

‘SPECIFIC’ LEARNING DIFFICULTIES in PRISONS

Melanie Jameson
Dyslexia Consultancy Malvern
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BOOKLET 4

Support for English/Literacy and Maths/Numeracy

The full set of BOOKLETS comprises

1. Introduction and Resources for Specific Learning Difficulties
2. Overview of Specific Learning Difficulties
3. Principles of Support for Specific Learning Difficulties
4. Support for English/Literacy and Maths/Numeracy
5. Support for ICT and Virtual Campus
6. Support for Foreign Nationals who may have Specific Learning Difficulties
7. Specific Learning Difficulties in the contexts of Disability / Equality / Diversity / Accessibility
8. Work Preparation and Resettlement

The term ‘Specific Learning Difficulties’ refers to a family of conditions, namely Dyslexia, Dyspraxia, Attention Deficit Hyperactivity Disorder and Dyscalculia

ALL BOOKLETS are available on www.dyslexia-malvern.co.uk

SUPPORT FOR ENGLISH/LITERACY and MATHS/NUMERACY

These topics follow on from the preceding BOOKLET on Principles of Support

1. Embedded Learning
2. Good Practice in English / Literacy Tuition
3. Numeracy Needs in Prison
4. Aspects of Good Practice in Developing Maths / Numeracy Skills
5. Supporting People with Dyscalculia in Class and Everyday Situations

1. Embedded Learning

Under the Prison Education Framework / Dynamic Purchasing System arrangements, the question initially arose about the commissioning of embedded learning, namely Maths, English, ICT and ESOL within vocational subjects. Would this be delivered via the PEF core supplier or by the provider of the course? The example of carpentry was used in the reply: *'maths embedded in a carpentry course would be delivered by the carpentry provider – and the need for this would be specified by the governors at the outset. Where Maths / English / ICT / ESOL learning leads to specific qualifications, the requisite awarding organisation would need to be used'*.

Studies commissioned by the (former) National Research & Development Centre have shown that *contextualised or embedded literacy and numeracy tend to be associated with higher levels of learner engagement*. (Research Resources: Working with Young Offenders, 2006). The example is given of a joint session delivered by an IT tutor and a personal & social skills tutor in a community setting. This involved discussion and literacy & numeracy work, alongside the use of technology. The other factor contributing to success is the **personal element**: learning should be of interest/relevance to the learners or based on elements they have chosen.

There is therefore every reason to strive to deliver embedded learning within vocational and work preparation courses. It is also important to take account of issues relating to around a fifth of course participants who are (statistically) likely to show signs of Specific Learning Difficulties.

The overall principles, covered in BOOKLET 3, can be summarised as follows:
'multi-sensory' and 'structured' approaches to course delivery;
incorporating over-learning; chunking into small sections; measures to raise self-esteem.

2. Good Practice in English / Literacy Tuition

Supporting Reading

A tried and tested approach to reading in adult basic education is to base this on the learner's own words, which have been transcribed and then serve as an exemplar, to build on and adapt. Attention is drawn to complicated words which cannot be sounded out. Some people with dyslexia, because of their inherent neurological condition, never master phonics, syllable division and word-building. Their strategy is typically '**whole-word recognition**', whereby their visual skills come into play. Recognising the overall shape of a word is made more difficult if the text is in BLOCKS, or fonts are used which have very short risers and descenders.

Any reading task should be supported by an introduction to the topic, identification of key words before reading and some discussion after the reading has taken place.

The **Shannon Trust Reading Plan** is a successful and low-tech solution to teaching reading in prison. This is a peer mentoring activity, in which prisoners who are able to read become mentors to those who need help to master this skill. The Reading Plan progresses from individual letter sounds to reading passages of text, following a carefully structured programme which should be delivered in frequent short sessions. It is particularly appropriate to help poor readers who are reluctant to engage in education, since the reading pairs of mentor and learner can meet up in various convenient locations.

'Emergent readers' are enabled to work at their own pace and gradually gain confidence – it is also of benefit to mentors who gain a well-earned sense of achievement. Success should be celebrated. Shannon Trust volunteers work with prison staff to advise, train mentors and offer support. The Plan is often used with Foreign Nationals.

www.shannontrust.org.uk

Prisoners with dyslexia still face challenges when they have mastered the basics . Skimming and scanning is rarely possible, so they will often remain word-by-word readers, which slows them down considerably. Retaining what is read is also problematic – for this reason strategies should be developed when the reading matter must be absorbed.

