# Using Mind Mapping Software to Help Dyslexic Employees in the Workplace.

## Executive Summary

Employers are now responsible for supporting dyslexic employees by providing software and aids to help them overcome the obstacles they experience in the workplace. Mind mapping is a multisensory strategy used by dyslexic individuals for many decades to assist with writing, memory and organisation. Recent advances in mind mapping software can provide support for dyslexic users via a range of tools. This report looks at why mind mapping can help dyslexic employees in the workplace and examines the key aspects of mind mapping software that enables dyslexic employees to reach their full potential.

## Dyslexia in The Workplace

Dyslexia, once referred to as "Word Blindness", is often associated with reading and spelling difficulties. Literacy difficulties are often the earliest indicator of dyslexia, however, due to the cognitive nature of dyslexia, it often impacts a much wider range of skills. Over the past three decades, research into the causes of dyslexia has led to a greater understanding of the difficulties associated with it.  Dyslexia is now described as:

> "a combination of abilities and difficulties that affect the learning process
> in one or more of reading, spelling and writing. It is a persistent condition.
> Accompanying weaknesses may be identified in areas of speed of
> processing, short-term memory, organisation, sequencing, spoken
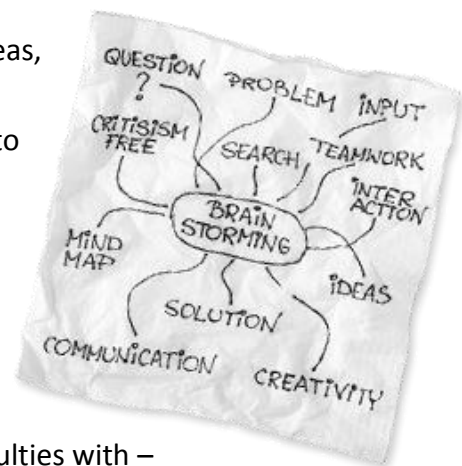> language and motor skills."

British Dyslexia Association, 2007[i]

It is estimated that between 10 and 15% of the population experience some difficulties due to dyslexia and associated Specific Learning Difficulties (SpLD), with 4% severely affected (British Dyslexia Association, 2012[ii]). Although often perceived to affect only an individual's educational achievement, dyslexia and specific learning difficulties can have a life-long impact on day to day tasks as recognised by the Equality Act 2010 (Office for Disability Issues, 2010[iii]).

While literacy skills may be acquired over time, dyslexic individuals often continue to struggle with mastering new tasks and recalling information. Many of these difficulties are caused by deficits in working memory and reduced speed of cognitive processing. This leads to ideas, concepts and information being lost from the conscious mind before they can be assimilated into long-term memory. Tasks such as writing down phone numbers, taking notes in meetings or preparing a presentation may all cause difficulties (Moody, 2010[iv]). Employers are now responsible for making reasonable adjustments and providing dyslexic employees with the equipment needed to remove the barriers they experience in their employment (Equality and Human Rights Commission, 2011[v]).

## Mind Mapping & Dyslexia

A Mind Map is a diagram used to represent concepts, ideas, tasks or other items linked to a central theme. The term Mind Mapping was coined by Tony Buzan[vi] in the 1970s to formalise the approach of visually representing relationships and concepts through radial diagrams, incorporating colour and images with keywords to represent ideas. Buzan popularised the use of mind maps to support note-taking, efficient reading, memory and recall of information – all areas that students and adults with dyslexia continue to have difficulties with – and brought visual mapping techniques to the attention of educators and psychologists. Mid map form part of the wider field of concept maps and graphical organisers, such as flow or spider diagrams used extensively in education, personal organisation and the workplace (Novak, 2006[vii]).

