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ABSTRACT

Union membership has undergone a dramatic decline and some have hailed the internet as a means for unions to reverse their membership declines. This study examines the usability of union websites. The content of union websites has been analyzed, but the usefulness of that content, and the overall usability of the websites, has not been assessed. In order for unions to fully utilize the internet and realize the potential benefits of cyberspace usage, they must provide websites that users find easy to use and that provide useful content. This study employs Hassan and Li's (2005) benchmarking approach in order to evaluate usability and content usefulness of union websites. Hassan and Li's (2005) framework assesses screen appearance, media use, interactivity, accessibility, navigation, consistency, and content usefulness. This framework was applied to the websites of four U.S. unions: a craft union, a service sector union, a manufacturing sector union, and a public sector union. The results indicated that some unions may be missing up to one-third of the criteria deemed important by experts in the area of usability.

INTRODUCTION

During the past twenty-five years, union membership in the United States has undergone a dramatic decline. In 2005, the percentage of wage and salary workers who were union members was 12.5 percent, down from 20.1 percent in 1983, and the percentage of private industry workers was 7.9% (Bureau of Labor Statistics, 2006). Additionally, 2004 was the worst yet for union organizing (Grossman, 2005). There are multiple explanations for this decline: structural changes in the labor force, such as the decline of manufacturing jobs and the shift from blue collar to white collar occupations; organizational practices, including the adoption of human resource management practices designed to keeps firms nonunion; and a legal environment that has made union organizing difficult (Holley, Jennings, and Wolters, 2005).

Unions have tried to respond to these membership and organizing woes in numerous ways. For example, unions comprising nearly one-third of the membership in the AFL-CIO left that organization to create the Change to Win coalition in the hopes of revitalizing organizing efforts (Marquez, 2005). In order to reverse their declines, unions must be open to change and willing to try new methods. Research as far back as 1993 found that innovation is essential to organizing success (Fiorito, Jarley, and Delaney, 1993). One relatively recent innovation that unions have experimented with is the World Wide Web. All national unions now have web sites, but there are questions concerning the impact of these new technologies on union organizing (Chaison, 2002; Troy, 2003). The development and use of web sites may not have any appreciable impact on the declining fortunes of unions; however, in order for this particular innovation to even have any chance to be effective, the websites must be usable

and have useful content. The purpose of this study is to evaluate the usability and content usefulness of union websites.

UNIONS AND INFORMATION TECHNOLOGY

The utilization of the internet has been hailed as a means to empower unions for many years to come (Shostak, 1999) and as a way for labor to reinvent itself (Shostak, 2005). Unions feel that an emphasis on information technology is critical for their success (Fiorito, Jarley, Delaney, and Kolodinsky, 2000), and that web sites and email provide members with voice and also aid in disseminating information to members and the public (Stevens and Greer, (2005). However, the use of information technology to aid in organizing has been characterized as "slow and uneven" (Pinnock, 2005). Troy (2003) argues that cyberspace has not improved union organizing efforts and will not reverse the downward trends in membership; he claims that the creation of "virtual unions" have had about as much success in influencing their target audience, non-union workers, as the union label did in persuading people to buy union-made goods.

Unions may also face unique challenges posed by the web, including the use of employer intranets as a substitute for the traditional voice role of unions and the possibility of changes in relationships with members caused by unions' development of web pages (Chaison, 2005). Also, in their exploration of cyberspace, union may be diverting scarce resources to new technology initiatives that will not pan out (Chaison, 2002). Internet-savvy unions that are utilizing new technologies fully have been hailed as the labor movement's best chance for reversing the downward trends in organizing (Shostak, 2002), but unions that hope that an attractive website is all that is needed to mobilize workers could be left behind (Bennett and Taras, 2002). Employers are using technology to reorganize both the workplace and the global geography of work, and unions must step up their use of technology to maintain pace (Nathan, 2005). Bennett and Taras, (2002) suggest that it is not that unions will gain much through the adoption of new technologies, but rather that they will have much to lose if they don't adopt them.