A tried-and-tested approach is **SQ3R**, where the initials stand for:

SURVEY:

Consider what you are about to read, recalling what you already know about the subject

QUESTION:

Formulate a question that the reading should answer (so irrelevant parts can be skipped)

READ:

Now read the passage / chapter

RECALL:

Immediately recall the main points of what you have just read, orally or while making notes

REVIEW:

Review this information later in the day – these activities should help retention.

If a whiteboard or screen is used, it is essential to ensure that everyone can see it properly and that the text is sufficiently enlarged (font size 20 at least). Learners may lack the confidence to draw attention to this themselves. Where the technology is available, content can be supported by text to speech software. Furthermore it should be possible to

change the background colour on screens to explore what works best for those who experience Visual Stress (**more detail in BOOKLETS 2,7**).

Supporting Spelling

Unlike poor maths, which seems to be almost socially acceptable, poor spelling causes great embarrassment. The issue should therefore be approached with sensitivity.

When teaching a course which involves assessed written work, it is helpful to use a variety of methodologies to improve spelling because preferred ways of learning will vary from learner to learner – and an unsuitable approach will make things worse. Again, a multisensory strategy is recommended, together with some demystification of aspects of the English spelling system. Learning is more likely to be retained if it is made relevant to the learner, so choices need to be offered.

For mastering problematic high-use or subject specific vocabulary, memory techniques need to be taught and then applied according to the individual's specific strengths. The '**Look-Cover-Write-Check** method' may be helpful to master those words the individual frequently uses; the first stage [**Look**] should be accompanied by the individual spelling the word aloud whereas **Check** can be reinforced by highlighting the difficult part of the word.

Spellcheckers are useful tools (they may need to be set to UK English). If there are problems recognising the correct option when it is presented in a list, text to speech software (where available) can read through the proposed choices. Otherwise proofreading will be necessary to spot those words which, though correctly spelt, are not the intended word. Fortunately weak spelling is usually less of a barrier in computer mediated learning.

The *Touch-type, Read and Spell* package is a proven multisensory approach to learning spelling, reading, touch-typing and computing skills. First tried in Pentonville Prison, it was found to raise skills levels and self-esteem, so was recommended to other institutions. Daily practice is necessary to make progress and initial training on the system is needed. www.readandspell.com

Supporting Writing

'Getting started' is often cited by writers at all levels with SpLDs as a real challenge. They should be encouraged to concentrate on capturing their ideas before addressing the issue of actually writing. A good way to get started is a **mindmap**. This is similar to a spidergram, enabling learners to organise their ideas using a minimum of key words, supported by a visual layout, using colour and, ideally, images. Mindmapping can be a paper based activity or computerised, using programmes such as *Inspiration* and *MindManager*.

In order for learners with SpLDs to get the best out of this technique, it should be thoroughly taught and practised – initially, for example, by mindmapping a favourite TV programme. www.tonybuzan.com/about/mind-mapping



Coloured 'sticky notes' are helpful as they can be moved around as ideas develop.

Other approaches at this initial stage include using a voice recognition program or dictating ideas to a scribe.

In situations where learners have to copy down information, there is an additional problem due to limited memory capacity. Looking up at the board or screen, reading then retaining the information while copying it down, and then looking up to try and find the place, all takes time and a great deal of concentration. Alternatives such as handouts or IT options are preferable.

Where assistive technology is available, such as spell checkers, predictive word banks or computer screen-readers, this should be presented as **skill acquisition** rather than a learning aid.

Once barriers to achievement have been largely overcome and the individual has settled into learning/training, he or she could well demonstrate some of **the abilities** associated with SpLDs – these include creativity, lateral thinking and problem-solving, visualisation and the ability to gain/retain an overview.

3. Numeracy Needs in Prison

The need for basic numeracy skills and the ability to retain number sequences crops up daily. Examples include the canteen form; numbers relating to meal choices; financial aspects of Incentives and Earned Privileges; pin numbers for phoning out and the numbers selected to call. The combination of digits and letters in the prison number must be entered correctly on all forms. Outside in the community, most offenders have to tackle numerous forms to claim benefits and grants, requiring a range of calculations.

Functional Skills are included in many learning programmes and may be the gateway to further progress. On the numeracy side, Functional Skills recognise the ability to represent, analyse and interpret numerical data.

Vocational courses may well require a combination of arithmetic, manual dexterity and reading skills, any (or all) of which can be challenging for learners with dyslexia or dyspraxia. It is therefore necessary for workshop instructors, as well as tutors in educational settings, to be able to support these trainees / learners and understand their difficulties.