Many dyslexic students and adults find that they can more easily assimilate information if it is presented and manipulated in a visual, non-linear format. Recent studies have shown that mind mapping and other graphical techniques are effective for people with dyslexia (Dexter, 2010[viii]). The visual-spatial nature of mind maps lends itself to the way many dyslexic students and adults process information, as they are able to capture information and manipulate it visually. Grant (2010)[ix] proposes that this is due to visual memory skills compensating for working memory and processing difficulties. Dyslexic individuals widely use mind maps for:

- Understanding and note taking on new topics
- Creating project plans and drafting reports
- Planning and delivering presentations
- Managing to-do lists and deadlines.
- Using templates to ensure documents are structured correctly

Furthermore, many dyslexic individuals find using a multi-sensory approach to working (combining visuals, sounds and words) enables them to overcome some of their difficulties. Mind maps convey information in a multisensory environment. Complex information can be broken down into keywords and relationships. Images and colour can be used to categorize or stress relationships.

## Mind Mapping Software

Concept and mind mapping has been embraced by the corporate world as a planning and management tool (Moon et al, 2010[xi]) as well as in clinical care (Schmehl, 2013[xii]). In a survey of mind mapping software users by Frey (2011)[xiii], over 50% of the respondents reported that mind mapping software increased their productivity by 30% or more and had a significant impact on the way they worked. Respondents also reported that mind mapping software is particularly useful for understanding complex issues and managing workloads. Mind mapping software is now used in the majority of large companies (Innovation Management, 2007[xiv]). Sophisticated mind mapping packages link mind maps to a range of office and management tools – for example being able to export a mind map as a Microsoft Word report or links tasks and actions to Microsoft Outlook.
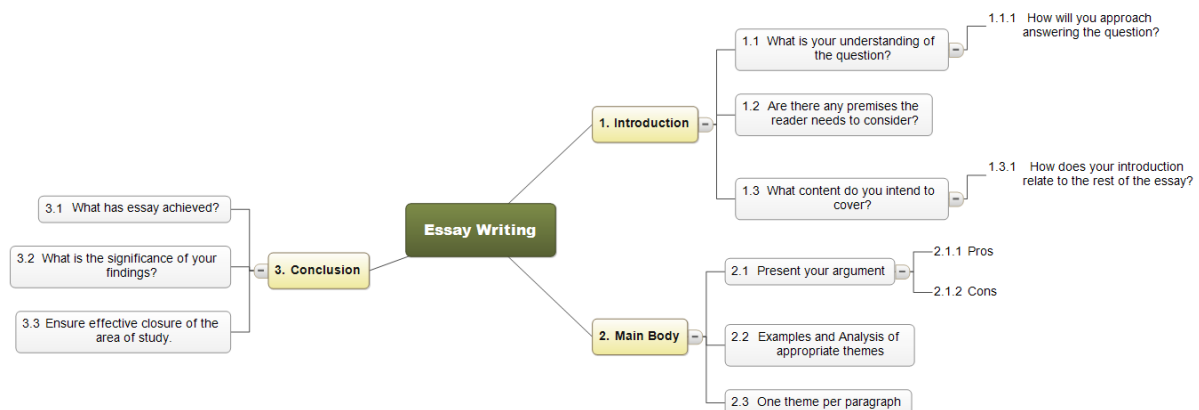


Software that enables users to create concept or mind maps bring added advantages for dyslexic users as it allows them to capture ideas and information and then view it in a visual, non-linear form. However, the choice of mind mapping tool used in the corporate world is often directed by the IT and project management objectives. The priorities and the needs of dyslexic employees should also be considered when procuring mind mapping and organisational tools; as this group will benefit from specific aspects of these software packages. In a report on feedback on the use of mind mapping software, James and Draffan[xv] draw attention to the important features for dyslexic users:

1. **Ability to rearrange and style the map to suits the user's preferred thinking style**
   This allows maps to be customised to make content easier to read and understand.
   Software packages that provide tools for quickly switching between different layouts
   and designs allow maps to be re-configured for different users with minimum effort.
2. **Ability to quickly add content to the map with the minimum of keystrokes**
   Capturing ideas and thoughts quickly is important. Software packages that enable users
   to type a keyword and press enter to add a new branch are the most powerful for those
   users with poor working memory.
3. **Provision of an outline/text view of the map content**
   By switching between a map and an outline view, dyslexic users can read and edit
   information in their preferred non-linear visual view and then easily switch to a linear or
   list view of the information. This is particularly useful when using maps to outline
   reports and presentations.
4. **Facility to add notes, images, icons and colour to maps.**
   Access to a range of tools to annotate and link sources to a mind map can make it a
   powerful knowledge store and memory tool.
5. **Ability to export to Word, PowerPoint and other Office applications with minimum of
   re-formatting**
   Being able to export the content of maps to other office applications allows dyslexic
   users to use the mind map as their central workspace. Reports, presentations and
   spreadsheets can then be created quickly to share with colleagues and clients.
6. **Compatibility with text-to-speech and other accessibility tools**
   Dyslexic employees may rely on text-to-speech to assist with reading or speech
   recognition to enter text. Similarly, they may need to alter the colours and fonts of text
   to assist with reading. Mind mapping software should be compatible with these
   assistive tools.

