

Designing a User Interface for the Next-Generation Content Management System

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ABSTRACT

Unbound, an online magazine, seeks to harness features of the Web to deliver stories in a novel and interactive manner known as interactive journalism. In addition, accuracy of stories is assured through a rigorous editing and revision process. This requires a new type of content management system to support multiple states of submission as stories are revised and to present these stories in nontraditional formats. The project described in this paper focuses on effective user interface design, which is essential to maximizing functionality of the system.

Keywords

Content management system, user interfaces, web usability

1. INTRODUCTION

A content management system allows for the organization, control, and publication of media [9]. Such a system is especially vital to web publishing, where manuscripts are maintained in electronic form. Current content management systems are designed for immediate publication of online media to be presented in a traditional form, which often mimics books or magazines. For unbound (<http://www.tcnj.edu/~unbound>), the online magazine of The College of New Jersey, such a system is insufficient for several reasons.

Unbound is looking to redefine the way media is displayed online through interactive journalism. With the advent of new technologies, major changes in the presentation of stories are taking place. Instead of being presented as lectures to a passive audience, stories are beginning to enable readers to take a more active role and become participants. News is a starting point for massive conversations among readers, who can impart their thoughts and additional information they have, to give a fuller, more accurate picture of what is occurring in the world around them. Tools that allow for this are currently limited, lacking the power that is needed to enable this, which is where unbound tries to fill the gap [5]. It seeks to maximize capabilities of the web, such as hypertext and the control a user has over his/her experience. For example, one of the goals is to present a story so that the reader can explore it in whatever manner s/he chooses, not necessarily sequentially or chronologically as is done in traditional magazines. Media and links play a larger role in stories as well, to give the readers a richer experience.

Unbound also takes story accuracy very seriously; therefore, an extensive workflow must be followed before a story is ready to be published (Figure 1). Each submission needs to be revised, possibly several times, before it is ready to be displayed. After a writer submits an article, it is forwarded to the section editor who begins revising it. If the story is in the wrong section, this editor will forward it to the section where s/he thinks it belongs. The story is then passed on to both the copy editor who edits for style and checks facts, and the photo editor who adds and reviews photos. At any point, in the event that major changes are required, the story may be sent back to the writer. Once ready, the story is sent to the senior editor for review and then the editor in chief for final approval. Only then is the story ready for publication.