The following example, taken from an Industrial Cleaning course, illustrates a range of numeracy tasks.

The skills you will need for this Activity are:

- *designing a data collection sheet*
- *reading and calculating quantities*
- *calculations of ratio, fraction or percentage*
- *drawing a line graph*

Back in 2003 the government Skills for Life Survey reported that:

the connection between numeracy skills and earnings is more significant than the connection between literacy skills and earnings.....difficulties with numeracy impact more negatively on job prospects than literacy difficulties. Maths certainly does matter. By supporting dyslexic learners who have maths difficulties we will be improving their life chances, earning potential and career opportunities.

Consequences of poor numeracy

Mistakes with aspects of number not only cause frustration and inconvenience (such as errors with meal choices and canteen options) but may lead to missed appointments or more serious consequences resulting in the need for prison staff to mediate on behalf of a prisoner whose poor numeracy skills have led to a disciplinary issue.

Typical scenarios include:

- missing a health appointment because of confusion over the time on the slip (presented using the 24hr system) and the date (expressed in numbers rather than words)
- miscalculations of the financial implications when privilege status changes (this can become a compliance issue)
- difficulties transferring credit onto your phone account
- failure to keep track of your personal cash.

4. Aspects of Good Practice in Developing Maths / Numeracy Skills

The following components - the first of which was highlighted in BOOKLET 3 - are crucial when supporting learners with SpLDs on numeracy tasks:

- Structured multisensory techniques
- Concrete learning
- Identifying and teaching all relevant subskills
- Exploring the language of maths
- Providing memory support
- Drawing on areas of strength



These areas will be considered one by one.

Structured multisensory techniques

The following important strategies will assist the acquisition of numeracy skills: The term Structured entails breaking mathematical operations down into small steps so that learners are not overwhelmed and demoralised but gain a sense of achievement along the way.

There must be a logical progression between these steps.

In the numeracy sphere, multisensory techniques include verbalising the activity, encouraging learners to use their own voices, making use of rhythm where appropriate.

Colour can be used to distinguish between, or to highlight, different features. Working with learners to highlight key factors, and/or important numerical data, enables them to focus their attention on essential detail.

Another way of focusing attention is to screen off / cover up areas or questions not being worked on with a card that can be moved down as work progresses.

A hands-on element, using concrete learning (see next sub-heading), is helpful.

A whole-group discussion is often useful, to enable students to share difficulties and solutions, thus learning from one another.

Concrete learning

Concrete learning (as opposed to abstract learning) is most likely to benefit learners with SpLDs. This approach entails learning by doing, ideally with visual or auditory support. New concepts should be introduced in a practical way, such as undertaking a survey within the group to illustrate *ratios*. The topic therefore becomes meaningful – an important aspect of adult learning. Real life situations are always preferable, as recognised in the Functional Skills curriculum.

A wide variety of concrete, educational, numeracy materials are available to illustrate basic concepts. The *Skills for Life Numeracy Core Curriculum* has good examples of concrete approaches across its Entry level sections.

Support is needed when moving from the concrete to the abstract and symbolic. A 'worded' problem can be turned into a sum with digits and sufficient practice given by means of graded exercises. An example of a useful technique is colour coding to aid understanding of place value; consistent use of colour can be carried through from concrete materials to abstract calculations.

Identifying and teaching the subskills

This can be summarised as follows:

- Break a task down in order to identify the various subskills which it embodies
- Teach and practise these separately
- Track back to the individual's most basic area of difficulty
- Provide plenty of 'over-learning' in each level, not moving on till it is secure
- Combine subskills carefully, checking understanding before proceeding
- Start with everyday language then introduce mathematical terminology alongside it
- Alternative names for the same operation should be grouped together and made explicit
- Link visual images and symbols with language terms.

Remember to revisit what has been covered in previous sessions.

Exploring the language of maths

Numeracy vocabulary is inherently confusing with different words being used for the same operation, for instance, *plus*, *add*, *the sum of* all relate to addition. Discussion is a good way to explore this language. Rephrasing a question will open up meaning to those who have not understood the format or language used.

It is important to check comprehension before the learner attempts a written numeracy task, in order to lessen the chance of error. The best way of doing this is to aid learners to talk through the steps of a task and to encourage them to think aloud.

This has several benefits, namely:

- revealing whether they have understood / read the task or question correctly
- helping to develop organised thinking
- providing them with auditory feedback.

