

User Testing Report

For the M-CV System

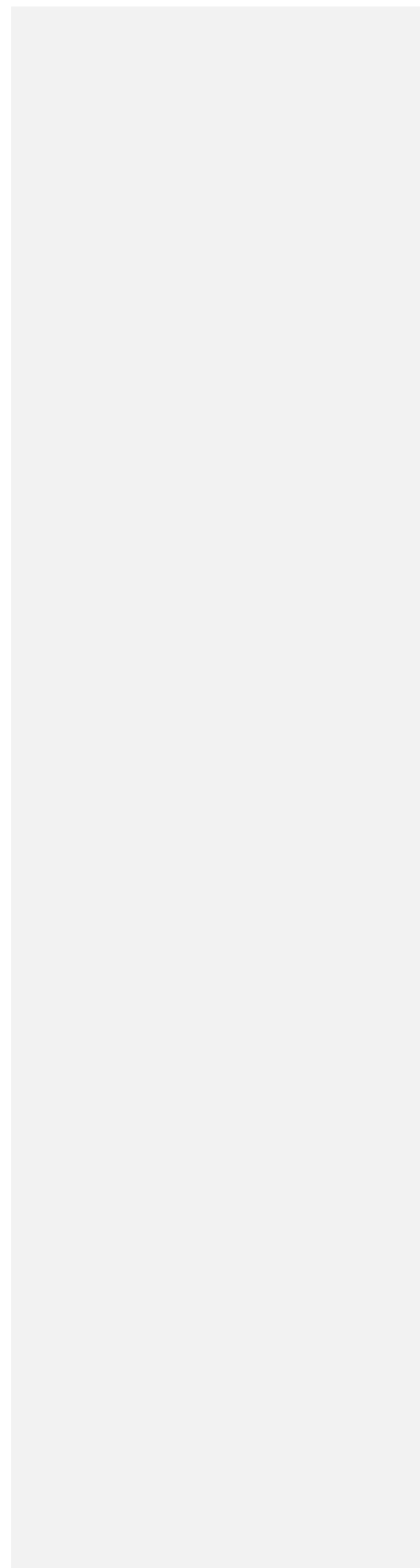
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Executive Summary

Our project team, over the course of several weeks, designed, created, and executed a user test with a strong emphasis on experimental design. The result of our experimentation is a set of four findings complete with evidence and recommendations related to each finding. Our methodology involved the use of four test users each attempting to perform three tasks. Regrettably, due to the busy schedules of medical school faculty, only one medical school faculty member was available to us as a testing subject. We feel, however, that this limitation has not significantly restricted our findings.

Our goals in this testing were manifold. We wanted to see if the M-CV system, although still in the early stages of development, had severe errors that would diminish usability. We were also interested in whether or not users could intuitively understand the system by simply looking at the screen. Although it would be possible to train users to use the system, M-CV will be a much more useful application if users can know what actions to perform by merely reading the screen. Finally, we were also interested in the aesthetic aspects of M-CV insofar as these issues impact usability.

We provide a summary of our findings generally divided among the three aspects of functionality, usability, and aesthetics. We also explain some of the limitations on our findings. Following that, we show in much greater detail our four most critical findings from conducting user testing. Although not strictly ordered by importance, we do believe that the first findings listed are of greater severity than those listed later. These findings are: (1) that the vocabulary used is not intuitive, (2) that the system does not adequately show its current status, (3) that some important features are still under-developed, and (4) that some aesthetic deficiencies decrease the appearance and usability of M-CV.

Introduction

The Purpose and Functionality of M-CV

The medical school's centralized curricula vitae solution is currently in the beta stage of development. This means that although not all planned features have been implemented, there is sufficient functionality in the system such that users can enter data, see whether or not the data has been received correctly, and then are able to receive some output from the system.

Major features that are planned include automatically importing data about medical school faculty from Pub Med, a web site that retains extensive information about publication citations. Also, the developers are planning on giving the users more control over what data is displayed within the CV or biosketch. The infrastructure for these features already exists but some programming work will be required to actually implement the ideas.

M-CV's purpose is to allow medical school faculty to quickly and easily update and maintain their CV information. From the administrative side, having all of this data in a central location will allow users and administrators to search for particular faculty according to name, profession, grants received, positions held, research performed, and other characteristics.

Some faculty members have expressed reservations about switching to a system other than their own word processor to input this data. However, the M-CV developers are convinced that once the system is fully operational, faculty will see this as a much simpler alternative. Once the "critical mass" that Grudin and other authors talk about is reached, the hope is that all faculty members will eventually adopt this system. Of course, to do that, users would need to be convinced that the individual benefit they receive will outweigh the cost of switching to another system. Grudin has also noted that, even if users see a benefit to everyone else if they use the system, the system will not be fully adopted unless each user sees a personal benefit.¹ Another possibility that remains is that use of the system could be mandated by administrative fiat. Faculty would be strongly encouraged or compelled to use this system.

