

SharePoint and Discover Access for SharePoint Usability Comparison

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Introduction

Microsoft's SharePoint platform provides various services that streamline the operation of an organization. These services include document collaboration, cloud file storage, centralized access to corporate resources, internal business networking as well as many other services. SharePoint is used in many business environments and is a key application for employees. Navigating the application successfully is a necessity for the careers of many individuals.

The rate of unemployment among people with vision loss [has been calculated to be close to 64%](#). As SharePoint is such an integral part of many businesses it is essential that people with vision loss are able to access, use and navigate SharePoint as efficiently as their sighted peers.

While Microsoft has tried to make the SharePoint interface more accessible, we find that the software is still difficult to use efficiently with assistive technology (AT). Unfortunately, providing accessibility without comparable usability puts users with vision loss at a disadvantage. Discover Technologies has created a solution called Discover Access for SharePoint that we found to alleviate the gap in usability present in the out-of-the-box SharePoint experience. We will compare the differences between performing tasks in Native SharePoint and in the Discover Access solution for people using a screen reader. The document will describe common tasks in an average day for a SharePoint user and directly compare each task between the standard SharePoint interface and Discover Access. The areas of SharePoint that will be addressed are the Calendar, Discussions, Documents, Lists, and User Profile. Testing was performed in AFB Tech's lab over a two-week period. Both solutions were tested with JAWS 16 paired with Internet Explorer 11 and Firefox 42 paired with NVDA 2015.4.

While this paper is about enhanced *usability* of SharePoint with Discover Access, we also observed several important *accessibility* improvements with Discover Access over standard SharePoint. For example, with Discover Access enabled: the heading order is consistent with WCAG 2.0 standards; the people picker is enhanced such that it is accessible; rich text and wiki editing controls are made to be 508 and WCAG 2.0 compliant; and there is highlighted focus for all links, buttons and form fields, which makes SharePoint keyboard navigable. In addition, since Discover Access renders form fields with markup, these fields are now screen reader friendly and accessible via keyboard. Finally, more ARIA (Accessible Rich Internet Applications) regions are available with Discover Access, which provides higher levels of web accessibility.

Key Findings

1. The Discover Access solution significantly improves the usability and efficiency of SharePoint compared with the Native SharePoint experience.
2. Major interface enhancements include the Quick Launch system for quickly navigating between pages and a simpler page structure.
3. Discover Technologies provides a comprehensive user guide for getting started with Discover Access and the solution is very intuitive. This makes it easy for a user to get up to speed quickly with limited training.
4. While out of the box SharePoint uses popup menus toolbars, few headings, and differing layouts among pages, Discover Access uses standard HTML controls and highly structured pages with consistent and correct heading structure. It also eliminates extraneous visual controls where keyboard equivalents exist.

Calendar Management

Browsing the Calendar

The layout of the SharePoint calendar makes it difficult for screen readers to navigate. The list of links where the Calendar link is situated does not possess any headings or other distinct elements, which makes finding the link more time consuming, even if the user is familiar with the page. The visual calendar clutters the interface for users with vision loss, making it more difficult to navigate to the month links that are necessary for adjusting the events displayed. The events themselves are situated at the bottom of the screen and do not have any distinct elements, forcing users to jump to the bottom of the page to quickly navigate to them. The events themselves do not have their date or time associated, which adds an extra step if a user wishes to gain this information because they must view the event page to find this information.

I found that Discover Access provides a more streamlined and usable process for viewing the calendar. When I first log in, I can easily navigate to the calendar link because the Quicklaunch list is provided with a heading that I can navigate with shortcut commands. Once I am in the calendar itself, I can activate the Skip Navigation link at the top of the page, which takes me directly to the calendar. The calendar also possesses a heading. If I wish to adjust the events displayed, just below the calendar heading is a combo box where I can choose the date range for which events are displayed. Just below this and possessing a heading of its own, is the list of events. Each event possesses its name and date/time so that I can quickly skim the events without needing to activate the events themselves to discover this information.

Adding an Event

In SharePoint, there is no distinct element near the new event button, but the user can navigate to it using the button command, if they are aware that it is the first button on the page. In the event details, the form is labeled, but if a user adds a recurrence, each time a radio button is selected for daily, weekly, monthly, or yearly, all of the options for that recurrence are read before the name of the radio button as they are loaded, when the button is selected. This requires the user to either listen to the announcement of this information or navigate within the area to read the selected radio button.