## MindView in the Workplace

MindView is a powerful mind mapping package used widely in education and the workplace.
As well as offering advanced management and collaborative features, it provides a unique
range of tools developed to support dyslexic employees:

**Familiar interface** - MindView uses a similar interface to Microsoft Office packages; it feels
familiar making it easier to learn and use effectively.  The Simple Interface option enables
users to see key functions.

**Personalising the mind map** – MindView allows users to change map styles and layouts to
suit their individual learning style. Users can develop custom styles for use in future maps.

**Quick idea generation enabling the user to focus** – MindView allows users to generate and
express their ideas visually on the computer using simple keyboard shortcuts or icons. Full-
screen mode enables a map to be created and edited without any distractions.

**Utilise a range of templates** – MindView comes with over 50 business-focussed mind map templates providing guides and frameworks for everything from business strategy to day-to-day planning. Users can edit or create new templates to match their needs.

**Outlining and reviewing mind maps** – MindView allows users to switch to an outline view to get a linear overview of their work.

**Annotate & extend maps** – MindView allows users to add content to maps via text notes, hyperlinks, sound files and attachments. This allows users to visually organize ideas, notes or research into one document with links to all the relevant information. Additionally, images from the included multimedia catalogue, shapes and icons can be added to branches to provide visual cues.

**Exporting to Microsoft Office** – MindView integrates with Microsoft Office. Users can turn their mind maps into structure Microsoft Word or PowerPoint documents with one click. Alternatively, presentations can be delivered from within MindView using the Presentation Mode.

**Visual action plans** –Dyslexic employees struggling with time management and organisation can add dates and times to their MindView maps. With one click this information can be converted into a timeline which can be further personalized by adapting styles and using different colours and icons. Gantt charts can be produced at the click of a button for project management activities. Tasks can also be exported to Microsoft Outlook.
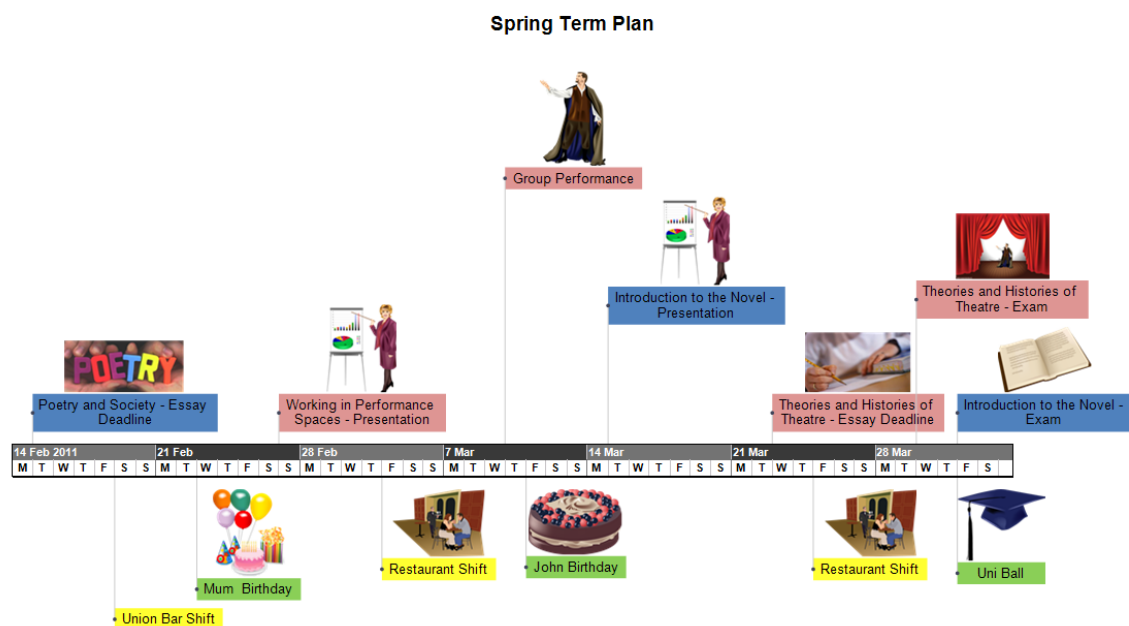