The M-CV system is comprised primarily of three components. First, users have the ability to enter CV-related data into the system. Second, users are able to display that information in the form of a CV. Finally, a user can choose what elements are retained and what elements are to be omitted from the CV.

¹ J. Grudin, "Groupware and social dynamics: Eight challenges for developers." *Communications of the ACM*, 37, 1, 92-105. 1994.

Target Population of M-CV

The primary target population of the M-CV system is the University of Michigan Medical School faculty. However, because administrative staff sometimes handle faculty CVs, they become secondary users of the M-CV. Generally speaking, the most unique aspect of M-CV's target audience is their need of a CV system that allows them to describe personal details in depth while still keeping the system flexible. Medical CV systems must offer enough coverage of medical-specific grants, licenses, research, and other personal data, but remain flexible and easy to manage. For our heuristic evaluation, we took the target audience into consideration and supplemented our understanding with realistic personas representing a wide range of potential users. Because we kept the personas that we created in mind while conducting this heuristic evaluation, we were able to identify usability issues that M-CV's actual users are likely to encounter while performing specific tasks.

User Testing Goals

In designing our usability tests we used the methodology outlined in Rubin's Handbook of User Testing.² When planning our test we kept three criteria in mind: intuitiveness of data entry, identification of unexpected errors in the software and comparison to the current prevalent CV editing software - Microsoft Word.

With these goals in mind we designed two of the three tasks to test subjects entering data followed by creating a custom CV. The intent of these tasks was to understand the intuitiveness of the interface as well as locate errors in specific areas of the software – predominantly in the CV customization area. The third task involved granting access to a CV for distributed editing. This feature is one of the selling points from the designer's standpoint.

While developing these tasks, we kept in mind that our clients originally wanted us to focus either on M-CV customization feature or on its potential integration with external web-based databases such as Pub Med. From the very beginning of evaluation process, we have emphasized evaluating M-CV's current functionality and usability issues. As a result, we narrowed in on the three aforementioned criteria, hoping to be able to evaluate the system and have M-CV users test the system's existing functionality such as its unique CV customization feature.

Comment [TP1]: Removed because I don't think user testing usually involves any competing product, anyway.

Comment [TP2]: "we" instead of "the team"

² Rubin, Jeffrey. Handbook of Usability Testing: How to Plan, Design, and Conduct Effective Tests. Wiley Technical Publishing, 1994.

Testing Methods

Our usability test consisted of a six question pre-test questionnaire, three tasks, a four question post-test questionnaire and a short debriefing session. Copies of the questionnaires and tasks can be found in Appendix C and the Moderator Script, which includes the questionnaires and tasks including the steps for successfully completing tasks, can be found in Appendix B. Based upon our survey results our ideal testing group would consist of University of Michigan Medical School faculty. However, due to the short timeframe for usability testing, limited lab availability, and the high value of faculty's time we were only able to recruit one faculty member. The remaining test subjects were Medical School Administrative Staff, all of whom had prior knowledge of the project.

Keeping in mind the goals for the test, we designed three tasks for our subjects to complete. Two of the tasks involved subjects entering data followed by customizing their CV. The first task was designed to have a subject enter hypothetical information about postdoctoral training they recently completed and then create a custom CV. The second task was to enter grant information and then create a biosketch for that grant. The third test was designed to test the ability of faculty to grant access to their CV via proxies.

