but only one required it. In most cases the process went smoothly, particularly on sites that allowed the user to proceed as a guest without registering. Problems occurred when registration interfered with or interrupted the ticket purchasing process.

Recommendations
Make it optional to register and/or log in. Our participants did not seem to mind taking the time to register and log in for the first time when it was required of them, but this may be because they were provided with imaginary identities. When registering and logging in was *clearly an option,* our participants bypassed it, with the exception of one man on one site who coincidentally had an account and chose to log in as himself.

Users are customers, and should either be allowed to make purchases without creating an account, or create their account at the part of the purchasing process—typically near the end—in which they are already entering personal information. The registration process should not interrupt their purchasing process, particularly one that requires them to select multiple options such as day(s), time(s), location(s), and seat(s)—this may disrupt their focus, resulting in errors, frustration, derailment from the critical path, and/or the perception of wasted time.

Select Date(s) and Time(s)

Most of the sites required the user to specify either specific or approximate dates and times (e.g., a particular performance vs. wanting a flight early in the day). This was typically done with dropdown menus. Most users moved through this process easily, but some (particularly an older participant) had difficulty with the very small sliders and buttons on these interface components.

Three sites provided an alternative method for selecting dates: the user could access a calendar in a pop-up window, select a date from it, and have their selection automatically populate the form. On two sites this calendar was represented by a small icon to the right of the dropdowns, and on the third it was represented by a small text link. It is interesting to note that none of our participants noticed these tools, even though one wished aloud for such a thing.

This is unfortunate, since requesting tickets for events with set dates and times—such as plays or concerts with multiple performances—is easier if the user can simply scan a calendar showing all occurrences of the event which may or may not be on a given day, and whose times may vary by day. One site listed each performance as its own event/line item. This is another feasible solution which allows a user to quickly scan for what they need.

Recommendations
Form elements like dropdown menus should be consistent in their appearance and default selected option. Particularly where the target audience is or includes older users, menu form elements should be styled to include larger type and extra white space between them to make their options easier to read and select. Users should be able to search for what they need by dates and times.

The calendar tool seems to have the potential to ease the process for everyone, particularly for non-travel events: it is easy to understand and browse, shows large portions or the full schedule of events, and can be coded to populate a form when a user makes a selection from it. Since none of our participants seemed to notice the calendar whether links to it were presented as text or an icon, designers should consider the placing and visual distinction of such links, or consider designing the date/time selection interface around it, including it on the page rather than offering it as an option.

Select Number and Location of Seats

All of the sites in this study allow the user to specify how many seats they want and where they want to sit, whether in a specific section or class of seat (e.g., business vs. coach). Participants

typically had little trouble selecting the number of seats, although one was not able to adjust this quantity after proceeding past the initial input form. One of the sites let the system select the best available seats, then gave the user a chance to accept or reject the results. This approach worked best when the ticketing results page offered a link to a pop-up seating chart where users could check the location of their seats before accepting them. Showing the seating chart directly on the seating results page would work even better, since it would not force users to look back and forth between windows to evaluate their seats. Another site asked users to select seat preferences from dropdown menus, then attempted to match the preferences. This proved to be the least successful approach because it asked users first to enter seating preferences and then to accept or reject the results of the system's search without providing easy access to information about the location of the seats. The most successful approach to selecting seats was provided by one of the travel sites, which allowed participants to choose seats by clicking directly on a seating chart showing available seats.

Recommendations
Whenever possible, show which seats remain open and allow users to choose seats by clicking directly on the chart. Otherwise, provide a seating chart on the page where users select and/or approve ticket preferences. Seating keys presented on the seat selection page should match any seat selection mechanisms (such as sections of seats listed in a dropdown menu).

Enter Purchaser information

All of the processes require the user to enter billing and shipping information to complete the purchase of their tickets. Participants who reached this point in the process did not have problems entering their personal and billing information into the forms provided. They did, however, experience slight confusion and inconveniences on one site which did not indicate which fields were required, required a double-confirmation of wanting the tickets for the seats found, and employed a timer which may cause stress for some, and difficulty for other with motor impairments.

