Insight

RNIB

Supporting blind and partially sighted young people

Issue 28 • July/August 2010

Assessment

- Learners give their college marks out of 10
- New series: good value technology
- Summer events for families

Canes mean freedom, part one

You may know Daniel Kish for his work with echolocation, but he also believes strongly in children using long canes from as young as 18 months. In the first of two articles, he reveals his innovative approach to teaching perception skills

It's Daniel Kish's passionate belief that any child who is blind from the early years should learn to use a long cane as soon as they can walk. Although there is little data currently available on the use of canes with children under seven in the UK, Daniel has spent the last three years working with 65 children in the UK, 20 of them under six years old. He has met many parents desperate to help their young children, but unable to find the support they want in their local area. He has also met other parents with older children, who say they wish they had known of his approach sooner.

The perceptual imaging system

"Perception occurs in two stages – awareness and imaging. Awareness simply refers to the stimulus knowledge that something is present to the senses. Imaging occurs when this awareness takes on form and substance in a person's mind. An image doesn't need to be visual; it can be tactile or auditory as well.

For example, a young boy moving his cane touched my shoe and said, 'I just touched someone's shoe.' It is one thing to know that your cane has touched something, but something about the boy's perception of the sensation told him, not just that he'd touched something, but that it was a shoe. The brain can build images drawn from any sensory input, and any experience."

In his view, withholding cane training until age seven or above is likely to cause long-term damage to the child's mobility and independence. He calls this "dependency training" because "it fosters dependency at the age when a child should be achieving self direction."

Here he explains his unconventional approach which he calls "perceptual mobility training". He defines this as: "Engaging the whole brain in a developmentally natural manner that activates the **perceptual imaging system** by fostering self directed freedom of discovery. Rather than trying to push a contrived set of skills into the student, we stimulate the imaging system to manifest skills as they are needed. It is not a collection of skills that make perception happen; it is perception that compels skills to develop."

Daniel's techniques for teaching cane perception to toddlers

"Cane perception" refers to a type of cane and style of usage that best activates the imaging system to connect the child to the environment sufficiently to allow graceful, confident movement. This is easily done with a perception-based approach.

Young children who have been dependency trained to rely on guidance or trailing a hand on surfaces may be very reluctant to take their first steps into open space. If the child is afraid, one way to ease the transition is to have the parent hold an adult-sized cane, while the child holds the shaft nearer the tip.

I worked with an 18 month old child who would only crawl when not holding on to someone. However, when she was offered the adult cane, she began taking control of the cane within minutes to gauge surface gradients and the height of steps. Within half an hour, she had wrested the cane from her dad's hand, and was given one more appropriate to her size.

Choosing a cane for a small child

There are as many types of canes and ways to use them as there are body types and ways of moving. These are general guidelines based on over 13 years work with many hundreds of students of every type in 15 countries, and my expertise in perceptual development. I and other instructors adopting this approach have found that it successfully activates the brain's recognition and acceptance of the cane as a natural perceptual extension.

We use what I call a perception cane, which has the following qualities:

- Full length

A certain distance of perception is needed to activate the imaging system. For this the cane should be about as long as the child is tall. Sighted people use their eyes to scan several steps ahead.

A blind child, who has shorter arms and may move more quickly and erratically than an adult, will need a long enough cane to perceive advance information about the way ahead. This allows time for the brain to receive and process all the information it needs to make decisions on moving around.

- Lightweight

The cane is a delicate instrument, like an antenna, and should be as light as possible. In order to be recognised and accepted by the brain as a natural perceptual extension, the cane should not be cumbersome or awkward.

I do not usually recommend roller tips or other heavy tips. A big tip may seem easier, but it can only go so far toward covering up technique that lacks finesse.

- Conductivity

As a perceptual extension, the cane should convey as much information as possible with as much ease as possible. For children I generally recommend rigid, non-folding canes. They are generally lighter, sturdier, and more conductive. They are also less likely to lead to "folded cane syndrome" in which the cane spends more time folded and stowed away than actually in use. I also do not generally recommend foam cane grips, as these tend to insulate the hand from sensations.

Techniques for using a perception cane

These techniques promote natural movement, as well as ease and comfort.

- Handshake grasp

Traditionally, the index finger rests along the flat of the cane grip, and points along the direction of the shaft. While this may make sense to a newly blind person accustomed to pointing, it may not hold the same meaning for someone blind early in life. It is inadvisable for the hand to be maintained in this pointer position for long periods, and hinged side to side at the wrist repeatedly for long periods over many years.