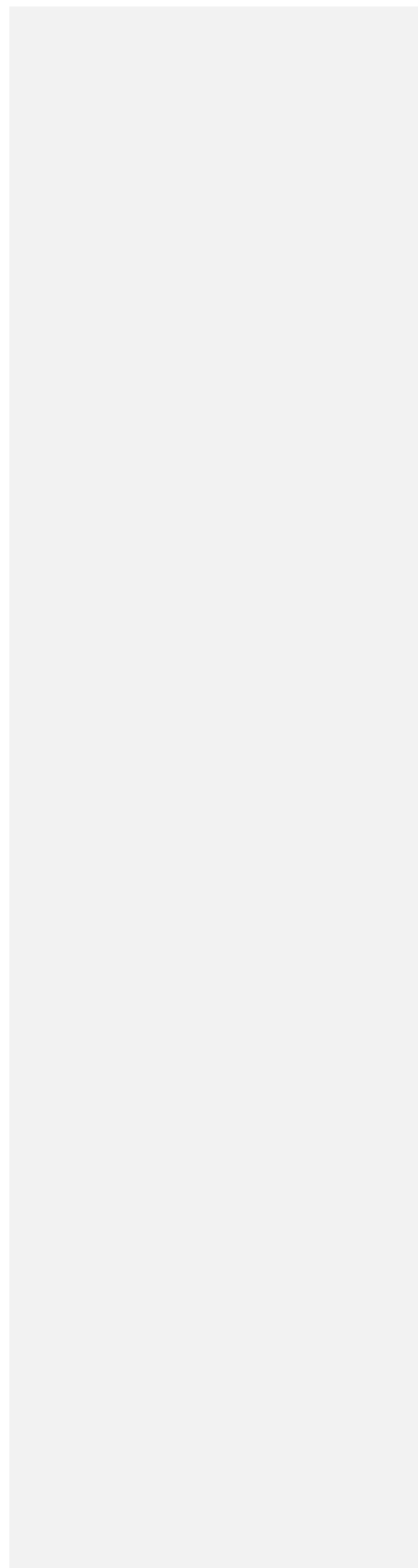
We used the University of Michigan Duderstat Center's Usability Lab to conduct our tests. This lab is specifically designed for usability testing and is equipped with a computer with audio and video inputs as well as screen capture software.³ This allowed us to capture the test subject's body language and facial expressions along with their navigation throughout the M-CV system. On the day of the test all subjects were all asked to sign a waiver regarding the use of the video and audio recordings made during the test (see Appendix B). Present at the tests were at least two members of our team, one acting as moderator and the other as note-taker. The subjects were then presented with a simple questionnaire with six questions that gathered demographic information as well as frequency of sharing and searching for CVs. This brief questionnaire allowed us to link data from the usability test to data collected in the more general survey we conducted weeks prior (see Appendix C for the questionnaires). Each subject was then given the three tasks to complete and asked to think aloud while performing the tasks.

Upon completion of the tasks, subjects were asked to fill out a questionnaire about the ease of completing the tasks as well as asking them to compare the tasks to what they would do in Microsoft Word.⁴ The total test time including pre- and post-test questionnaires as well as debriefing took no more than thirty minutes. During the course of the tests, the wording of

³ Specifically, Camtasia by TechSmith.

⁴ Our Survey data of more than 50 subjects showed that all faculty members surveyed used Word to create CVs. We therefore assumed, correctly, that each subject was familiar with Word as an alternative application for creating CVs.

the user tasks was modified slightly to add clarity to the tasks. These changes were very minor and do not significantly impact the findings.



Summary of Testing Results

Functionality

No critical errors were encountered during the tests. Most navigation issues that appeared were due to vocabulary use and the aesthetics of the site. One issue that did arise was that the Preview function within data entry would not work without disabling pop-up blocking within Firefox.

Usability

Most test subjects found the layout of M-CV to be very confusing and not intuitive in areas. One common error was not clicking the Search button prior to clicking the Search button on the Proxy in task three. Multiple users also reported that a calendar pop-up would be beneficial for all fields requiring dates. A final commonly reported issue is system status.

Aesthetics

All test subjects commented negatively about the appearance of the site. The comments ranged from the site looking “clunky in a lot of ways” to the interface being “very ugly” due to use of too many colors. The aesthetics will be examined objectively and in greater depth in the upcoming Visual Analysis Report.

Limitations and Shortcomings of the Usability Test and Effect on Findings

Our survey results indicated that very few medical school faculty members delegated the task of editing their CV which led us to the conclusion that in order to acquire highly relevant data, we should conduct usability tests on faculty members. Unfortunately due to the short timeframe for scheduling and the notoriously busy schedules of doctors, we were only able to recruit one faculty member as a test subject. We recruited three other subjects who are medical school administrative staff to supplement our findings. While this solution was less than ideal, we believe the results are still valid since the ultimate goal of M-CV is to enable faculty to offload CV editing on administrative staff.

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Comment [TP4]: I removed this section because I do not really think that doing the same tasks with Microsoft Word would have proven a strong enough point to justify the extra time and resources.

Findings from Test Results

One of the primary goals behind the development of M-CV is to offer Medical School faculty and staff a simple yet robust CV management system. The development team has invested time and effort to ensure that the system provides its users with important features and functionality. However, as M-CV is still in its development stages, there is substantial room for improvement. From our usability tests, we have identified a series of findings that fall under four general areas: *vocabulary*, *system status*, *functionality*, and *aesthetics*. The following sections will describe in detail the findings, evidence, and recommendations pertaining to each of these four aspects.

Finding 1: Vocabulary Used is Not Intuitive

A typical challenge faced by all systems and services is that its layout and vocabulary must make sense to end users. Besides ensuring that a system has sufficient functionality, developers must also make sure that the functionality is integrated and presented in a way that allows users to effectively use the system. Our usability tests highlighted the importance of good presentation when our usability testers encountered several points throughout the tasks where they were unsure what steps to take. In many cases, the trouble came from confusing vocabulary on action buttons and navigation categories throughout the interface.