In Discover Access, I can quickly reach the add event button in two ways. Since I am currently in the list of events, the next heading will be for list actions and I can use my heading command to go there, where Add Event will be the first item in the list. Alternatively, if I was at the top of the page, there is a Skip to Actions link that will move my focus directly to the list actions heading. When I activate the link to add a new event, I am presented with a page that only contains the event form eliminating the need to navigate past extraneous elements to find the form. For this event, I will set it as a recurring event. The recurring elements are on the following page and these options are presented when I submit the form. The form notes that the information, which I just submitted, will not be saved until I submit the current form. If I exit Browse Mode and adjust the daily/weekly/monthly/yearly radio buttons, I can reactivate Browse Mode and be placed directly at those options. When I submit this form, I am presented with a message that alerts me that the event has been successfully saved.

Browsing and Editing an Event

In SharePoint, when I select an event to view, the edit button is the first button on the page. There is no distinct element such as a heading near this button, so the user would need to know that it is the first button on the page to navigate to it efficiently. The event details are situated below the edit options and do not have any distinct element near them, so the user must navigate to them using their arrow keys, which slows the process.

In Discover Access, I can quickly find the event information after entering an event by activating the Skip Navigation link. This will take me to the top of the event details where I will only have to navigate two lines downward past the event headers to find the contents. The event content itself has each piece of information preceded by the content label and the content is organized in a simple text list, which allows for easy navigation. Once I have checked the details, I can either use my arrow keys to find the Edit Event link just below the details, or I can use my heading command at any time while reading the details to move directly to the Event Actions header, where Edit Event is the second link in the list. If I did not need to check the details of the event that I am editing, I could use the Skip to Actions link at the top of the page to jump directly to the Event Actions header. The form for editing an event is the same as the form used when adding an event, except for the fact that the event information is already filled in and ready to be edited. Once I have navigated the form and made my changes, I can press the submit button to apply my changes. I am then presented with a message alerting me that my changes have been submitted. This message is the only content on the page with a link just below it for returning to the item. This allows me to be sure that my changes have gone through without the need to find the event and look at it to be sure they have taken effect.

Participating in Discussions

Browsing and Adding a Discussion

In SharePoint, the discussions are listed as links but do not have any distinct element near them and there are no alternative shortcuts available to get near the list quickly. Similarly, there are no distinct elements near the New Discussion link, this requires the use of arrow keys or the tab key to navigate to these options.

In Discover Access, I can find the discussion board in the Quicklaunch section of the homepage. Since I was previously in the calendar, I can use the breadcrumb links at the top of any page to navigate quickly back to the main page. These are preceded by a heading stating, "You are Here" making these links easy to use on any page where they appear. From here, I can move to the Quicklaunch section

using my heading command, also, I can find Discussion Board in the list using my arrow keys. On the main discussion board page, I use the Skip Navigation link to move directly to the top of the discussions. The only element between my current position and the list of discussions is the List Contents heading at the top of the contents of any list. This means that I can quickly find the list by arrowing into the list of discussions. Discussions are listed from oldest to newest and the links are labeled with the subject of the discussion. Since I want to create a new discussion, I use my heading command to move to the heading just above the list actions. Begin a New Discussion is the first link in the list. If I had not wanted to move through the other discussions, I could have used the Skip to Actions link at the top of this page to jump directly to the list of list actions. The form itself is the only content on the page, so I do not need to navigate past other elements to find it. I am able to tab through the fields on this page and all are labeled eliminating the need to manually check the labels. When I fill in the information and submit the form, I am presented with a success message that is the only content on its own page. The only link on this page enables me to return to the discussion that I just created.

Review, Reply to, and Edit a discussion

When in a reply in SharePoint, there are no distinct elements above the original topic, so I must navigate past the elements that precede the discussion content. A reply field appears below the original topic, but this field cannot be used to reply. In addition, when navigating, the user's cursor is moved to another part of the page when the cursor reaches certain areas on the page.

