Choosing, Evaluating and Using Assistive Technology

By Neil Cottrell

This chapter is due to be published in the British Dyslexia Association's (BDA) "Dyslexia and Useful Technology" guide in October 2012. The guide is being produced by members of the BDA's New Technologies Committee, including myself.

Neil Cottrell, 24, is Founder and Director of LexAble, a company that develops assistive software for people with dyslexia. He was the BDA's Young Achiever of the Year (2010) and Cardiff University's Graduate Entrepreneur of the Year (2011). LexAble was the winner of AbilityNet's Technology4Good Accessibility Award (2012). Neil is also an honorary research fellow at Cardiff University, conducting research into dyslexia and working memory.

Assistive technology is software or hardware (or a combination of both) that is designed to help you overcome barriers that would otherwise prevent you from working effectively. It usually runs alongside the software packages you already use, providing new features or modifying how you use your computer. Unlike learning software, which teaches you a specific skill until you have mastered it, assistive technology is intended for long-term and everyday use.

In this chapter I will discuss some of the techniques and processes that you should use when deciding what assistive technology is best for you or the dyslexic person you are supporting. The chapter is split into three sections: **Choosing**, **Evaluating** and **Using** Assistive Technology. I'll also talk about my own experiences with dyslexia and how I used assistive technology to overcome my difficulties.

Before I dive into the details, there are three key things that you should remember:

- **Everyone's different**: dyslexia affects people in different ways. So what works for someone you know may not necessarily be suitable for you. It's therefore important to learn about and try as much assistive technology as possible before you make your final decisions.
- **Focus on Coping Strategies**: when deciding upon what assistive technology to use, think first about your own difficulties, and then use assistive technology as a coping strategy to overcome those difficulties.

- **Time investment**: By taking the time to carefully choose, evaluate and use assistive software you will get the maximum benefit. In the long run, you will save time and money, and avoid frustration.

Keeping these three principles in mind will help you to make the right choices, by developing coping strategies that are tailored to your specific needs.

A final thing to keep in mind throughout this chapter is that assistive technology is not always the best solution; it may be that the software you already use, or software that is free to download, can be an effective coping strategy. Examples of this include task management software, calendar apps or your operating system's built in display or accessibility settings. Some coping strategies may not involve technology at all, such as using a coloured 'reading ruler' to reduce the stark contrast on a page of text. So don't be afraid to think outside the box in order to develop coping strategies that work for you.

My Story

I am severely dyslexic. I was diagnosed at the age of 10 and had a statement of special educational need by age 12. I relied completely on assistive technology throughout secondary school, and benefited from brilliant support from my parents and teachers. All in all, I consider myself very lucky; without this support as well as extra tuition to help with my difficulties and a laptop provided by my Local Education Authority, I would have failed many of my GCSEs and left school at 16.

Alongside this support, I developed and adapted coping strategies that helped to put me on a level-playing field with my peers. By properly identifying my issues and crafting coping strategies to address them I've made my dreams a reality, graduating from university with first class honours and starting and growing a successful company.

Choosing Assistive Technology

Choosing assistive technology is the first and arguably the most important step in the process, as the initial choices you make will greatly influence the success of your coping strategies. Make sure to look at as many products as possible. Choosing software that is used by people you know has obvious benefits – it will be easy to get help and advice from people you trust – but keep in mind that there may be ideal solutions that they have never come across. Another good resource is suppliers (companies who sell a wide range of assistive technology), who should be able to match your needs to the features and benefits of different solutions.
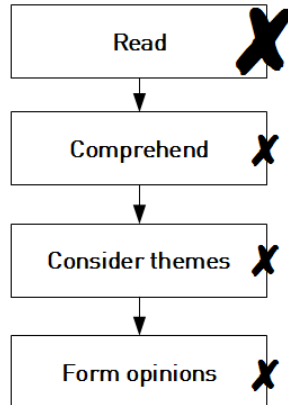
Assistive Technology as Coping Strategies

A coping strategy is the best way to compensate for your difficulties. It's very important to work on improving your existing skills, but coping strategies are just as vital because they help you to develop what I call high-level skills. It's essential that these high-level skills, such as analytical thinking and forming opinions, are allowed to develop regardless of any difficulties with lower-level skills such as reading, spelling or memory. So the aim of a coping strategy is to get around low-level difficulties, to allow you to develop your high-level skills.
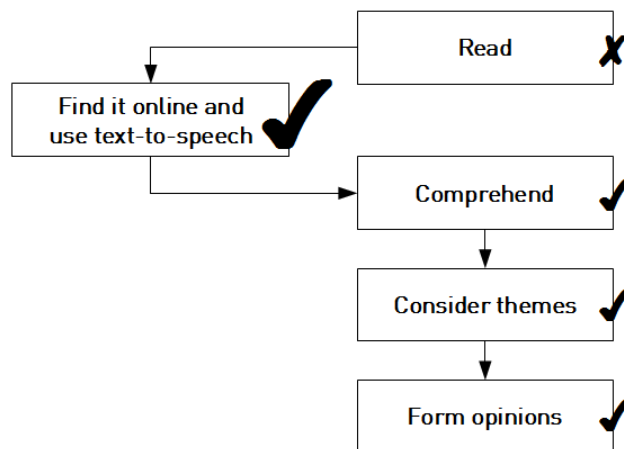
This diagram demonstrates how the task of analysing a poem can be made easier by using assistive technology:

