

**KEITH HOLLAND &
ASSOCIATES**
OPTOMETRISTS

**27 St George's Road
Cheltenham
Gloucestershire
GL50 3DT**

T. 01242 233 500

F. 01242 227 686

keithholland@keithholland.co.uk

April 2011

*A Response to a request for evidence by The All Party Parliamentary Group for
Education, Literacy Enquiry*

As optometrists, we have been working in the field of reading difficulties for over twenty years, and our practice in Cheltenham is recognised as a world class centre for the investigation and treatment of children with vision related learning difficulties, attracting clients from over sixty countries. As the following submission shows, any comprehensive investigation of the causes of literacy difficulty must take account of the physical factors that impede the acquisition of skills for learning, and the key skill in this regard is vision. More information is available from the authors upon request

Keith Holland BSc, FCOptom, FBABO, FCOVD, FAAO, DipCLP

Clare Holland BSc, FCOptom, FBCLA, CertSpLD

Why should vision be considered when thinking of education?

It is said that 85% of all we know arrives by our eyes. It is our vision system that tells us where we are, where everything is around us, what is up on the board – and what is in the textbook. When this goes wrong, our learning suffers – and sometimes in surprising ways.

'John' was excluded from school for knocking someone out – his deputy head teacher. Despite having normal eyes on a routine eye test, he was found to have severe problems with eye teaming, and commented that trying to read "...did my head in, and made me all angry"; his response was violence, and the end of his school career. Had his eye problems been correctly identified, this young man would perhaps have finished his learning – free of headaches and frustration – and not ended up excluded from school.

Children cannot read efficiently, write easily, and spell accurately if their visual system is unstable. Problems with how the eyes team up, focus and scan around the page are probably the commonest causes of under-achievement today, and yet there is no structured screening or investigation available in the UK.

Is this a problem – in Britain?

Some studies have suggested that 20% of children have visual problems that affect learning. With 11 million children in Britain, this represents **170,000** children in each year group across the UK who is underachieving because of a correctable problem. And yet less than 10% of children get their eyes tested – and those that do will not normally have the right skills assessed during an NHS sight test – most will be examined purely for eye health issues and distance vision, and the subtle vision problems affecting reading and learning will go unchecked.

What goes wrong?

The key skills for reading efficiently include maintaining accurate focus, using the two eyes together effortlessly at a close working distance and tracking or scanning text sequentially over time. Problems with any of these **will** affect efficiency, and lead to symptoms.

[illegible]

How text can appear to children with problems. This can be a transient problem, lasting only a second or two, but enough to throw concentration and cognition.

In a study involving 225 children from Chicago schools, Park & Burri found a significant correlation between reading expectancy level and an index of visual difficulties based on a comprehensive visual screening.

A widely used checklist to identify children with possible visual difficulties. Any positive responses should lead to referral for visual investigation.

- ☐ Often lose place when reading
- ☐ Misses out words or re-reads the same word
- ☐ Needs to use a finger or marker to keep their place
- ☐ Quickly becomes tired when reading
- ☐ Experiences transient blurred or double vision during close work
- ☐ Complains of words “moving about”, “shimmering”, or “dancing” when reading
- ☐ Has difficulty copying from board down on to paper
- ☐ Complains of headache (usually around the temples) after close work
- ☐ Has poor concentration for close work
- ☐ Short and often decreasing working distance
- ☐ Continuous reading is inaccurate, yet can read single words quite easily
- ☐ Has difficulty “taking in” what is reading, and has to read something several times for meaning

In addition, the following more general symptoms may also suggest visual problems

- ☐ Poor coordination at near, typically shown as bumping into, or knocking things over, yet may be good at sports. (*This may be identified as ‘dyspraxia’, but may simply be a vision problem*).
- ☐ Reluctance to play with jigsaws and similar puzzles
- ☐ Difficulty with spatial concepts in maths
- ☐ Irregular and untidy handwriting
- ☐ Travel sickness
- ☐ A strongly phonetic pattern to spelling

Is there a link with 'Special needs'?

There does appear to be a significantly higher incidence of subtle visual issues in children with special needs; the impact of these difficulties will vary according to the nature of the special need (and there is little research on this), but logic would suggest the impact of symptoms such as those above would be greater when co-existing with special needs. Current trends in dyslexia research, particularly in the UK where language based research is particularly strong and visual based research quite weak, have concentrated on phonological processing as the major determinant, but a significant body of research exists abroad to show that visual factors must also be counted as significant determinators of reading ability. Whatever the cause of dyslexia is found to be, it is clear that visual processing is a key component part of the problem with reading.