Confusing Navigation Categories

The five navigation categories in M-CV are “Data Entry”, “Manage CV”, “Security”, “Expertise Search” and “Select Faculty”, with the last being only available to users with administrative rights or have been granted proxy access to another user’s data. Our testers found these categories somewhat unintuitive for several reasons. As someone affiliated with the development of M-CV, U03 expressed that the category names on the navigation was inconsistent: “Manage CV” was a verb, while “Security” was a noun. On the other hand, as a faculty member who had never seen the M-CV system, U04 actually suggested that “Data Entry” felt more like CV management while the “Manage CV” section should be given a different name such as “CV creation”. Similarly, the tester’s reaction to our 3rd task, which asked testers to grant CV management access to a specified user, suggested that the word “Security” was vague. U03 explained that “Manage Access” or “Manage Proxies” would have been better names for “Security”. In addition, for the same task, U04 stressed that she/he used “exhaustive search” and clicked through all the existing tabs on the navigation in order to find a category that would allow her/him to add a proxy.

Confusing Action Buttons

Unlike in MS Word where all CV information can be viewed on a single document, M-CV separates the information on a CV into numerous sections within “Data Entry”. Navigating through each section to input, update, or delete information requires the use of several action

buttons such as “Continue”, “Return”, “Save”, “Download”, “Cancel” and so on. These action buttons are used in various places within M-CV and in some cases are not yet functional. While moving through sections within “Data Entry” while completing the first two tasks of our usability task, U02 noticed that the “Return” button had no functionality on some pages. Similarly, while selecting which information to include in a custom biosketch for the second task, U04 clicked a “Return” button thinking that the system would do a simply move one page back. Instead, the “Return” button took U04 back to the start page, resetting all customization choices she/he had made up to that point. During the usability testing session U02 confirmed that a “Back” or “Previous” button was indeed necessary. As of now, users are only offered a “Continue” button and a “Return” button which greatly limits users’ ability to make changes without having to start anew.

Recommendations

To clarify what actions are available for users at any point, M-CV needs to have a set of clearly distinctive and standardized navigation categories and action buttons. One potential solution for the navigation categories is to implement a “landing page” that emphasizes what actions can be done on each of the five categories or providing mouse-over text. For instance, a small but descriptive graphical representation or a brief textual description could be used. Similarly, it would be beneficial for the development team to refer back to our comparative systems analysis to determine what set of action buttons would be most intuitive and practical on a web-based CV.

Finding 2: Lack of System Status Messages and Segregation of CV Data

One of Nielsen's 10 heuristics⁵ states that showing current system status is important so users can get timely feedback that helps them determine what they are doing, whether they have accomplished what they were trying to do, and how they might go about completing a task. In the current M-CV system, a lack of such system status indicators and the use of confusing terminology can cause users to lose a sense of control over their actions.

Lack of System Status Indicators

In our third task, we had users grant CV management access to the user with username "harryjr". In the current system, users must type the search term, press a "Search" button, which generates drop-down-menu from which users can highlight (by clicking) a name under the drop-down-menu. After highlighting the name, users need to then click on a "Select" button. At each step of this multi-phased process, M-CV offers no status indicators at all. To complicate the process, the "Select" button, which is not usable unless users first successfully enter, search, identify, and highlight a user name, is present at the very beginning. After users enter a search term, the system should indicate somehow that the "Search" button must first be used. In our usability tests, three out of our four usability testers ended up clicking "Select" before clicking "Search" after entering the search term "harryjr".

Similarly, throughout both "Data Entry" and "Manage CV", M-CV does not indicate whether the changes made by users are actually saved. As pointed out in the first finding, clicking "Return" in the "Manage CV" section means jumping back to the beginning. In essence, for actions within "Manage CV" to be saved, users must completely finish the customization process in one setting. After taking these steps, the system offers no "save" button, leaving users clueless as to what exactly has been accomplished. While there are version control advantages of having users finish setting up a customized CV in one setting (i.e.: the prevention of partially completed/updated CVs), the system should clearly indicate that the CV will be saved once all customization has been finished. U02 pointed out that otherwise, the system would have to automatically save whenever users press "Continue" buttons while navigating through various sections on M-CV. Similarly, in our second task, which asked users to create a new biosketch, U02 expressed that she could not tell if the new CV was indeed created and saved because all that happened was the new CV was subtly added into a list of existing CVs.

Lack of a "Big Picture"

Both U03 and U04 commented that on M-CV, it is hard to keep track of the changes that have been made to one's CV. On MS Word, changes that are made are immediately visible and users can see where these changes fall in relation to their entire CV as they scroll up or down

⁵ Nielsen, J. (1994b). Heuristic evaluation. In Nielsen, J., and Mack, R.L. (Eds.), *Usability Inspection Methods*, John Wiley & Sons, New York, NY.

on the page. As a web-based system, M-CV separates CV data into several segments to help users organize their massive CVs. However, because of this design choice, in order to edit or add information into a new or existing CV, users must go into multiple sections within “Data Entry” to enter the relevant data, then go into “Manage CV” and work through the customization process of multiple sections to make sure that changes made in “Data Entry” show up in the final CV. Due to such compartmentalization, effective use of M-CV depends heavily on frequent use and familiarity. U04 commented that “In Word, I can look at the full CV at a time, as it is being created. Here (M-CV) it’s just bits and pieces”.