Analysing a Poem

Without Assistive Technology

Read ✗
↓
Comprehend ✗
↓
Consider themes ✗
↓
Form opinions ✗

With Assistive Technology

Read ✗
↓
Find it online and use text-to-speech ✓
↓
Comprehend ✓
↓
Consider themes ✓
↓
Form opinions ✓

By looking at your difficulties from the lowest possible level, you can develop coping strategies that suit your specific needs, and choose assistive technology to match. For example, if you have problems with reading, find out what it is that makes reading so difficult. Are you unable to focus on the words on your screen? If so, maybe screen-tinting – where a soft colour such as pale yellow is applied over your screen – is all you need. Or is it that you can see the letters fine, but you're unable to decode them into words or sentences that you can understand? If that's the case, text-to-speech software, where text is spoken by a synthesised voice is probably your best bet. Likewise, there are multiple approaches to improving your organisation, from detailed day planners through to mind-mapping software. Whatever your difficulties, make sure you fully understand the underlying issues before deciding what tools you need.

How to decide what's best for you.

Once you've established exactly what your difficulties are and the best way to overcome them, it's time to really look at what's available. Before doing your own research, seek advice and guidance from the experts. A great place to start is the BDA's own Technology website, BDATech.org, which gives recommendations on a wide range of software. Other good resources include Lexdis.org.uk and EmpTech.info. Offline you can speak to teachers, learning support assistants, disability specialists and other users of assistive technology to find out what they recommend and why. Overall, it's important to take a really good look; invest plenty of time looking at all the options. For each solution you should consider not only features and unique selling points but also benefits, ease of use and of course price. Finally, throughout the process remember to relate your research back to the specific issues that you have.

Evaluating Assistive Technology

At this point you should have sought out advice and recommendations for a wide range of products. As I've said, the amount of time you invest when choosing assistive technology is very important, and this is no less important during the evaluation stage. Try lots of different pieces of technology by downloading free trials, making sure to look at individual settings and different ways that the software can be used. You can also learn more about the software by viewing video tutorials. Just like at the choosing stage, you should speak to users of assistive software, teachers and disability specialists to find out what they like and don't like about each package. And if the solution isn't working as you'd hoped then ask the developers – assistive technology companies are usually very happy to give support and guidance, and also to hear your ideas about their products.

Take your time

When evaluating assistive technology, you should really make the most of free trials; use software throughout the trial period (often 30 days) instead of just trying it once. When you're relaxed and have time to spare then you can try out every feature in multiple combinations. But you should also try using the same program when you're stressed and need to get things done. Does it work in practice, or just in theory?

Take text-to-speech software as an example: using synchronised highlighting to show what's being read might be useful when you have the time to go through things thoroughly, but sometimes when I'm stressed I find it easier to just get the gist of the text by closing my eyes and letting the words wash over me. As you develop coping strategies using individual pieces of software, see if these strategies hold up when you're stressed. If not, try changing some settings or finding a different way to use that product. If it doesn't work when you really need it then you'll have saved yourself some money!

Alternatives

For every difficulty that you have, there will be multiple products that attempt to provide a coping strategy, but it's worth spending the time to consider how they're different. For example, there is a good choice of products that allow you to scan books, turning them into documents that can be spoken aloud. Yet each one will do certain things better and other things slightly worse. It's often a matter of personal preference and opinions will vary, so try similar products to find one that meets your needs.

Another approach is to look at products that tackle the same issue but in different ways. For people who have issues with spelling, dictation can be an excellent solution: instead of typing you can simply speak. On the other hand, if you don't have issues with typing and don't want to change the way you work, then using autocorrection software might suit you better. Remember: everyone's different, so consider software that makes use of alternative coping strategies as part of your research.

Combinations

Before you make your final decisions it's also important to test different products in combination with each other. After all, in order to get the most benefit you'll need to develop multiple coping strategies, often with individual products for each one. If two packages will help you, and you can afford it, go for both of them! So when you've narrowed down your choices, make sure that they work together without any problems; don't just rely on others saying that they are compatible.

Using Assistive Technology

If you've followed my advice so far, then you'll have done your research properly and have created coping strategies that meet your own specific needs. This is where you will really start to benefit. The importance of time investment continues into this stage, because by doing so you'll greatly reduce the potential for annoyance and frustration. Keep in mind, though, that the amount of time that you'll need to invest will vary from product to product.

When you get the opportunity, go deeply into every feature and menu, trying the software in lots of different scenarios. You might discover new features or alternative approaches to using the software, or find situations where you can and can't use it. This will help you to establish where the boundaries are and where it can help you most. At this stage, why not go back and have a look at the video tutorials again?

Making the most of assistive technology

If the software's right for you then it will often start to make your life easier from the moment you install it. For example, pressing play for text to be spoken aloud is easy to do and you will get used to it quickly. But you can get even more benefit by customising the software: by tweaking the settings, defining shortcut keys or turning off features that you don't need. As I've said throughout this chapter, everyone's different, so use your software in the way that's best for you.

Conclusion

There are three key things that I want you to take away from this chapter. Firstly, **everyone's different**, so choose the technology that's best for you. Secondly, you should always **develop coping strategies that meet your specific needs**, and then pick assistive technology to fit. Thirdly, **investing time**, particularly at the start, will be really worth your while. It's also important to keep re-evaluating how you're using assistive software, making tweaks as necessary. Finally, you should keep an eye out for new products: the assistive technology industry is constantly producing innovative new solutions, and your perfect coping strategy might be just around the corner. Assistive technology can make such an amazing difference when you've got it right, enabling you to overcome your difficulties and really reach your full potential.