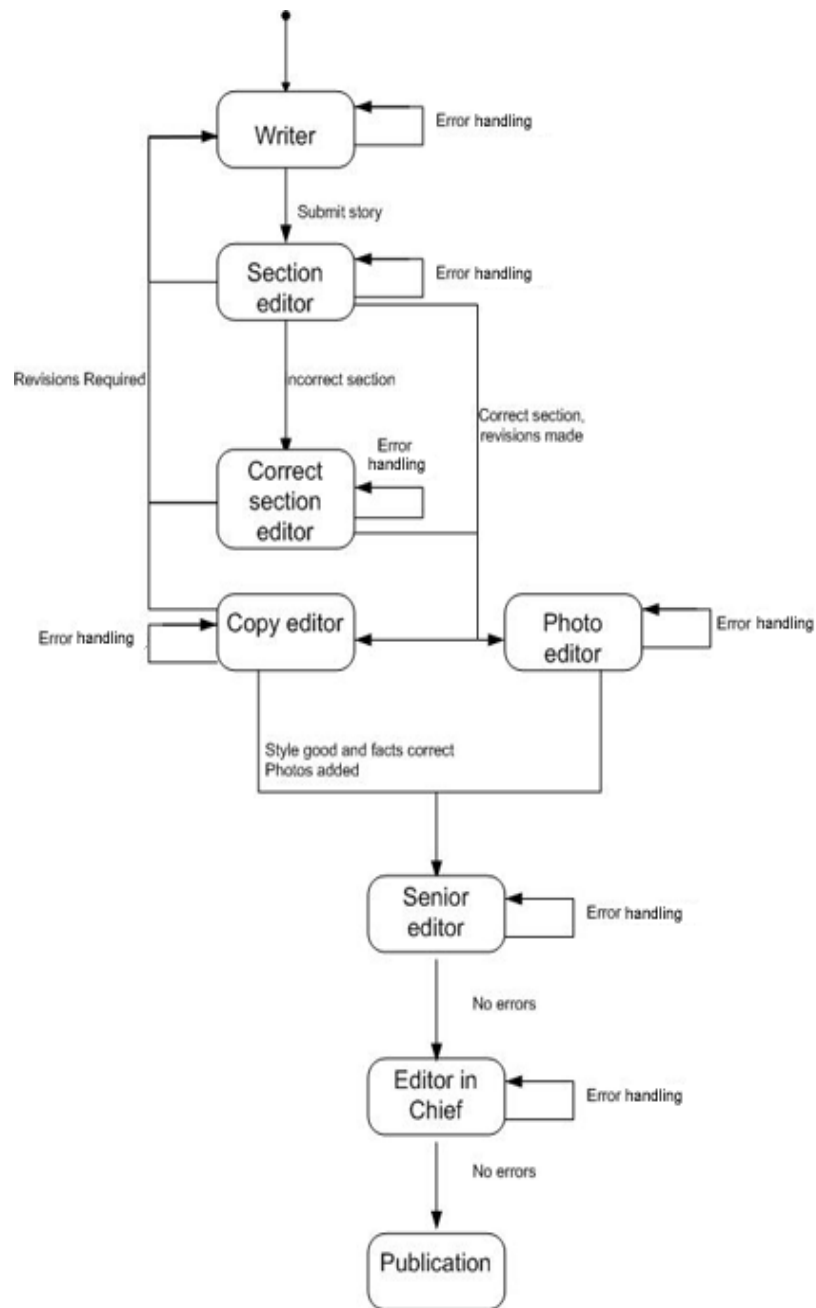


Figure 1. The workflow of unbound

The content management system can be harnessed to simplify this process. During each event, there may be multiple copies of the submission circulating between editors, making it difficult to keep track of the most recent version. Since there will be many different articles at a time, this

problem is amplified as there could be many copies of many different articles all floating around at once. The content management system should smooth this process and keep the workflow organized, forwarding the story when necessary, making it clear what stage a story is in, and deactivating obsolete versions of it [3].

2. BACKGROUND: USER INTERFACES

This system should have a functional, simple administration interface to allow the writers and editors to take advantage of all its capabilities without a steep learning curve. Because of the system's uniqueness, it will require an interface tailored to it in order to ensure maximum effectiveness. User interfaces provide a gateway for the user to interact with the system, and a poorly designed interface may lead to lessened functionality [2]. Most project methodologies do not take advantage of interface design concepts and instead resort to last-minute, ad hoc design. This results in hard-to-use, ineffective interfaces. Instead, development should center around the interface, giving a focus on usability [9]. Unfortunately, even when designers want to create a better interface, they can be hindered for various reasons. First, there is a general lack of methods which allow designers to apply new interaction techniques to their interfaces, and second, users are so accustomed to current interface designs, no matter how flawed, that changes will not be received well. However, in order to effectively design next-generation user interfaces, redesign is vital [1].

Several things must be kept in mind while designing this application for the Web as well. Web applications, unlike client applications, are not static. The Web is constantly evolving, and applications must be altered to take advantage of new features and capabilities. Performance is also a much larger issue; with numerous people trying to access the same content on a server, the

presentation of the information becomes vital to increasing the efficiency and speed of the application. The variety of users who access a web application is typically much larger than that which uses typical offline client application, so accessibility and a friendly user interface are especially vital [6].