When I enter a discussion topic using Discover Access, I can use the Skip Navigation link to move my cursor just above the topic content. The information for the original topic is given just below the heading where the Skip Navigation link deposits me and it is presented in plain text with each piece of information preceded by its label for clear identification of the content. The replies are right under the original topic content, under their own heading. Each reply is in plain text with the label for each piece of content before it. Each reply is succeeded by a View Details link that conveniently can allow for quick navigation through the replies without the need to navigate through the text of each. I can use my heading key to skip over the replies to find the discussion actions quickly where the Reply link is the second in the list. If I know that I wanted to reply to the discussion without reading it, I could have used the Skip Actions link at the top of the page when I entered the discussion to move directly to the list of Discussion actions. The only edit field in this form, is used to enter a reply; and because the form contents are the only elements on the page, I can quickly enter the field and my information and use the TAB key to reach the submit button. I am presented with a confirmation page telling me that my reply was successful with a link to take me into the reply details.

Document Management

Browsing a Library and Downloading a Document

In SharePoint, the document library uses a table to display document information such as Author and Check in/out status. To download a document, a user must first activate the document, open a submenu on the subsequent page, and then navigate downward to the link. An alternative way requires that the user utilize the document library ribbon controls to change the selected tab to Files, check the check box for the document they wish to download, and then navigate through the group of buttons above the library contents to find the download button.

Discover Access simplifies the process of downloading documents. The Documents link is the second in the list of Quicklaunch items, so I can navigate to it quickly after finding the Quicklaunch

heading. The Skip Navigation link takes me to the top of the list of documents, which are situated just past a combo box for changing document views. Each document in the list is listed with its file name. Activating any of these will allow me to download the selected file directly. After each document link is a link for viewing the document's metadata. Generally, I experienced little difficulty when downloading files using the Discover Access interface.

Checking In/Out and Uploading Documents

When checking out a document in SharePoint, I must first navigate to the ribbon and adjust the tabs to the Files tab. I then check the check box for the file that I want to check out and then navigate to the top of the page and move through the buttons above the document library to check out the document. The upload button does not have any distinct elements near it so the user must be aware that it is the first button listed under the Browse tab, the default when a user enters the document library.

When I wish to check out a document in Discover Access, I go to the document details link situated below the link for downloading any given document. Since I want to check the document out, I press the Skip to Actions link that places me directly above the list of document actions, where Check out is the second item in the list. When I activate the link, I am given a message that is contained on its own page alerting me that I have checked out the document with a link to return to the Document Details page. After I edit the document in my word processor, I can use the Add a New Document link to add my version to the library. After using the breadcrumb links to return to the document library, I use the Skip to Actions link to jump directly to the list of library actions where Add a Document is the first item. On the subsequent page, I am given a checkbox where I can choose to make the uploaded document a new version of an existing one. From here, I can activate a file button where I will choose the file. Pressing on the subsequent Upload button will present me with a message telling me that my document has successfully been uploaded and that I am being taken to the metadata page to add document details. The details page is a standard Discover Access form with only the form contents on the page. Once I have filled in this information and submitted the form, I am provided with another message stating that the changes have been saved.

When I want to submit a new document, I can use this same form, but leave the box for adding the document to an existing one blank and the other pages will remain the same. To finalize updating a document, I need to check it in. I am in the document details after uploading the new version, so I can press the Skip to Actions link to move directly to the list containing the Check In link. The check in link is now the first link in the list of links under the Document Actions heading. Activating this link takes me to a page where I can submit comments for the checked in document. If I wish to, there is a check box that will allow me to retain a check out even after checking in the document. After submitting this form, I am presented with a message alerting me that I have successfully checked in the document with a link back to the document details. On the document details page, the heading above the document actions is a listing of the version history for the document. The version history lists the document version number, modifying author, and date as well as comments in plain text. If the version is not the most current, the version number will be a link to download that specific version. Prior versions also have a delete link following their data.

List Management

Creating a Link List

In SharePoint, users must use the App addition interface to add a list to their site. The link that adds the app to the site is unlabeled; requiring users to look at the surrounding elements to determine which app will be added. When adding links, it is difficult to navigate to the Add Item link due to the presence of site navigation links prior to it, forcing users to navigate past them, in order to find the link. The list itself is organized into a table with link descriptions in the far column, so that users must navigate past extraneous elements to read the link notes.