Recommendations

The current design of M-CV takes into consideration flexibility and customization. Ideally, users should not be presented with data fields for all existing categories under “Data Entry”, but should only be able to see the fields that they want to make changes to. However, the trade-off is that with the current design, users must spend time navigating through multiple sections and then extend the effort to “manage” or ensure that recent changes show up in the relevant CVs. In other words, extra effort is required from the users. One solution is to somehow merge the “Data Entry” and “Manage CV” sections. Users should not have to take the extra step of customizing each CV after making changes within “Data Entry”. Instead, within the “Data Entry” section, users should be able to select which CVs they want to be affected by the changes they are about to make. U03 suggested that “Data Entry” should be “folded under “Manage CV”” because that was more intuitive to him. Similarly, after been asked to add a new grant within “Data Entry” U02 expressed that she/he was disappointed that the system did not immediately prompt her/him to edit or “manage” the CVs. Indeed, if the system allowed users to select which of the CVs they wanted to be affected by a change recently made, then they would not need to take the extra step and go in to “Manage CV” and go through another cumbersome round of navigating through multiple sections. Alternatively, if developers of M-CV want to present users with a “big picture” of their CV, they can consider present a mapping of where each category within “Data Entry” was on a CV.

Finding 3: Important Features Hindered by Under-developed Areas

When designing our tasks, we took into consideration the fact that M-CV is still in its early phases of development. This means that several areas in the system were not yet completely functional and certain areas were functional yet had a few issues that would need to be ironed out in a future version of M-CV. These dysfunctional or missing functionalities hinder effective use of M-CV. This section highlights a few examples that were prominent through our usability testing and intends to focus on the most important underdeveloped aspects.

Dysfunctional Action Buttons

During our user testing, U03 and U04, who had both previously never seen the M-CV system, noticed that the “Home” button did nothing. U03 mentioned that she/he had expected to see a “home-screen” or “hub” and did not feel that the “Data Entry” page was a good starting point. In fact, what we did not explain to our users was that as of now, users who log into M-CV will find themselves on one of the five (four if the user is not an administrative staff) navigation categories. This is potentially a good design idea that could help users remember their previous location in M-CV. However, the dysfunctional “Home” button should be removed. Other dysfunctional action buttons include “Continue” and “Return” buttons on certain pages within both “Data Entry” and “Manage CV”, and “Download” buttons in the “Manage CV” sections. In addition, on certain pages, multiple “Continue” and “Download” buttons are presented, which is both confusing and unnecessary.

Incomplete Features

Our user testing results indicated two primary areas or features that are either nonexistent or incomplete in the current M-CV system. One is the ability for users to import CV information from existing CVs or other web-based databases such as Pub Med. The other is the “Manage CV” section, which is functional but severely hindered by a few design incompleteness issues.

While entering postdoctoral training and grant information for the first and second tasks, U04, who is a Medical School faculty, repeatedly mentioned that all of this information should already be publicly available and ought to be somehow automatically generated. During our conversations with the M-CV development team, we have found out that import functionality was an eventual feature that they wanted to include in M-CV. Ironically, our surveys analysis had previously suggested that faculty cared more about other features such as spell check, ease-of-use, and ease-of-distribution. However, U01, who is affiliated with the development of M-CV, revealed to us that the Medical School intends to familiarize faculty with Pub Med by strongly encouraging them to keep track and record relevant Pub Med “unique numbers” tied to their personal publications or accounts on Pub Med. U03 also suggested that it would be useful if information could be imported from Pub Med into M-CV.

Concerning the “Manage CV” section, as of now, custom-made CVs do not seem to actually save the changes that are made. In other words, users can create multiple CVs, but when they actually try to customize the CV and select which pieces of information will show up, none of those changes are currently saved. When our usability testers finished the second task, the system response was display that changes were made on *CV with name “”*, or in other words, an un-named CV. However, this is clearly irregular as our users selected to “Update” the CV that they just created and named. Furthermore, during the CV customization process where users choose what information to include in a custom CV, we observed another design incompleteness problem. In the “Manage CV” section, users are prompted to select “categories” within “Data Entry” that they want to manage. For example, a user who created a biosketch might be only interested in including four out of the total of twenty categories under “Data Entry”. Currently, M-CV ignores users’ choice of which categories they want to adjust, and instead presents them with all twenty categories, starting from the first one. Users are forced to click through each category until they reach the categories they intended to adjust and then continue to click to the very last category, where supposedly the customizations for that particular CV is saved. Throughout this process, users are presented with only the option to “Continue” and “Return”, where the latter serves as like a “cancel” or “terminate action” button. While working through the second task and clicking through numerous categories that she/he had not selected to adjust, U03 mentioned that whatever was happening was “not making much sense”.