Some principles that are especially useful in redesigning the unbound administration interface have been set forth in Rolf Molich and Jakob Nielsen's usability heuristics for web applications [5]. Based on these guidelines, the top priority for the Unbound interface is a minimalist design. The current interface is convoluted and disorganized, and actions require many clicks and/or searching for the appropriate link. Consistency is another concern, both in the design and the logical organization of the information. The administration interface should have the look and feel of the presentation interface and be easy to navigate. Error prevention and diagnosis are also important, and it is vital to consider what will happen in the event that an error occurs while submitting an article to the database, forwarding and updating the status, etc. Not only should the user be notified of this, but there needs to be an easy way for them to remedy the problem, at least temporarily [11].

It is also important to design an attractive interface. While this may appear to have no direct effect on usability, it does affect the user's mood, which can alter how they perceive the application they are working with. An appealing interface can increase the user's positive feelings, which enables them to think more creatively. When the user is faced with a difficulty, this creative thinking makes it easier for them to find a solution to their problem, decreasing their frustration [8].

3. INTERFACE DESIGN FEATURES

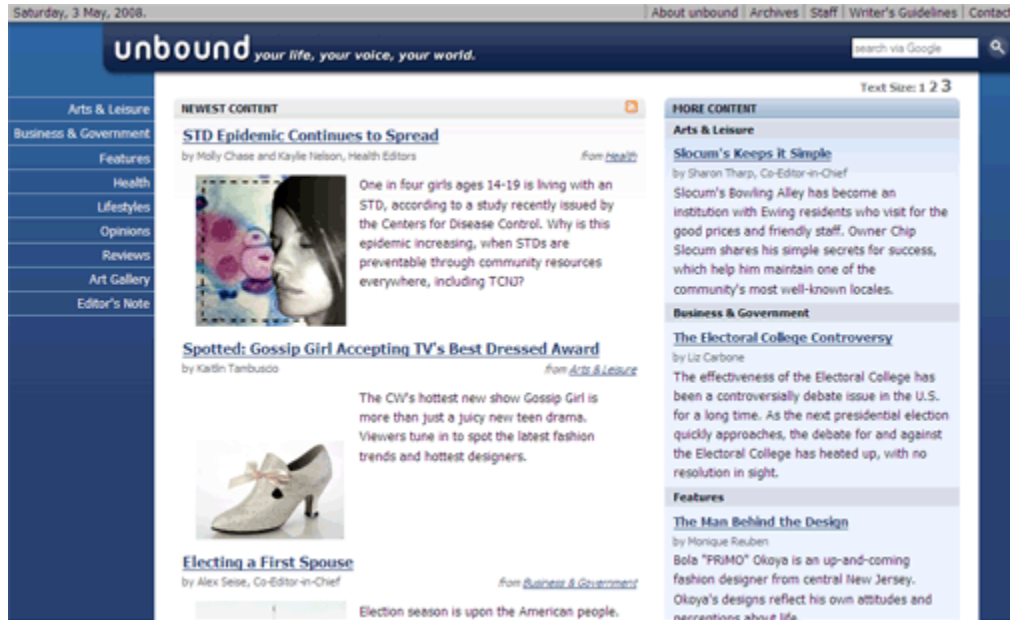


Figure 2. Main presentation interface of unbound

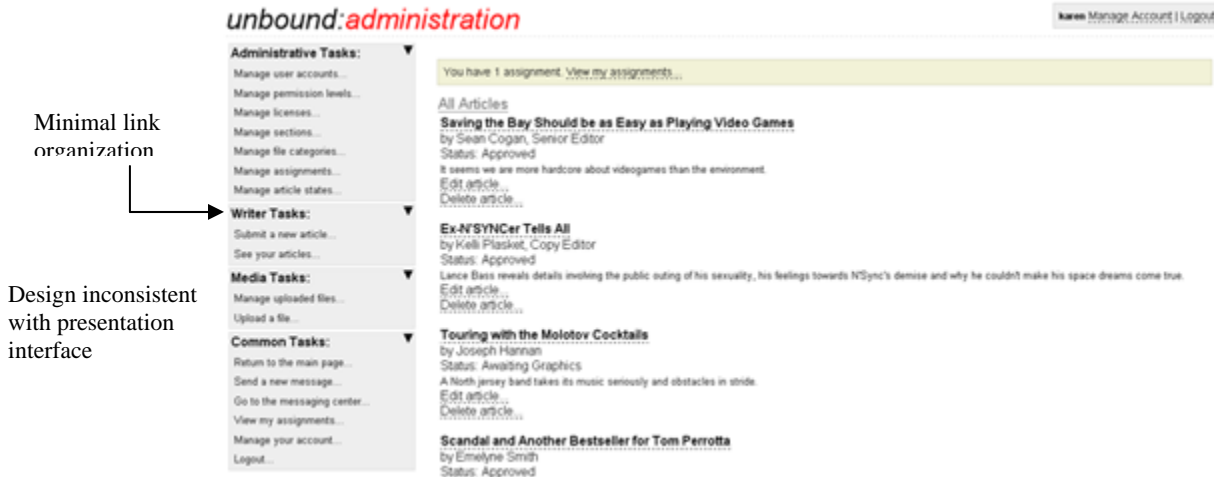


Figure 3. Original interface of unbound

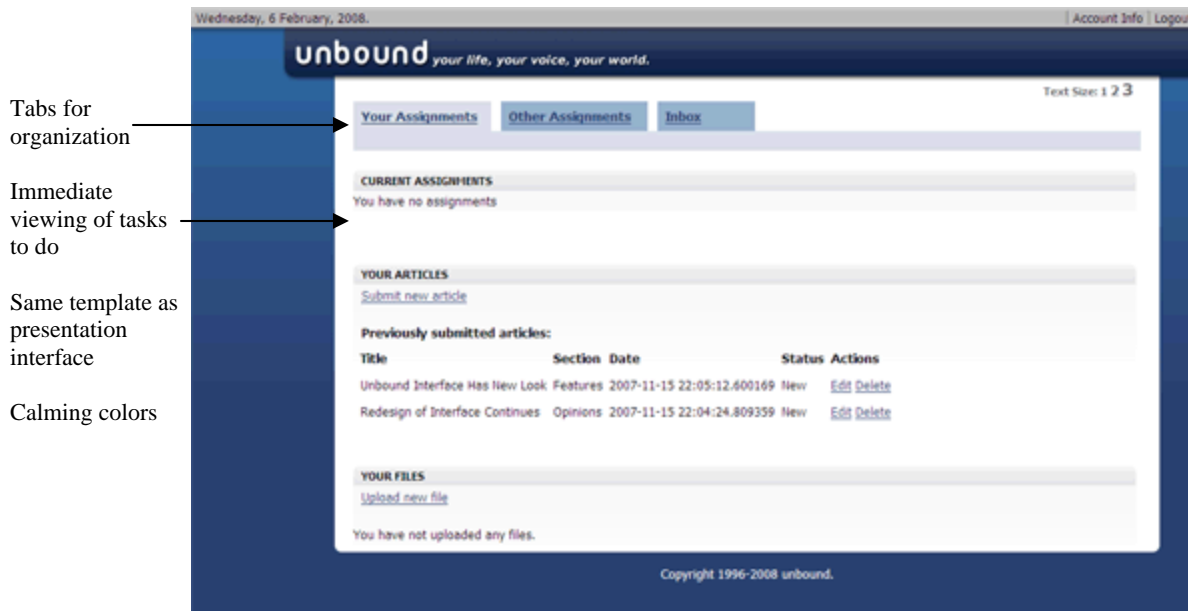


Figure 4. New interface of unbound

3.1 Navigation

The biggest change in the interface was the way the information was presented to the user. In order to maximize ease-of-use, it needed to be organized in an intuitive and logical manner and displayed so that it was easy to access. This was accomplished through the use of tabs. Tabs are prominent and visible, making them easy to notice and use [9]. They also allow for separation of different categories of actions, reducing clutter and disorganization that would result from trying to keep everything on one page or from the use of multiple pages with nonsensical grouping. Tabbed navigation is also very familiar, making it easy for users to understand and use [7].