I teach and use a more relaxed grasp that I call the handshake grasp. With arms hanging loosely, the palms naturally face the thighs, fingers curled slightly towards the body. Bring the hand comfortably forward, as if about to shake hands. The cane is slipped into the hand with almost no adjustment needed. The thumb naturally rests on the grip, with the fingers curled gently beneath. The palm turns slightly upward, as much as is comfortable. In this way, the cane gently dances between the fingers, with looseness in the arm, requiring almost no wrist movement. This greatly reduces stress on the wrist, and generally makes for a more comfortable and less awkward cane experience. Shaking hands with the environment through the cane allows for a smooth and friendly relationship with the world.

- Hovering position

We suggest a relaxed arm extension, elbow comfortably bent, with hand hovering towards the centre of the body, approximately in front of the belly. Any adjustments to maintain a relaxed posture and stance are acceptable, as long as the cane adequately covers the body. Many people find they can maintain full coverage with their arm hanging almost at their side. This is how most children do this – a position we call "gunslinger." With time, we gently encourage the hand to hover more toward the centre, but not uncomfortably.

- Feather touch

With the handshake grasp, the thumb or ball of the hand can easily and comfortably apply a gentle downward pressure against the grip, making the cane's tip virtually weightless. This resembles constant contact or glide technique in that the tip maintains slight contact with the ground. However, the tip does not drag or scrape along with its full weight, but glides lightly over the contours of the ground's surface, almost dancing around any rough spots.

These are just some examples of our approach to cane use; there are many other refinements. Over time, the child's technique is refined to bring the cane in step, to maintain a more or less uniform arc, and to manage the cane in a range of situations. But for the most part, given this perception-based foundation, the child's cane technique tends to develop naturally.

- Daniel Kish is a Certified Orientation and Mobility Specialist and Developmental Psychologist, and is President of World Access for the Blind. www.worldaccessfortheblind.org
- In part two, he will discuss the theoretical framework of his techniques.

Thanks to Iain and Sarah Murray for photos of Lucas.

Do you agree with Daniel's ideas? Let us know what you think insightmagazine@rnib.org.uk

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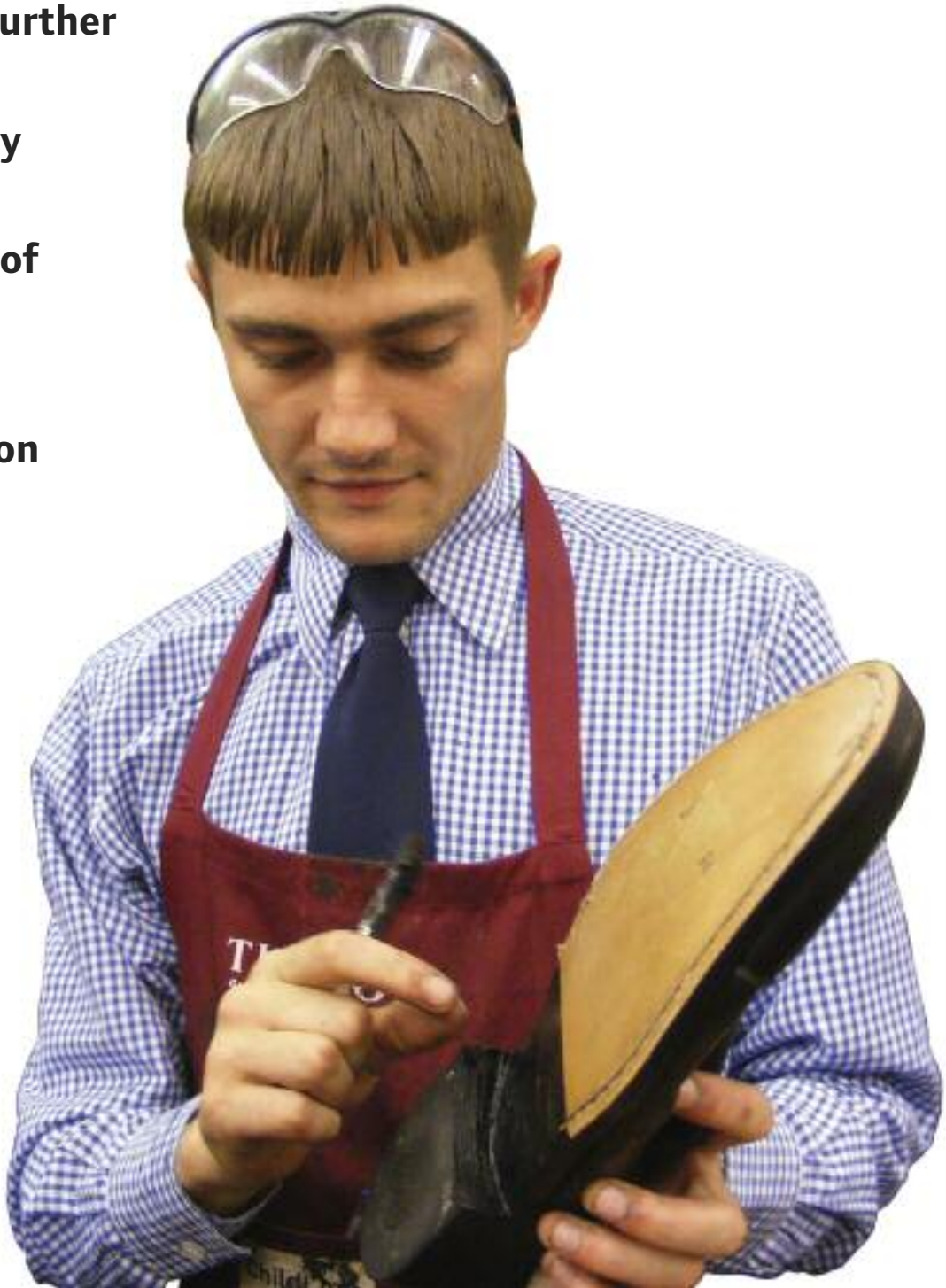
Life beyond school