Recommendations

In order to be fully accepted by faculty, M-CV must offer a range of features that will provide users with sufficient incentive to overcome the cost of switching to M-CV. As of now, M-CV developers have worked hard to develop the infrastructure for several useful features. The two features that were highlighted in our usability test were importing from external web-databases such as Pub Med and the customization of CVs. Import from Pummel is currently not designed and should definitely be explored. In addition, it may be worthwhile to also explore the possibility of having the system functionality for importing some basic CV information from MS Word files, since most faculty maintain their CVs using that application. Substantial work must also be done on the “Manage CV” feature. Based on the feedback from our usability testers, there is a desire to combine the “Data Entry” and “Manage CV” sections or, in the least, integrate them in such a way that will minimize the amount effort required from users. As of now, forcing the user to populate data fields within “Data Entry” and then click through all same pages once again in the “Manage CV” section seems both inefficient and cumbersome.

Finding 4: Aesthetics Hinder Usability and Professionalism

M-CV is going to be released to the Medical School community as a premiere CV management system that will serve as a superior alternative to currently used CV management systems, specifically MS Word. While poor aesthetics may not cripple a system as much as other significant usability issues do, users often believe that an appealing interface signals the quality of the system or product. Since M-CV is still in its early development stages, our usability testers gave valuable feedback for the look and feel of the system.

Two major aesthetic issues should be addressed in future renditions of M-CV: color scheme and action buttons. U02 and U04 both mentioned that the color scheme was unappealing. U04 went as far as to say that the as a whole, M-CV look and feel made it look unprofessional. U03 explained that the overall color scheme and the “chunky” action buttons clashed, causing M-CV to have an incongruent, “harsh look” instead of a soothing “soft flow”. When asked about whether the current “maize and blue” look worked for M-CV, U04 pointed to the bottom section of M-CV, and asked, “What is this brown color at the bottom doing?” While unable to explain his criticism, U04 also mentioned that along with the generally unappealing color scheme and buttons, small font-size and unappealing font type give M-CV a “high-school project” appearance.

Recommendations

While aesthetics are important, the team definitely recommends that most effort be placed on addressing more significant usability and functionality issues. However, simple measures can be taken to vastly improve M-CV’s current aesthetic deficiencies. First of all, the system’s interface should use a different color scheme. A more pleasing set of colors should be used instead of having multiple strong colors that have high contrast with each other; perhaps M-CV could utilize up to two primary colors, and use various gradients of these two colors. The oval-shaped blue action buttons should be changed to look more consistent and perhaps more similar to the design of the navigation categories on the top of M-CV.

Conclusion

The findings and recommendations that we have generated focus on four main areas: vocabulary, system status, functionality, and aesthetics.

First of all, M-CV's current navigation categories and action buttons use vocabulary that is somewhat confusing. Testers generally found the vocabulary of M-CV's action buttons and navigation categories vague and were unable to efficiently determine what buttons to click, or which section of M-CV to navigate to.

Second, M-CV's current design segregates CV data and CV management options into multiple sections or pages, allowing users to efficiently organize and manage sections of their CV. The obvious tradeoff is that users may be daunted by the fact that the system consists of numerous smaller parts and does not give them a general, all-encompassing view of the CV they are managing. A general lack of system status indicators and feedback further complicates the use of M-CV.

Third existing features on M-CV are not extremely well-polished. While significant functionality is present under "Manage CV", minor design issues decrease the overall usability of the CV management feature.

Finally, M-CV can increase its credibility and appeal by taking on a more professional and consistent look and feel. M-CV is becoming a quality CV management system that will significantly benefit the Medical School community as a whole. However, switching costs and general reluctance of users to change what is not "broken" suggests that M-CV must promote itself as a premier system that not only makes CV management easier, but also offers significant advantages and benefits to its users.

Appendix A: Task Script

Medical School Faculty Version

Scenario 1: You are _____ (give name of one faculty member in M-CV) recently completed postdoctoral training at University of Michigan that ran from August 2006 through March 2008. You need to enter your postdoctoral research fellowship into M-CV system.

Task 1: You are now to enter the data. You worked under the supervision of “**Dr. Spock**”, major field “**Heart and Vascular**” during your “**postdoctoral research fellowship**”. The start date was **Aug, 2006**. Please add that information into M-CV Data page and afterward use the system to automatically **generate your FULL-CV** (to submit to the NIH).

Scenario 2: You are still working on your CV. You are a member of the team that was awarded a grant from the University for The Evaluation of the HeartMate II LVAS (Left Ventricular Assist System). This time you need to enter this grant information into the system.