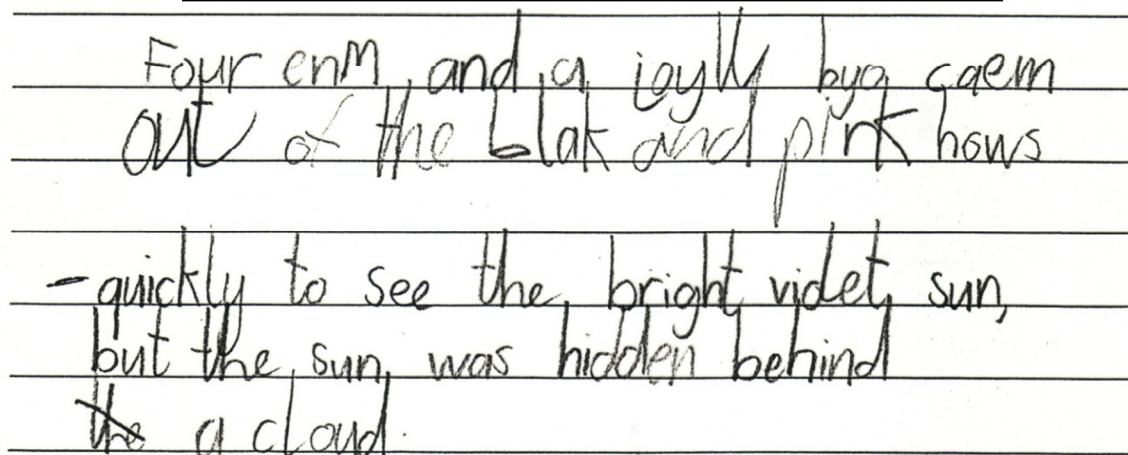
Recent research in the USA has shown that many children identified with 'attention deficit disorder' in fact have problems with visual attention, it was clear that solving the visual difficulties led to marked behavioural improvements in the children concerned, with some able to stop medication and resume normal schooling.

What can be done?

Spectacles.

Judicious use of glasses to reduce visual stress has been shown to be timely and effective in developing reading skills, handwriting, and improving visual behaviours. Learning depends on efficient visual perception; problems here reduce processing speed, affect attention, and lead to lowered expectations.

The writing of a child before, and immediately after insertion of lenses to stabilise eye control.



Four em, and a joyly byr caem
out of the blak and pink hows

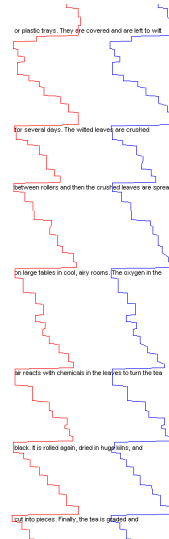
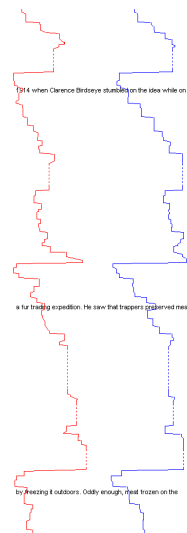
- quickly to see the bright videt sun,
but the sun was hidden behind
the a cloud.

Coloured lenses

There has been much publicity (possibly because of vested commercial interests) in the use of coloured filters. There is no doubt they can reduce symptoms in many cases – when individually prescribed, but the effects wear off and are only ameliorative. They do have the advantage of being relatively cheap, and their initial effect is instantaneous – but not long-lasting.

Vision Therapy

There is a long heritage of using training activities and exercises to build visual skills, and enhance vision-based thinking skills. The impact of these interventions is usually permanent and effective, and has been documented in the literature. Recently, little research has been ongoing in this field due to the lack of any dedicated research groups in the UK, and limited funding to optometry has further limited progress.



Trace 1 taken Dec 2008
(before intervention)

Trace 2 taken May 2009
(after intervention)

Two examples of eye movement recordings taken for the same child, aged 14 in trace 1, showing the dramatic changes possible after stabilising visual problems through spectacles and vision therapy

But this is a health issue – isn't it?

Parents are often frustrated at the lack of support available in the UK. The routine NHS sight test was never designed to investigate these issues, and is woefully underfunded, making it very difficult for community optometrists to assess children without charging privately. There is comparatively little research in the UK in these fields – and much of that carried out abroad has been poorly reported in Britain. Subtle visual issues affecting learning are not regarded as 'medical' issues within healthcare, and largely go untreated. Whilst some independent schools do screen for such problems, there is no provision or budget for this within the state system.

The role of visual factors in learning and education is currently not considered in the training syllabus for UK optometrists. Special interest groups have developed to include those interested in

the field, the most notable being The British Association of Behavioural Optometrists. BABO run regular training courses leading to accreditation to undertake comprehensive visual investigations and provide therapy. There is no funding for this work within either the health or education budgets. The General Ophthalmic Services, who pay for 'free' children's eye tests in England and Wales do not include any mention of checking for visual correlates of learning within the sight test, and so this is not normally considered when a child has his eyes 'tested'. No national screening of children's vision is carried out within schools in England and Scotland (Wales is considering a scheme at the present time).

Comprehensive assessment for visual factors can be time consuming, and is currently only really available as a privately funded service in Britain.

A study carried out in The UK by this author found that out of 21 teenagers excluded from secondary school in one year, in a medium sized town; 18 were shown to have significant visual problems, all primarily affecting their near vision systems, as needed for reading and writing.

Whilst this must seem in many ways a health issue, the problems arising from this affect education, employment and indeed social care, as reduced educational attainment will inevitably lead to a greater drain on societal resources. This must be addressed, and initially much better research is needed to identify how best to identify and treat these children before the disparity in performance becomes too great.