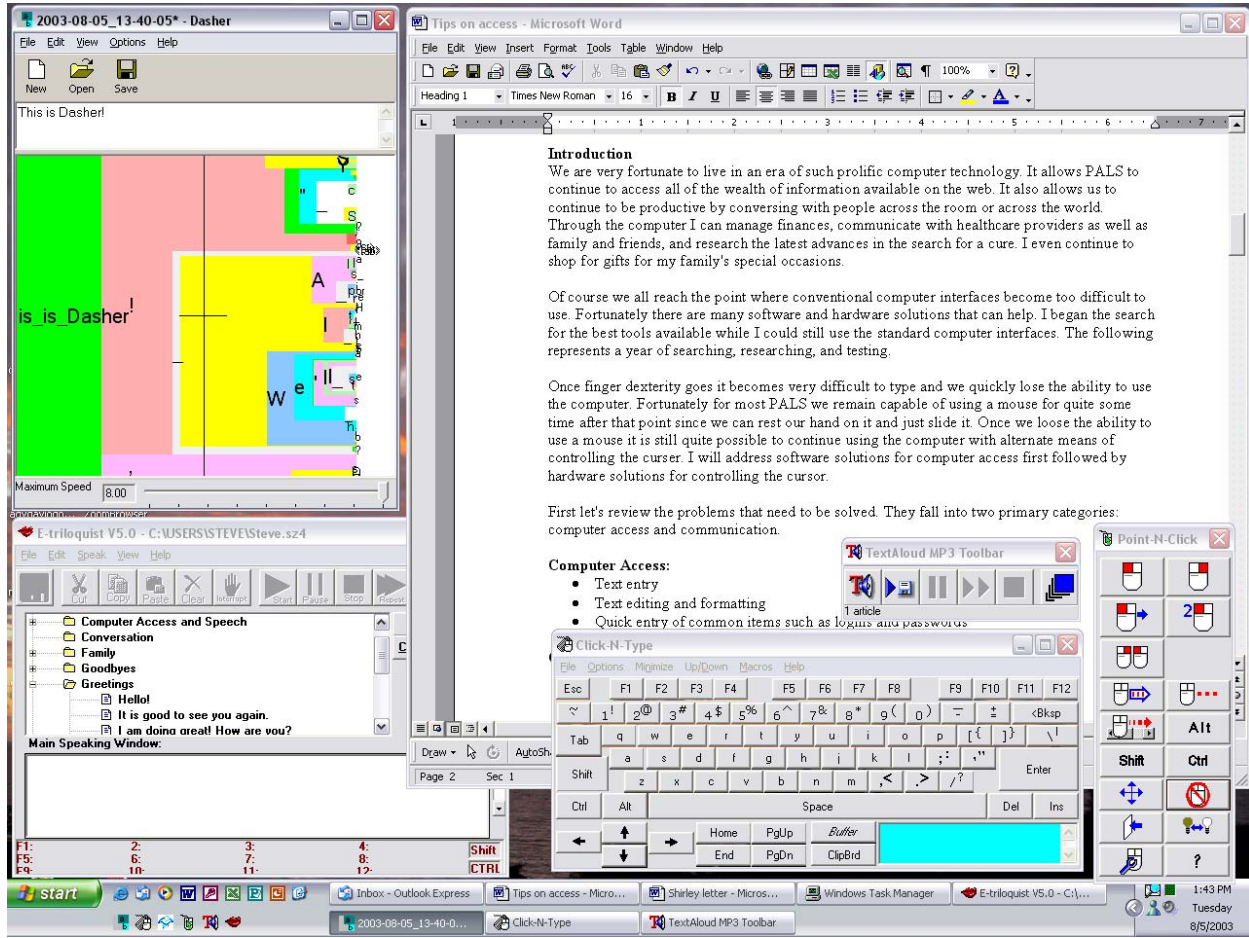


Tips on Computer Access



Steve's Tips on Computer Access and Communication

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Introduction

We are very fortunate to live in an era of such prolific computer technology. It allows PALS to continue to access all of the wealth of information available on the web. It also allows us to continue to be productive by conversing with people across the room or across the world. Through the computer I can manage finances, communicate with healthcare providers, as well as family and friends, and research the latest advances in the search for a cure. I even continue to shop for gifts for my family's special occasions.