Using Discover Access, I wish to add a new list of links, so I first navigate to the Site Contents area of the site. The link for Site Contents is listed in the Quicklaunch section at the bottom of the list. Once I navigate back to the main site using breadcrumb links, I use my heading command to move just past the Quicklaunch section, so I can quickly get to the link by navigating upward through the Quicklaunch list. Once in Site Contents, I can create a list in the site actions section of the page. The Skip to Actions will move me directly to this location where the Create New List is the first item. When I press this link, I am taken to a form that is the only content on the page. After filling in the name and description, I am presented with a combo box that displays the lists that I can create. The link list is the first item starting with L, so I can press the L key to jump directly to it when I enter the combo box. After this, I can choose if this will appear in the Quicklaunch section, which I do, and upon submitting the form, I am taken to a message that tells me that the list was created with a link that will take me to my new list. I now need to add some links, so I will jump to the list actions using the Skip to Actions link to quickly move there. The Add a New Link appears first and when I activate it, I am presented with the add link form. The Add Link form asks for a URL and link description as well as any notes. The description is what will be displayed when I see the link in the list and the notes section is where I can elaborate on the link. Once I fill out this form, I am moved to a page containing a message that tells me that the link was successfully created with a link back to the link details. This page lists the metadata of the link. The URL, appears as it will in the list with the link description as the name of the link that contains the link URL that I just added. I want to see the link in the list itself, so I will go to the breadcrumb links where I can return to the link list. In the list itself, I can see the link URL with the name as the description, as well as the notes after it on the same line. If I want to see the metadata, after each link in the lists, there is a link details link where I can view the metadata.

Profile Management

Editing the User Profile

The link in standard SharePoint that takes the user to the My Profile page is contained in a submenu, which appears at the bottom of the page, even though the menu is activated near the top of the page. When the user is editing user information, they must select a tab from a list and then go beneath the tabs to edit the content. Users must navigate up past the content to switch tabs to edit further content.

Using Discover Access, I need to update my information, so I will need to move to My Site. After navigating back to the main page, I know that the My Site link is the last in the list of Quicklaunch items, so I will move past the Quicklaunch section using my heading command and then move backwards to find the My Site link. On this page, I navigate to the Site Actions section, where I will find a series of links that allow me to edit various portions of my Profile. I want to update my phone number, so I will activate the Edit Contact Information link. This will load a page containing a form where I can change

this. This page contains the header navigation information including the breadcrumb links and it also includes the site actions at the bottom of the page. The other forms that users encounter in Discover Access use pages that only contain the form contents. The information that I can edit is preceded by a heading, so I can use my heading command to find the editable content. Those pieces of information that I cannot edit, are listed in plain text, while those that I can edit are edit fields. After I make my changes, I can save the page, whereupon, I am taken to a message alerting me of my successful changes and allowing me to return to the site itself where I can choose another area to edit if I wish.

Conclusions

When using the out of the box SharePoint view, my efficiency is reduced because I must contend with manipulating ribbon controls and submenus. I must also develop unorthodox navigation strategies to attempt to maximize efficiency to make up for the layout of standard SharePoint.

Discover Access has several features that make using its interface far more efficient.

1. The use of headers for all sections allowing a screen reader to easily jump from one section to another.
2. The inclusion of both a Skip Navigation link and a Skip to Actions link allowing users to quickly skip over content that they do not need.
3. The use of consistent layouts across pages. Nearly all lists, no matter if they contain calendar events or documents, use a very similar structure enabling users to employ similar navigation strategies across the entire interface.
4. The use of HTML pages in place of dialog boxes. In some cases, screen readers can interact with dialog boxes on a webpage but this forces the user to perform additional actions before the content can be read. HTML is easily read with a screen reader and allows users to use common navigation commands while on pages containing messages.
5. Discover Access constructs forms in such a way that so that they are the only content on pages where they appear. When forms are the only content on pages where they appear, this allows users to find the editable items much easier than if they had to navigate past unnecessary elements before finding the content of the form. The addition of labels for all form elements, allows a user to navigate through form fields using the TAB key without missing any information.

Discover Access also uses simple HTML pages for the interface where standard SharePoint uses complex graphical interfaces. This makes Discover Access much more efficient and user friendly for users with vision loss.

Discover Access streamlines the SharePoint interface allowing users with vision loss to use it easily and efficiently. SharePoint is one of Microsoft's most widely used applications and Discover Access allows users with vision loss to use the application on a level playing field with their sighted peers. In addition, SharePoint's near ubiquitous presence in the modern workplace makes SharePoint proficiency a valuable skill and Discover Access allows those who have vision loss to add this proficiency to their skillset. Overall, Discover Access adds excellent usability to the SharePoint platform and makes using and navigating the system with confidence and competence a far less daunting task for those with vision loss.