Several studies have investigated the extent of the use of information technology by unions. Fiorito, Jarley, Delaney, and Kolodinsky (2000), in a survey of national unions, found that IT use of some nature is nearly universal, but that much variation exists in the forms of IT used, such as websites and email, and in its applications, such as bargaining and organizing. A large majority of respondents believed that IT had improved the overall efficiency and service of their unions. Fiorito, Jarley, and Delaney (2002) combined survey data, government data, and other sources to conclude that IT uses can have an important impact on organizing outcomes, but found that it's impact on overall union effectiveness is mixed. A study that examined national union websites found an increase over time in members' issues and members-only sections of web pages (Stevens and Greer, 2005), and another study reported that about 70% of unions used their web sites to provide general information (Fiorito and Bass, 2002).

A review of the literature by Greer (2002) identified areas of union activity in which the Internet and email have been employed, including internal communications, external communications, bargaining activities, contract administration, and political action. Greer (2002) also examined the websites of all of the AFL-CIO's national union affiliates with links on the federation's website. The analysis revealed that 84% of the sites had information related to political issues while 70% had significant content that concerned members' issues. A large number contained information about new contracts that has been signed (49% of the sites), benefits negotiated (57%), ongoing negotiations (48%), and work stoppages (44%).

While the content of union websites has been analyzed, the question of the usefulness of that content, and the overall usability of the websites, remains. In order for unions to fully utilize the internet and realize the potential benefits of cyberspace usage, they must provide websites that users find easy to use and that provide useful content.

WEBSITE USABILITY

The usability of websites has been assessed in a variety of ways, and most approaches generally share two characteristics (Agarwal and Venkatesh, 2002): they employ subjective assessments by users, and they view usability as a multifaceted construct that should be measured in a variety of ways. Hassan and Li (2005) reviewed the literature to extract generic criteria of web usability and used expert review to confirm and refine the criteria, which were then classified into seven categories. Two evaluators then applied these criteria to political websites.

Abinnour-Helm, Chaparro, and Farmer (2005) used the End-User Computing Satisfaction instrument to assess website satisfaction from a usability perspective. They found the EUCS, which measures five different dimensions of end-user satisfaction, to be valid and robust when used in a web environment, and then applied the EUCS to two types of end users, homeowners and contractors. Agarwal and Venkatesh (2002) developed a heuristic evaluation procedure to measure usability that is based on a comprehensive set of usability guidelines developed by Microsoft. Palmer (2002) reported on a series of three studies that developed and validated usability metrics. He concluded that website success is associated with download delay, navigation, content, interactivity, and responsiveness. Similarly, an analysis of 200 websites by Tarafdar and Zhang (2005) found that design characteristics, including content, navigation, and download delay, influenced usability. Finally, Sing (2004) describes a process for measuring the perceived usability of internet stores, focusing on how variations in the organization of information and processes in the stores affect usability.

Some research on usability has examined successful websites in order to extract information on the characteristics that make them effective. For example, Tarafdar and Zhang (2005/2006) scrutinized the 40 most successful websites in five different categories—retail, financial services, news & information, search & portal, and entertainment—in an attempt to identify and analyze the characteristics that made them successful. They concluded that there are six critical characteristics and that the relative importance of these characteristics varies among the different categories. Scheffelmaier and Visonhaler (2002/2003) reviewed 59 studies that examine the properties characterizing successful commercial websites and found the most frequently occurring properties to include ease of understanding and use, exceptional customer service, efficiency and speed, and a common design applied to all pages. A study by Huang (2003) which collected data from 50 websites found that most corporate websites do not make good use of multimedia capabilities and concluded that, while some usability principles have been implemented, there is still much room for improvement.

The purpose of the current study is to assess the usability of union websites. We examined the websites of national unions in four different categories in order to begin to determine how well unions are utilizing the web. While the content of union websites has been examined, the usability of these sites has gone largely unexplored. Perhaps the failure of cyber space, as seen by some observers, to reinvigorate union membership, is due at least in part to problems concerning the usability of unions' web offerings.

METHOD

We applied Hassan and Li's (2005) benchmarking approach to evaluating usability and content usefulness to union websites. This framework was chosen in part because it was developed for use on non-commercial web-sites. Whereas many studies have focused on commercial websites, Hassan and Li tested theirs on non-commercial sites. Also, they designed the instrument so that the website evaluators do not need to be experts on HCI or usability. The metrics used should be easily understood by general internet users.