Recommendations
Always clearly indicate which fields are required. This will avoid errors, delays, and frustration. Do not make users engage in what they perceive as meaning less or time-wasting behavior—such as double confirmations or forcing them to wade through special offers to get to the next required field–or enter information irrelevant to their purchase.

Some of the more unusual requirements of the user on the Telecharge site are meant to foil "robots" and ticket-scalpers while preserving the availability of seats for serious buyers. While this is explained in one place, it apparently not in another—on the form in which the user must confirm their wanting the selected tickets twice, on the same screen, using a radio button immediately above a checkbox. *(See Object 23 in the table, below.)*

Submitting Information

On all of the sites, ordering tickets includes a multi-step process spanning several pages, where users have to submit ordering information as well as to confirm selections and purchases. More experienced participants navigated this process successfully, but expressed annoyance at elements that appeared to lengthen the process without adding value to it, namely attempts to entice them with additional deals. One user referred to these extras as "spam…stuff you have to go through to get done what you want to get done." While it might seem beneficial to bring additional options to users' attention, forcing them to wade through endless unsolicited deals only serves to reduce trust. Leaving users with the impression that this is a site where they can get things done quickly and painlessly is likely to produce longer term benefits. More critically, older and less experienced users can be derailed by the added burden of sifting through inessential

information. Our older participant labored, and ultimately had to abandon the task when "the next step"–usually in the form of a continue button–was buried (and in effect, hidden) below multiple screens' worth of information or occurred in an unexpected place, such as the middle of the screen.

Recommendations
Streamline the process of entering and submitting purchasing information. This means both keeping the number of screens on which the user must input information to a minimum and also keeping individual screens as brief as possible. Completing an order is the most essential process on a commercial site and should not be disrupted at any cost.

Offers for supplementary items and activities–e.g. on a travel site, hotels or activities in the destination city–should be presented as a discrete step that the user can explicitly choose to take or avoid. (See also the Find the Event discussion, above.) For example, after tickets have been secured, offer the user a link such as "I'd like to see a list of activities I can add to my trip." Users should not have to sort through extra items and activities unless they explicitly request to do so.

Buttons or links used to submit information or otherwise continue the process should be visually distinct and placed prominently at the end of a page or form—this is where our participants expected it. Do not require the users to scroll past the submit/continue button or link to review more information or fill out other form fields.

Error Recovery

During the study, all of the sites had to handle the situation where a participant submitted an incomplete form. To bring this error to users' attention and allow them to correct it, two sites showed a message describing the error at the top of the screen while presenting the incomplete form below it. This requires the user to read and understand the message, then search the form for the incomplete field. Experienced users may recognize that a form they have submitted has not been processed and know how to check for error messages at the top of the page, but less experienced users often miss these messages and are baffled to see the same form reload without an obvious indication of what is wrong. Older users in particular may miss low contrast error messages. Another approach was to show a javascript pop-up error message. Although this gets users' attention, it still requires them to find the location of the error after closing the pop-up. In this scenario, even experienced users were momentarily confused by a poorly worded message.

The search engine on one site could not handle simple spelling errors or a case where a participant entered a search term without spaces between words. The search results page announced that there were no results without providing any suggestion as to how she should proceed.

Recommendations
When a user fails to enter all required information on a form, provide fields for only those pieces of information on the subsequent page, along with a friendly message such as "Please provide the following information to complete registration." If this is not technically feasibly, highlight and jump to the area of the form where the error occurred so the user does not have to scroll and search for it on the form. Present the error message next to or above the relevant field. Error messages should be brief and non-technical to increase the likelihood that they will be read and understood. Display all error messages with high contrast to make them more noticeable.

To handle misspellings, the search engine should provide likely alternatives or variants to the string entered by the user, e.g. "Did you mean Monty Python's Spamalot?" When a search returns no results, provide brief suggestions for improving the search, e.g. "Make sure you spelled

your search term correctly." These suggestions should appear on the search results page, above field(s) for a new search.

What was most frustrating and most surprising?

At the conclusion of each test, we asked our participants what they found most surprising (in either a positive or negative way) and what they found most frustrating about their experiences.