3.2 Consistency

Consistency is what binds the different elements of the interface together reducing potential confusion of a user. The administration interface looks the same as the presentation interface, with slight changes for the different functionality. It also is consistent with web standards, such as underlined links [7].

3.3 Look and Feel

The look and feel of the interface define the experience for the user. Interfaces that exhibit a high degree of aesthetic appeal tend to be viewed in a more positive light than those that do not, and this can enhance the usability of the product [12]. Ideally, this should be both comfortable and useful. The interface uses easy-to-read fonts and receding colors, namely blue, to help project a calming tone. The organization of the interface features also contributes to the cleaner, more professional look and helps create a better experience for the user [13].

4. ANALYSIS

4.1 Design

In order to assess effectiveness of the redesigned interface, it is important to conduct usability tests. In order to assure that each level of unbound's workflow would be tested, a writer began by creating a sample story, and this story was sent through the entire editing process as it would have been using the original prototype. Users were observed as they interacted with the system, and questions were asked about their experience to facilitate understanding of their thoughts. These questions can be found in Appendix A.

5. CONTRIBUTIONS

The redesign of this user interface provides its users with a simple gateway to perform their work as easily and efficiently as possible. It is suited to their specific needs, and does not contain superfluous features or lack necessary ones. In the long term, it is a vital piece of a content management system which allows for an involved workflow and enables the telling of stories in a more interactive and efficient manner, utilizing key features of the Web. This is beneficial to journalists, making it possible for them to enhance their work without requiring them to learn extensive technology.

6. FUTURE WORK

This project will continue with an in-depth analysis of the users' experience with the interface.

From there, we can determine ways to improve it and further modify it to their needs, especially since these needs may change as journalism evolves.

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APPENDIX A

General questions

What is your role in Unbound?

How long have you been using the original system? What features are most valuable to you?
Which ones are superfluous?

What are the key activities you perform? Which are most important? Most frequent?

How much time do you spend using the system? Is there anything that could reduce this; for instance, are there any frustrating features of the current system that decrease the efficiency of your work?

Features

Article submission

How often do you upload media along with your article? Do you need (and are permitted) to add more?

Do you write your stories straight into the editor, or do you usually copy/paste them from a separate document?

On average, how often are you asked to resubmit or make changes to your article? By whom (level)?

Article management

How often do you edit from past revisions?

How often do you submit comments? Do they provide valuable information for you?

How easy/difficult is it to read the article on the screen? Would you prefer it to be in a separate window, broken up over several pages, etc.?

What information about an article is most important, which you'd like to see right away?

What percent of articles do you approve/deny?

How often do you reassign an article?

Do you often submit your own articles? How much time do you spend submitting your work/ editing others'?

Overall workflow

How important is it that you know what other assignments are going on, what other people are doing?

Is there anything you wish you could know about other assignments at any time?

Message center

How often do you use the message center?

Why might you use it over email? Why might you use email instead?

What makes it easy/difficult to use?

The test

Now we're going to begin using the system. Log on as you normally would.

Let's say you are going to produce/edit an article. What's the first thing you would normally do? (prompt them to go ahead)

Continue as if you are going to submit this; verbalize as many of your thoughts as possible.

Things to consider:

Is there anything that might make a task easier?

Is there any missing information?

Are there any pointless, extraneous steps you need to perform, features you don't use, information you don't need?

Would you have organized/designed anything differently? Why?

Comparisons

If you had a choice between interfaces, which one do you prefer? Why?

What were your favorite features of the old interface? What didn't you like about it?

Rate both interfaces from 1 to 5 (worst to best) for:

Ease of navigation

Logic of organization

Reading ease

Notification and feedback

Completeness of information

Completeness of functionality

Absence of superfluous information

Overall look and feel/appearance