The instrument was developed in several phases. First the authors performed content analysis to analyze the literature on web usability in order to gather the key web usability criteria identified in the literature. The result of this first phase was a list of generic criteria of web usability grouped into seven categories. In the second phase, expert review was employed to review and verify the key criteria derived during the first phase. Fifteen experts with substantial experience in human-computer interaction and usability issues reviewed and edited the criteria. Feedback from this expert panel was used to refine the list. In the final phase of the development of the instrument, three expert evaluators used a card sorting technique to classify the criteria into objective and subjective measures. Only the objective criteria were used, resulting in a framework with 47 criteria grouped into seven categories, as shown in Tables1 – 6.

The response format for the usability criteria is "yes" for criteria existence and "no" for nonexistence. "NA" (not applicable) is also available for the media use category as all websites do not fully utilize all types of media. We used 44 of the objective criteria; we did not assess different browsers, different versions of the same browser, or different display types. The usability index for a particular website is calculated as the sum of the "yes" responses divided by the total number of possible criteria (44 minus any 'not applicable" criteria), and is expressed as a percentage. The results can then be used to identify the level of usability of the website or to compare the usability to that of other websites.

Non-excessive use of color for text
Sharp color contrast between text and its background
Use of color is to differentiate between functional area (e.g, tool bar and menu bar) with content display
Different text sizes to differentiate between titles, headings, and text
Avoidance of background images in the content display area
Clear titles for each page
Clear headings and subheadings for text/document
Use of typography and skimming layout (e.g., bold fonts and highlighted words)

Table1: Screen Appearance Criteria

Control features for continuous media where appropriate (e.g., replay/turn off)
Alternative access (e.g., text version) to any information in continuous media
Avoidance of looping animation to prevent users' distraction
Labeling of all static media, especially those used for menus and icons
Use of thumbnail to display photos

Table 2: Media Use Criteria

Availability of features for users' feedback about the site (e.g., web-master's e-mail address and online form)
Availability of features for sharing views and discussions (e.g., e-forum, net conference, and net chatting)
Availability of entertainment features (e.g., online games and puzzles)
The use of local search facility

Table 3: Interactivity Criteria and Accessibility Criteria

Menu/list of key content in the main page
Menu/list of key content in all sub-pages
Links to the main page in all sub-pages
Accurate/unbroken links
Use of sitemap
Menus are fit on screen (no scrolling)
Use of text within text link (where applicable)
No/short page scrolling

Table 4: Navigation Criteria

Consistent page layout (e.g., screen size for content display, banners, and menu bar)
Consistent use of text in terms of its : type, font, size, and color
Consistent use of navigational aids (e.g. menu bar, buttons, and links in terms of graphics metaphor, size and color)

Table 5: Consistency Criteria

We applied the framework to four different union websites. We chose one website in each of four different categories of unions. Unions can generally be divided into two primary categories, industrial and craft. Industrial unions have traditionally concentrated on organizing along industry lines, while craft unions focus on organizing workers in a particular skilled trade. Among industrial unions, there are also those that were concentrated historically in manufacturing industries, while some later entries into the labor organizing field emphasized the organization of service workers. Finally, a distinction also can be drawn between private sector unions and those that organize public sector employees. Thus, we chose to analyze the websites of a manufacturing union, a craft union, a service union, and a public sector union.

Suitable language for audience
Up-to-date publication (e.g., news and articles)
Archive of previously published materials
Information on authors of text/documents (e.g., names)
References or sources of text and other documents
Background information of institution/organization/owner of the sites (e.g., logo, name, address, phone number)
Up-to-date contents
Options for output/print format where appropriate
Choice of language for multi-ethnic audience
Choice of media type for particular information (e.g., text only, audio, or video)
Information /warnings on file types and size for downloading
Clear distinctions between internal and external links
Links to other relevant sites (e.g., state and local branches)
News/articles/documents/stories with pictures
Summary of News/articles/documents/stories with links to full versions
Divide information according to scope (e.g., local, and international)

Table 6: Content Usefulness Criteria

FINDINGS

The usability index for each category and for overall usability for each of the four unions is contained in Table 7. As can be seen, all four unions scored the maximum possible for screen appearance. Screen appearance was divided by Hassan and Li into four categories: space provision, which was not measured because it was considered to be a subjective measure; choice of color; readability; and scannability. All four unions had websites that used colors well to provide contrast and differentiate between functional areas, and they avoided the use of background images in the content display area. The websites also made use of different text sizes to differentiate between text, titles, and headings, and had clear titles for each page and headings for the text and documents.