Of course we all reach the point where conventional computer interfaces become too difficult to use. Fortunately, there are many software and hardware solutions that can help. I began the search for the best tools available while I could still use the standard computer interfaces. The following represents a year of searching, researching, and testing.

Once finger dexterity goes it becomes very difficult to type and we quickly lose the ability to use the computer. Fortunately for most PALS we remain capable of using a mouse for quite some time after that point since we can rest our hand on it and just slide it. Once we lose the ability to use a mouse it is still quite possible to continue using the computer with alternate means of controlling the cursor. I will address software solutions for computer access first followed by hardware solutions for controlling the cursor.

First let's review the problems that need to be solved. They fall into two primary categories: computer access and communication.

Computer Access:

- Text entry
- Text editing and formatting
- Quick entry of common items such as logins and passwords

Communication:

- Text entry
- Common conversation phrases
- Speech synthesis

Of course there are companies that specialize in providing complete turnkey solutions to solve these problems; however, given the relatively small market they are very expensive. For my analysis I reviewed the best point solutions for each of the problems. As it turns out, no one company has the best solution for all of the problems.

I will discuss what I found to be the best solution for each problem. I will provide contact information for each solution at the end of this paper.

Computer access:

Text entry:

As I began the search for a better way to type I tried everything I could get my hands on including everything I have heard other PALS using and everything my speech therapist recommended. Some were OK but none seemed tailored to our needs of minimal movement and no clicks. To my dismay everything seemed to be adaptations of

keyboards shown on the screen. Typing was a laborious process of selecting each letter and clicking it. There are some with word prediction so that you don't have to type every letter. There are others with different keyboard layouts that attempt to group commonly used letters. These take a while to learn and still require pointing and clicking on every letter.

One of the better solutions is WordPower. This is a keyboard surrounded by buttons for commonly used words. Still, you are forced to point and click letters for about half of all words. I knew that there had to be something better, but I was frustrated that I could not find it.

One day during my searches I ran across a little project at Cambridge called **Dasher**. I wasn't very hopeful, but in my quest to try everything, I downloaded it and gave it a shot. I immediately noticed that the developer thought way outside the box (my kind of person). It took a little getting used to but within ten minutes I was quickly "typing" with only very minor and fluid movements of the mouse. And NO button clicks! In my mind the developer (David MacKay) is a genius. I was amazed!

It is difficult to imagine how it works. As the developer says: "it is sort of like driving a car." You simply point where you want to go. Letters fly in from the right side of the window and you simply drive to the ones that you want. The most appropriate letters appear first, making words almost magically build themselves. It even has seamless learning, so it remembers things like names and your common phrases. I have typed this entire document by moving the mouse within a one-inch area and no button clicks! It does take a few minutes to get the hang of it, but it is worth the effort. I can now type for hours without getting tired.

One more thing; the program is free!

Text editing and formatting:

If you are working on a document such as this you will no doubt want to make some editing and formatting changes. Now is the time to use an onscreen keyboard. There are many of them out there; some costing as much as \$500. Absurd! I have found that **Click-N-Type** works beautifully here. It is a fully customizable onscreen keyboard.

Cost? Free!

Quick entry of common items such as logins and passwords:

When accessing the web you want to avoid having to type common items more than once. You need a program where you can enter all of this information one time and then recall it to fill in a field with a single click. **Click-N-Type** can do just that! Each key can store any text that can be recalled with a single button click.

As long as you can move the mouse in a very small area you can have complete computer access with only two free programs! I use them for many hours every day.

Communication:

Text entry:

As discussed previously, the text entry problem is elegantly solved with **Dasher**.

Common conversation phrases:

Of course when talking with a friend you don't want to have to type in every phrase that you speak even with an efficient program such as Dasher. Wouldn't it be nice if common phrases like "I am hungry.", "It is wonderful to see you again.", or "War Eagle!" could be entered with a single button click? They can!

There are several programs that can store your phrases. To be efficient it would be great if these could be organized by category such as personal needs, greetings, hobbies, etc.

Etriloquist can do all of that. You can even store all of your favorite Alabama jokes!

This program is absolutely free for people with disabilities!