Task 2: This grant is a **UM Grant, sponsored by Medtronic and Dr. Spock is the PI**. You are the **CO-PI** in the grant. The project was awarded **\$500,000** for this research that started **March 3rd 2008**. You need to use the system to generate as well as customize a **Biosketch** CV which only contains **Personal Info, Education and Training, Academic, and Grant** to finalize the grant application.

Scenario 3 You are going out of town for a conference and need to have your secretary to update your CV while you are out because you must submit a grant proposal upon your return that includes updated CV information.

Task 3: You need to set your secretary whose UM unique name is “**harryjr**” as your proxy to update your CV.

Medical School Administrative Staff Version

Scenario 1: You are working on the CV of **Gestwicki** who recently completed postdoctoral training at University of Michigan that ran from August 2006 through March 2008. You need to locate him in the M-CV system and type his postdoctoral research fellowship into M-CV system.

Task 1: You are now to **find** the faculty **Gestwicki** at first and select him as your target. The next step is to enter his **“postdoctoral research fellowship”** data. You know he worked under the supervision of **“Dr. Spock”**, major field **“Heart and Vascular”**. The start date was **Aug, 2006**. Please add that information into M-CV Data page and afterward use the system to automatically **generate his CV** (to submit to the NIH).

Scenario 2: You are still working on the faculty **Gestwicki’s** CV. He is a member of the team that was awarded a grant from the University for The Evaluation of the HeartMate II LVAS (Left Ventricular Assist System). This time you need to enter this grant information into the system.

Task 2: This grant is a **UM Grant, sponsored by Medtronic** and **Dr. Spock is the PI**. Gestwicki is the **CO-PI** in the grant. The project was awarded **\$500,000** for this research that started **March 3rd 2008**. You need to use the system to generate as well as customize a **Biosketch** CV which only contains **Personal Info, Education and Training, Academic, and Grant** to help Mr. Gestwicki to finalize the grant application.

Scenario 3: **Gestwicki** is going out of town for a conference and need to have his secretary to update his CV while you he is out because he must submit a grant proposal upon his return that includes updated CV information.

Task 3: You need to set Gestwicki’s secretary whose UM unique name is **“harryjr”** as his proxy to help update his CV.

Moderator Script

We'll be providing you with a set of three scenarios to go through. They'll be the typical tasks that M-CV users will do. Feel free to work through them at a speed that is comfortable to you. It's ok if you make mistakes – we're interested in seeing where confusion happens.

We encourage you to think aloud.

We're not testing you but testing the system. We aim to discover the strengths and weaknesses of M-CV system and we truly appreciate you helping us with this experiment. While you're engaged in the test, we'll be recording what the document camera is seeing, and the sound in the room. This will help us in conducting further analysis of the system.

Debriefing questions script for experimenter

DON'T FORGET TO KEEP CAMTASIA RECORDING!!!!

- Remember to pull up specific examples if they are unsure what you're referring to
- Take notes while they're going through task on specific things to explore especially if not in questionnaire

Explain to the test subject areas where we felt they went off track during the testing. Encourage comments about their thoughts on M-CV as a whole as well as how realistic they feel the tasks to be.

If **specific errors**, for each (vary as to not repeat phrasing too much):

« It looked like <task XYZ> was a little confusing.

- Let's go back and have a look at that slide. [Jog their memory as to what they did if necessary]
- Tell me more about what you were looking for / trying to do [at point that confusion happened].
- What were you expecting to happen when you did that ?

Appendix B: Waiver

We will be videotaping your session to allow members of Team M-CV who are unable to be present to observe your session and benefit from your feedback as well as potentially using segments of video in our final class presentation to a group of approximately 30 students in the Thursday section of School of Information SI 622: Evaluation of Systems and Services. Please read the statements below and sign where indicated.

I understand that videotape and audiotape recordings will be made of my session. I grant Team M-CV permission to use these recordings for the purposes mentioned above, and waive my right to review or inspect the tapes prior to their dissemination and distribution.

_____ Printed Name

_____ Signature

_____ Date

Appendix C: Questionnaire

Pre-Test Questionnaire

1. Are you a..... ? (Check all that apply)

- Medical School Faculty
- Medical School Administrative Staff

2. On a scale of 1 to 5, how comfortable do you feel with using Web-based applications? (Please circle the most applicable answer)

Very Comfortable 1 2 3 4 5 Very Uncomfortable

3. What is your web browser of choice?

Safari Firefox Internet Explorer (IE) Other _____

4. How many times in the past three months have you had someone else update your CV on your behalf?

0 1 2 3 4 5 6 More_____

5. How many times in the past three months have you searched for information on a UM Medical School Faculty member?

0 1 2 3 4 5 6 More_____

6. If you searched, how many times was your search successful (with success defined as finding a CV that met your search criteria)?

0 1 2 3 4 5 6 More_____

Post-Test Questionnaire

Please CIRCLE the item or number that best represents your response.