Only one of the four unions scored higher than 50% on use of media, and that was one of the two unions that did not use continuous/time based media. All four unions avoided distracting looping animation; the craft and service unions did a poor job of using static media, and the two unions that provided continuous media did not provide alternative access to the information presented in the continuous media.

	Craft	Manufacturing	Service	Public
Screen appearance	100	100	100	100
Media use	33	67	40	40
Interactivity	67	0	0	33
Accessibility	100	100	100	100
Navigation	100	50	88	75
Consistency	100	33	100	33
Content usefulness	60	73	53	73
Overall usability	78	66	67	70
Note: All values in the table are expressed as percentages.				

Table 7: Web Usability Scores

Regarding interactivity, none of the union websites had entertainment features; while the experts agreed that this was one of the criteria to consider when assessing interactivity, it seems that the importance of providing features like games and puzzles is debatable. The service union and the manufacturing union also did not provide any discussion forums or opportunities for feedback about the site. Only the craft union provided both of these features.

The only criterion for accessibility was the availability of a local search feature; all four unions provided this option to their web visitors.

Three of the four unions had high levels of usability in the navigation category, with the craft union providing all of the important elements needed to facilitate navigation of the website. The website of the manufacturing union did not have a list of the key content on all web pages, had broken links, had no sitemap, and had pages that required a substantial amount of scrolling. All of the unions had text within links where appropriate, a list of the key content on the main page, links to the main page in all sub-pages, and menus that fit on the screen and thus required no scrolling.

The craft union and the service union had websites that demonstrated a significant level of consistency; both websites contained all three of the elements in this category. All four of the websites maintained a consistent use of text type, font size and color, but the public sector union and the manufacturing union did not maintain a consistent page layout in regard to issues such as menu bars and the screen size for display of content, nor did their pages evidence a consistent use of navigational aids.

The final category, content usefulness, is obviously of great importance. A website can have all of the needed navigational aids, a superb screen appearance, good use of media, and high interactivity, accessibility, and consistency, but if the content is irrelevant and deemed to be of low usefulness by its audience, it cannot be considered to be a successful use of technology and resources for its author. The public union and the manufacturing union had the best websites in this respect, each containing 73% of the important elements in this category. The website of service union had the most problems in this category, including just more than half of the criteria. All four of the sites had current content; current publications; background information about the union; news, articles and documents with pictures; links to other relevant sites; and used language suitable for their audience. The service and manufacturing unions provided a choice of languages for their visitors, but none of the unions provided options for printing format - in case visitors desired to print information on the site - nor did they provide a choice for the type of media to use to access the information.

CONCLUSIONS

The overall usability levels for this small sample of union websites ranged from 66% to 78%, with the craft union having the most usable website, followed by the public sector, service, and manufacturing unions, respectively. Two of the union sites were missing one-third of the criteria deemed important by experts in the area of usability, while a third union site was missing 30% of the criteria

Given the small sample size, only limited conclusions can be reached and further work in this area remains to be done to see if there is any systematic variation in the usability of union websites. While overall the four unions did a fair job of creating usable websites, all of them could do better. More particularly, the unions examined here could have done a better job at implementing interactivity elements into their websites.

From our data it appears that if unions do expect to use cyberspace to help reverse their declining fortunes in regard to organizing and membership, they should probably attempt to increase the usability and attractiveness of their sites. Given that users are becoming increasingly sophisticated in their appreciation of what constitutes a useable website, unions need to be vigilant in updating their websites from a user's perspective. While it is questionable whether websites and other forms of information technology can help to reinvigorate the union movement in the United States, if unions are going to attempt to take advantage of this technology and commit resources in this arena, they should make an effort to develop websites that have very high levels of usability. In other words, if they are going to explore cyberspace in their quest to reverse their declining fortunes, they might as well leave no stone unturned.

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