Retaining number sequences is a common dyslexic difficulty. When copying or learning a sequence of numbers, the learner should always break them up into small chunks (no more than three or, when doing postcodes, separating the letters from the numbers). S/he will need to read them aloud prior to and during copying, then check back carefully.

A step-by-step methodology will be needed to decipher large numbers, such as £10,567.50, correctly.

Knowledge of the 24 hour clock may not be secure (i.e. operating at an automatic level); this can be practised via a teaching clock, with 24 hour equivalents shown next to their 1-12 counterparts. The learner should note and learn some fixed points such as 6pm = 1800 and 10pm = 2200. Work on simple timetables helps to familiarise the 24 hour format – something that is needed both for daily living and in employment contexts.



Providing memory support

'Overlearning' is necessary to support a weak short-term memory. One way to do this is through games which provide a welcome break, while reinforcing aspects of numeracy.

Memory cards are a good support strategy; these consist of small cards or index cards on which to write the numerical information the learner needs to access frequently, but has difficulty remembering. The cards can then be used for practice between lessons. Learners will retain information best if they make their own associations and memory aids.

Checklists and reference sheets are also helpful as a means of lessening the load on the working memory. The term 'working memory' refers to retaining information in memory while engaged on a task. It is worth noting that research has found that good working memory is the most reliable indicator of academic success – and that a limited working memory is closely associated with SpLDs.

Staff can find free downloadable exercises are available on the internet to provide practice in improving working memory.

Drawing on areas of strength

Due to the variety within Specific Learning Difficulties, it is not possible to make assumptions about what will work best for any individual, but the areas of strength associated with dyslexia (in particular) suggest a range of methodologies, as follows:

Providing an overview is an approach which acknowledges a holistic way of learning, common to many people with dyslexia. In this way, learners can see what they are aiming for without getting bogged down in the mechanics of maths.

Guiding learners to make associations which are meaningful to them will aid recall.

Encouraging them to look for links or patterns. If learners are helped to see how different pieces of information are connected and start to recognise mathematical patterns, they may well find that this is the most natural way into understanding the concepts of maths. An affinity for making links and recognising patterns has been a key quality leading to important breakthroughs by scientists, engineers and entrepreneurs with dyslexia.

This example shows how practical applications can foster and maintain interest

Wormwood Scrubs runs Active Learning Sessions in ICT which incorporate practical aspects of everyday life into the training. One example of an activity is using spreadsheets to determine the learner's canteen for the coming weeks. In this way numeracy is seen as a useful skill with practical applications linked to the ability to produce professional looking spreadsheets which help build confidence. *Information provided in 2007*

5. Supporting People with Dyscalculia in Class and Everyday Situations

Dyscalculia, as described in BOOKLET 2, is a Specific Learning Difficulty typified by intractable difficulties with numeracy which affect many aspects of daily life. The key challenges have been listed as:

- difficulty comprehending information containing numbers
- an inability to internalise mathematical concepts
- no grasp of the relative size and value of numbers.

There is limited specialist guidance in this area but, in general terms, techniques used for dyslexic learners acquiring numeracy skills are helpful. However progress will be slower because the difficulties are more deep-rooted.

Suitable approaches include:

- associating the name of the number with the symbol
- matching cards with the same numbers
- counting with adult 'tools' e.g. dominoes, and objects, such as money
- matching the words *first*, *second*, *third* with *1st*, *2nd*, *3rd*
- developing 'numerosity' by simple number sequencing activities, e.g. identifying every fifth item on a till receipt
- linking coins with numbers, by looking at the number inscribed on the coin.
- sequencing coins according to value
- drawing attention to similar-looking symbols.



There are issues to be borne in mind when selecting equipment, such as CALCULATORS.

Older calculators may be more appropriate, with **large number pads** and clear displays.

Choose calculators that **display the calculation** that has been input.

Draw attention to **symbols which are visually similar**: + and x; minus & division signs.

If possible, **colour code** the four mathematical operations by using coloured stickers on the operation keys with the symbol written on them.

Speaking calculators provide helpful audio feedback at every stage.

Advise learners to cross each item off the page when **transferring** it to the calculator.

Learners with **visual perceptual or spatial problems** will have to take extra care when transferring information from the page or when dictating to the calculator.

Learners should initially **verbalise** the operation they are about to perform on the calculator, so that the tutor can check their understanding.

Learners with **poor co-ordination** / dyspraxia require a calculator with larger keys.

Teach estimation – linking to real life situations (such as budgeting). Even a very rough estimation will help to avoid grossly improbable answers.