Common or significant frustrations included:

- Poor or misleading labeling resulting in participants not getting what they wanted or going where they expected
- Difficulty finding target information due to cluttered layouts
- Inconvenience, delays, or difficulty in submitting information to continue the process due to a combination or clutter, unnecessary information, and buttons which were poorly placed or were not visually distinct enough.
- Being frustrated made the experience less enjoyable, made the participant feel "stupid," and in some cases resulted in tunnel vision, preventing the successful completion of a task.

"[This] site is made by people who have the answers," one participant told us, "and they can't go back and look at it as if they don't."

Participants found considerably less that they considered surprising about the sites and processes. In general, they were surprised when the sites did not behave in ways they felt should have been obvious. One participant told us that she was surprised by how different her experience was on each site, despite what she had to accomplish on each of them was so similar.

METHODOLOGY

HOW THE TESTS WERE CONDUCTED

Four participants were recruited to attend usability test sessions at the University of Baltimore's Usability Lab. Each session was supervised by Dr. Kathryn Summers. Two sessions were moderated by Alex Love, and two by Faye Levine. Each session lasted between one hour and ninety minutes. One participant was unable to complete a task due to technical difficulties.

After introducing a participant to the computer system and calibrating the eye tracking hardware, the moderator guided him or her through the test, which covered two scenarios and five sites. Afterward, the participant was debriefed, discussed their experiences, and asked questions if desired.

Scenario 1

Obtain two tickets for the Tony Bennett concert to be held September 3, 2005 at the Boston Symphony Orchestra's Tanglewood venue. Select any seats desired. Order a picnic dinner for two from Tanglewood's catering service. Next, make round-trip flight reservations for two, leaving Baltimore on September 2nd and returning Sept. 5th. Select any seats or flights desired.

Sites Visited: Boston Symphony Orchestra: http://www.bso.org/
Orbitz: http://www.orbitz.com/

Scenario 2
Obtain two tickets for the Wednesday, August 24th, 2pm performance of the Broadway musical *Monty Python's Spamalot!* Select any seats desired. Next, book two round-trip train tickets for August 24th from Baltimore to New York and back. When making the train reservations, arrange to arrive in New York before 2pm and depart New York after 4:30pm. Choose any train line or seats desired.

Sites Visited: Playbill: http://www.playbill.com/
Telecharge (Playbill's ticket ordering service): http://www.telecharge.com.
Amtrak: http://www.amtrak.com/

For the full test script, see Appendix A.

HOW DATA WAS GATHERED

During the test, the person not moderating was in an observation room, watching the participants' actions on a monitor and taking notes. The participants' actions onscreen were captured by Camtasia or Morae, and they themselves were also recorded. In two tests an eye-tracking device was used to capture the participants' foci of attention as they moved through the tasks. Because eye-tracking data was incomplete due to technical difficulties, it is not discussed in this report.

TEST PARTICIPANT DEMOGRAPHICS

User 1: Dennis
Male
Age: 31
IT Professional

User 2: Ursula
Female
Age: 68
German Language Professor

User 3: Joelle
Female
Age: 33
Middle-School Librarian

User 4: Hilbert
Male
Age: 41
Technical Writer

READING THE TEST REPORT CHARTS

Object
The page, form, or function which is the focus of the task.

Observation/Recommendation
A description of user behavior, any issues, and any positive or negative experiences associated with the performance of the task, followed by one or more recommendations for correcting problems and improving site performance.

Level of Severity/Impact
Usability issues are ranked according to the level of severity with respect to the user's ability to complete the tasks.

The rankings are:

MAJOR	The most critical level, in which the user is unable to complete or correctly complete their task, find the requested information, and/or determine what must be done to complete the task.

MODERATE	This level of issue causes a significant problem for the user, such as incorrect use of controls, selecting the wrong tool to complete the task, or causing enough frustration or dissatisfaction that the user does not want to complete the task.

MINOR	Minor problems or inconveniences which slow progress and cause frustration, but do not prevent the user from completing their task.

GOOD	There are no problems for the user. The feature is well-designed.