Speech synthesis:

To be able to speak to a group or avoid someone having to read your text you will need to have a voice. There are several speech synthesis engines available. One is available from Microsoft and is free. Unfortunately in this case you get what you pay for. The Microsoft speech engine does work but the quality is more like a robot than a person. Fortunately there are several others available. There is DecTalk which has been around on speech devices for a while. A relative newcomer is AT&T Natural Voices.

I have tried them all, and to me the AT&T Natural Voices sounds the most realistic. You can choose from several male and several female voices including ones with realistic accents. I especially like the female voice with a British accent!

So, how do you get the AT&T speech engine software without paying an arm and a leg? Unfortunately, if you purchase it from a company that specializes in software for the disabled, the price is way too high. There are, however, companies specializing in text to speech software for things such as reading email and news reports to busy executives.

TextAloud is one such program and comes with the AT&T Natural Voices synthesis engine, along with a high quality male and female voice. This is ideal for our needs as a speech synthesis engine and is actually easier to use than the other text to speech engines specifically for the disabled that I tried.

Cost: \$50.

The following is a summary of each problem to be solved and my choice of solution for each.

Computer Access:

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|-------------------------------|--------------|--------|
| • Text entry | Dasher | \$0.00 |
| • Text editing and formatting | Click-N-Type | \$0.00 |
| • Quick entry of common items | Click-N-Type | \$0.00 |

Communication:

- | | | |
|-------------------------------|-------------|---------|
| • Text entry | Dasher | \$0.00 |
| • Common conversation phrases | Etriloquist | \$0.00 |
| • Speech synthesis | TextAloud | \$50.00 |

Hardware solutions for controlling the cursor:

Once we have assembled all of the software to give us complete computer access and communication with just the use of the cursor, we only have to find the best way to control the cursor. At first a standard mouse works just fine. You will want to configure the speed and acceleration settings to a comfortable level for you. I find that a high acceleration value allows movement over the entire screen with minor movements of the mouse.

Mice:

Keep in mind that there are many different styles of mice available. As it became difficult for me use my standard mouse due to inadvertent button clicks I searched out a different mouse. I found one that solved my problem with a different placement of the buttons.

Have a difficult time pressing the buttons? Don't fret. There is software to solve this problem as well. It is based on a concept called "dwell clicking". Dwell clicking allows us to "click" a button just by stopping movement of the cursor. Just as with everything else, there are many dwell clicking programs available. One of the best that I have found is **Point-N-Click**. I works very well and is fully configurable.

Cost: Free!

Head Trackers:

So what happens when we lose the ability to move a mouse? We find a different way to control the cursor. One option is a head-controlled cursor where you just move your head in the direction that you want the cursor to go. There are several types out there. A few years ago we would have to pay several thousand dollars for this. In fact many companies that cater to the disabled still charge this much! Fortunately for us, there is a company that makes a head-tracking mouse called **Smart-Nav** using the latest technology, and since they are selling it to the mass market it is reasonably priced at \$149.

It works like this: There is a little box on top of the monitor that emits infrared light, which is reflected by a silver dot attached to your head. (I have mine on my glasses.) The box on the monitor also includes an infrared camera which photographs everything in front of it. Software then looks for the dot and tracks its position. Cool, huh?

They offer the same unit with dwell clicking software for \$299! Of course we already solved that problem with Point-N-Click for free! In fact after using both I much prefer Point-N-Click.

Cost: \$149

Eye Trackers:

When the disease has finished taking its toll, almost all PALS continue to be able to move their eyes. This provides yet another way to control the computer and communicate. I am still researching eye trackers. More info to come...

Summary:

Having ALS does not mean that you have to lose the ability to utilize the powerful research, communication, and productivity enhancement of the modern computer. There is much software and hardware out there to allow us to continue using the computer indefinitely. I have presented a way to get this capability rather inexpensively. Of course there are many other options which are available including complete turnkey systems.

Sources

Dasher www.inference.phy.cam.ac.uk/dasher

Click-N-Type www.lakefolks.org/cnt

Etriloquist* www.etriloquist.com

TextAloud www.nextup.com

Point-N-Click www.polital.com/pnc

Smart-Nav www.naturalpoint.com

* Currently Etriloquist has a minor bug when configuring with the ATT speech engine. Loading the update solves this problem.