**Compatibility with Assistive Tools** – the developers of MindView have worked to provide compatibility with popular assistive tools. Speech recognition users can utilise macros to control and edit maps. The integrated "Narrate" tool reads aloud map content.

[i] British Dyslexia Association, 2007. Definition of Dyslexia. http://www.bdadyslexia.org.uk/about-dyslexia/further-information/dyslexia-research-information-.html. Accessed May 2013

[ii] British Dyslexia Association, 2012: Adults and Dyslexia, 40 years on, http://www.bdadyslexia.org.uk/files/Adults-and-Dyslexia-report-2012.pdf Accessed May 2013

[iii] Office for Disability Issues, HM Government (2010): Equality Act 2010 Guidance http://odi.dwp.gov.uk/docs/wor/new/ea-guide.pdf Access May 2013.

[iv] Moody, S (2010): Dyslexia in the Workplace. http://www.workingwithdyslexia.com/site/wp-content/uploads/2010/01/Dyslexic-difficulties-in-the-workplace.pdf Access May 2013.

[v] Equality and Human Rights Commission (2011) Providing extra equipment or aids. In: Good equality practice for employers: equality policies, equality training and monitoring. p34.http://www.equalityhumanrights.com/uploaded_files/EqualityAct/employers_good_equality_practice1.pdf Accessed May 2013.

[vi] Buzan, T. (1977): Make the Most of Your Mind. London: Colt Books

[vii] Novak, J. D., & Cañas, A. J. (2008). The theory underlying concept maps and how to construct and use them. Florida Institute for Human and Machine Cognition Pensacola Fl, http://www.ssu.ac.ir/fileadmin/templates/fa/Moavenatha/Moavenate-Amozeshi/edicupload/olymp-3.pdf Access May 2013

[viii] Dexter, D. D. (2010): Using Graphic Organizers to Teach Content Area Material to Students with Learning Disabilities (Doctoral dissertation, The Pennsylvania State University).

[ix] Grant, D. (2010): That's the Way I Think: Dyslexia, Dyspraxia and ADHD Explained. Routledge.

[x] McLoughlin, D & Leather, C. (2013): The Dyslexic Adult: Interventions and Outcomes - An Evidence-based Approach. Wiley.

[xi] Moon, B., Hoffman, R. R., Novak, J., & Canas, A. (Eds.) (2011): Applied concept mapping: Capturing, analyzing, and organizing knowledge. CRC Press

[xii] Schmehl, P. (2013): Introduction to Concept Mapping in Nursing: Critical Thinking in Action. Jones & Bartlett Learning.

[xiii] Frey,C. (2011): Mind Mapping Software Trends Survey. http://mindmappingsoftwareblog.com/wp-content/srvy11/2011_MMS_Survey_Results.pdf. Accessed May 2013.

[xiv] Innovation Management, (2007): Tony Buzan reflects on the growth, evolution and future of Mind Mapping. http://www.innovationmanagement.se/imtool-articles/tony-buzan-reflects-on-the-growth-evolution-and-future-of-mind-mapping/. Accessed May 2013

[xv] James, A. & Draffan, E.A. (2010): Mind Mapping Tools Move On. Presentation to the 1st National iansyst Assistive Technology Assessor Conference April 2010. Available at http://www.slideshare.net/NeilMilliken/mind-mapping-moves-on-in-2010. Accessed May 2013.