

## **BEYOND THE ACCESSIBILITY WIZARD: MS OFFICE PROVIDES MORE FLEXIBLE LOW VISION ACCESS**

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### **Introduction**

Many professionals and consumers concerned with assistive technology are familiar with the Microsoft Windows accessibility features designed for consumers with low vision. Few realize, however, that Microsoft Office applications include many features that, although not intended for low-vision viewers, can serve as even more powerful and flexible tools for making screen images accessible. They provide easy ways to modify image parameters at both global and local levels. As a result it is possible to customize the look of text and graphics both on the screen and on hard-copy printouts, to meet the individual needs of different low-vision users.

### **What Does the Low Vision Viewer Need?**

The most obvious way to make screen elements accessible to people with low vision is to enlarge them. There are, however, a variety of other ways to enhance visibility. These include increasing brightness contrast, increasing color contrast, using colors that are preferred (most easily seen) by each individual viewer, increasing line thickness, reducing visual clutter, and grouping elements in systematic ways. Sound and animation can also be used to direct visual attention to some particular element on the screen, or to the fact that the screen information has changed.

Since each individual's vision loss is unique, it is important to be able to customize all of the visual and non-visual parameters.

#### Windows Accessibility Features

The Accessibility Wizard addresses the needs of those who "have difficulty seeing things on the screen" by providing options for changing the overall look of Windows' screens, as well as some features more specific to applications that run under Windows. It can be used to make global changes including large titles, menus, buttons, scroll bars, and icons, but only a few different pre-set sizes are

offered. The Accessibility Wizard also allows for a split magnification screen, and a few high contrast text/background combinations.

Once set they apply to all applications, but can be toggled off. While large buttons, etc., might be useful, they can actually interfere with displaying large graphics because they also reduce workspace on the screen.

In contrast, the options offered within Microsoft Office applications that can be used to enhance screen viewing are much more flexible. They allow the user to set any color for the text and any color for the background; changing these colors does not affect the color scheme for title bars or buttons; different changes can be made for different applications and for different files; the changes are retained in printouts; and visual enhancement changes can also be made to graphics either individually or as a global setting.

One especially useful Windows feature is the ability to change the appearance of the cursor. It can be enlarged, made either black or white, or even made to appear in inverted colors to contrast with whatever it covers. Other options include speed control and trail length. Windows Millennium adds still more ways to make the cursor easier to locate.

## **MS Office Accessibility Features**

### **Text**

MS Office applications offer at least four ways of making text larger.

\* **Font Size.** MS applications provide tools to increase font size. It is important to realize that the maximum value of 72 listed in the font size box is not even close to the maximum possible size. Font sizes up to 1638, as well as in-between values, can be set within the formatting menu. Since the large font size is retained when the material is printed, this is an easy way to develop hard-copy materials for people with low vision.

\* **Bold.** Making text bold makes it thicker. For some people with visual impairment merely making text bold will make it easier to see. Others may need text to be both large and bold. Still others may find the thicker letters more difficult to see.

\* **Zoom.** An easy way to enlarge text on the screen without affecting its size when printed is to zoom it to a larger size. The maximum possible zoom value of 500% results in fonts that are significantly smaller than the maximum possible from using the font size tools.

\* **WordArt.** WordArt lets you convert your text into an object, as well as give it a sort of artistic shape if desired. Once in that format the text can be resized, reshaped in a variety of ways, recolored with special effects, have lines of any

color or thickness outline the letters, and be turned into 3-D. It is excellent for making individual words and short phrases stand out.

In addition to enlarging text, some MS Office applications provide other ways of enhancing its visibility.

- \* **Text and Background Colors.** For certain etiologies, of visual impairment, using the right combination of colors for text and for background can greatly enhance a viewer's ability to read the text. Although this varies for different viewers, a combination that seems to be especially useful is yellow text on a black background.

- \* **Highlight.** The highlight tool is extremely versatile. Not only can it be used to display an enormous number of text/background color combinations for any amount of text from a single character to an entire document, but it also lets the user use a virtually unlimited number of different combinations within any document.

- \* **Character Spacing.** Modifying the space between letters can boost reading ease for people with low vision. Experimenting with these options in combination with enlarged text is the only way to know for sure.

- \* **Font.** Little is known about the effect that different fonts have on legibility for people with limited vision, nor is it known if any generalizations can be made. Until more research is done in this area it may be useful to experiment with different font styles for different individuals. For example, the cleaner look of a sans serif font such as Arial may be easier to read than a serif font such as Times New Roman. On the other hand, some might find that serifs add information that is useful to reading extremely large text.

## **Graphics**

Although considered "presentation" software, MS PowerPoint is also an excellent application for making simple drawings, diagrams and graphs, and for modifying images in simple ways. These can then be used directly within PowerPoint, or exported to other applications. It is also an excellent application in which to design hard-copy materials such as announcements and flyers that can be seen by low-vision readers. In addition to printing on standard sizes of papers, these can be printed on large paper - even 10'-wide posters.

PowerPoint allows the user to set text color (and other text parameters), background color, object fill color, line color, and line thickness. The user can program these options into a template, into a single presentation, or incorporate them on a case-by-case basis for each shape or other object. This offers superb flexibility both to the low-vision user who wants to generate images, and to the

individual who wants to create something that can be seen by individuals with low vision.

General principles of good design - though sometimes taken to their extremes - can make it easier for those with reduced vision to see all of the elements. Reducing visual clutter by limiting the amount of text and graphics on the screen can be useful, as can placing elements in a systematic way, such as by grouping related elements.

Designing an object to make a dramatic entrance via PowerPoint's animation tools can help a low-vision user note its appearance. Slide transitions can be used in a similar way. Pairing sound with a change on the screen can also serve as a cue that there is something new to look for.

The visibility of graphs made in Microsoft Excel can be enhanced in many ways. Lines can be made thicker, data points larger, and color schemes changed to increase contrast.

#### Other Applications

Applications outside of those in MS Office may also allow for some of the types of modifications suggested above, although they may be much more difficult to achieve. MATLAB is a case in point. It allows one to change the color and thickness of curves, the color of a graph's background, the size of the numbers along the axes, etc., but steps that are more complex than those needed for MS Office applications are generally required to do so.

#### Summary

This paper has described how many of the features built into MS Office applications, over and above those offered by the Windows Accessibility Wizard, can be used to enhance both screen displays and hard copy printouts for individuals with low vision. It also has suggested design strategies that would further enhance low-vision access, and that can be applied to other applications as well. Because these techniques are easy to use and extremely flexible, they address many of the wide range of needs of the low-vision community.