1. Circle the tasks that you did NOT already know how to perform before participating in this exercise:

Search for a faculty

Data entry

CV creation

CV customization (Update) in Manage CV page

Setting proxy

2. How difficult was it for you to do each of the following:

Search for the Faculty and Add PostDoc Research Fellowship Information

Very Easy 1 2 3 4 5 Very Difficult

Data Entry and generate a biosketch

Very Easy 1 2 3 4 5 Very Difficult

Setting up Proxy in Security Page

Very Easy 1 2 3 4 5 Very Difficult

3. Compared to Microsoft Word, what are your impressions of the M-CV application?

4. If you had any suggestions for improvement what would they be?

Appendix D: Blank Logging Form

Step	Description	Time	Success	Notes
Task 1				
1	Select Faculty			
2	Type in faculty name			
3	click Search			
4	Click Select			
5	Click Education and Training			
6	Click on Postdoctoral Research Fellowship			
7	Click Add Now			
8	Fill in all fields with data listed in question			
9	Manage CV			
10	CV name = anything, Full CV			
11	Save			
Task 2				
1	Update next to your CV			
2	Click on Data Entry			
3	Click on Grants			
4	click on UM Grants			
5	Click on Add New			
6	Enter title (Evaluation of the HEartMate II LVAS (Left Ventricular Assist System).			
7	enter Sponsor name (Medtronic)			
8	PI Name = Dr Spock			
9	Sponsor Total Cost of \$500,000			
10	Sponsor Begin date of 03/03/2008			
11	Click Save			
12	Click Manage CV			
13	CV Name can be anything			
14	CV Type of Biosketch			
15	Click Update next to the new biosketch			
16	select a category and click ->			
17	continue pressing Continue... until completed (takes approximately 2 minutes by just clicking Continue until you see Download, then Preiew. Neither work at the moment)			
Task 3				
1	Click on Security (Navigation Bar)			
2	Click on Add New			
3	Type in unique name "harryjr"			
4	Click on Search			
5	Select the faculty from the drop-down menu			
6	Click on Save			

Appendix E: Pre-Questionnaire and Post-Questionnaire Responses

Pre-Test Questionnaire

	U01 (Ma)	U02 (J)	U03 (Mi)	U04 (B)
1. Are you a Medical School Faculty or Medical School Administrative Staff	Medical School Administrative Staff	Medical School Administrative Staff	Medical School Administrative Staff	Medical School Faculty
2. On a scale of 1 to 5, how comfortable do you feel with using Web-based applications? (Please circle the most applicable answer)	5	5	5	5
3. What is your web browser of choice? (Safari, Firefox, Internet Explorer (IE), or Other_____)	Firefox	Safari, Firefox	Safari	Firefox
4. How many times in the past three months have you had someone else update your CV on your behalf? (0, 1, 2, 3, 4, 5, 6, or More_____)	0	0	0	0
5. How many times in the past three months have you searched for information on a UM Medical School Faculty member? (0, 1, 2, 3, 4, 5, 6, or More_____)	5	6 (checked "More")	> 1 per day	More than 6
6. If you searched, how many times was your search successful (with success defined as finding a CV that met your search criteria)? (0, 1, 2, 3, 4, 5, 6, or More_____)	1	3	0 (did not find information using CVs)	6

Post-Test Questionnaire

Please CIRCLE the item or number that best represents your response.

1. Circle the tasks that you did NOT already know how to perform before participating in this exercise: (Search for a faculty, Data Entry, CV Creation, CV Customization (Update) in Manage CV page)	NA	CV Creation, CV Customization	All	Search for faculty, Data entry, CV creation, CV Customization, Setting Proxy
2. How difficult or easy was it for you to do each of the following: (1 - 5 for Very Difficult - Very Easy)		comment: "needs to be updated (Data Entry)	comment: "Easy to add post-doc, but didn't search for the faculty"	comment: "had to use exhaustive search, but still was able to do it"
Search for the Faculty and Add PostDoc Research Fellowship Information	4	5		4
Data Entry and generate a biosketch	3	1		4
Setting up Proxy in Security Page	3	5		3
3 Compared to Microsoft Word, what are your impressions of the M-CV application?	I have to keep using the mouse in M-CV. It is more difficult to update my information since I have to go to the section instead of just scrolling.	M-CV creation of new CV [is] very awkward	"[?] to have this info accessible by multiple people, standardized information, multiple formats, but is harder than a blank Word doc. Understanding the benefits of the online system would encourage me to use it."	Redoing entire CV would be a pain. Big picture is not available. Auto generation would be good.
4 If you had any suggestions for improvement what would they be?	Make it quicker to add information, and to move between the sections. Manage CV has too many button clicks.	NA	"Better names for functions and better navigation between functions. Would like to have a home or 'hub' to navigate from"	NA