- **Innovative ICT in further education**
- **Early years mobility debate**
- **Tackling the Duke of Edinburgh's award**

Plus

Curriculum Bitesize on English and drama



Canes mean freedom, part two

You may know Daniel Kish for his work with echolocation, but he also believes strongly in children using long canes. Here he explains the theory behind his approach to introducing canes to children as young as 18 months, in his work at World Access for the Blind. Part one of this article appeared in Insight 28.

Is seeing a right or a privilege?

I am often asked, "What is the right age for a child to learn the cane?" I reply, "When do children naturally start learning to see?" "When they're born," they insist. "But everyone knows how much trouble vision can cause little kids," I argue. "Wouldn't kids be so much easier to manage without all the running around and getting into things they're not ready for? Wouldn't it be better to blindfold kids until they're seven or eight when they can see more responsibly and effectively? Then, we could teach them strategically through a carefully structured system how to see properly, without all the haphazard risks of trial and error?" Somehow, I've not been able to convince anyone.

Of all the thousands of professionals I've presented to, one of the best counter-arguments came from a blind teenager, "but when you finally allow them to see, their brain only knows how to be blind; the part that figures out how to see won't have developed."

So I ask, "What does seeing do for little kids?" Answers stream back, "Helps to learn about their environment and relate to the world", "Helps them socially connect with others", "Teaches about their bodies and how to move", "Gives confidence", "Motivates interaction with the world", and so on.

When I then ask if a blind child must be denied these advantages, I usually get silence with the odd muttered "no". Seeing provides freedom to access the world in a self directed manner. It is learned from birth, and becomes integral in every aspect of child development.

Theoretical framework

For all their wisdom and insight, the fathers of the long cane in the 1950s did not have access to modern knowledge of human perception, neurology, and biomechanics. Consequently, cane designs and techniques are rooted in a now-outdated knowledge of the way the brain and body work. There was little understanding of the perceptual process of adults, let alone children. Yet these perspectives of six decades ago still colour our profession.

Modern theories of sensory integration and neural science indicate that the imaging system of the brain integrates all sensory information to construct dynamic images that represent our experiences to the conscious mind. It is through these images that we all interact with the world, sighted or not. The brain derives

these images by gathering sensory information in two processes of perception: referencing and preview. Referencing tells us "what is around me?" We recognise and discriminate elements around us which allows us to set a physical goal. Preview tells us "How do I get there?" It gives us awareness of elements and their layout in advance of our position, and we use this information to direct our course efficiently, safely, and gracefully.

Why start teaching cane use to very young children?

Developing the imaging system requires all children regularly to engage in activities that are richly experiential and self directed. The clearer the image, the easier it is to understand the environment, and the more control we have over interaction. Sighted children are generally supported naturally to develop the imaging system by encouraging self-directed activities. When vision is disrupted, the brain still tries to construct dynamic images by gathering information through "referencing and preview". To maintain a flow of movement, anticipatory mechanisms expect information to be available at certain distances.

The eyes, for example, generally scan the terrain about two steps ahead. When information is available in a manner that activates the referencing and preview processes, the imaging system can develop intact. For blind children however, this development tends to be hampered by lack of perceptual training, which means they lack access to the information they need to activate these systems. This is exacerbated by activities which over-emphasise safety concerns, and which are overly structured and rigid. This approach may not foster self direction, and therefore may not engage the perceptual system to develop naturally. Therefore, the imaging system fails to develop, generally resulting in an awkward interaction with the environment.

Self-directed activity is critical, because it involves our whole brain – the cognitive, action, and perception systems. Our imaging system traverses all these areas, so it can only be fully developed when they are all activated. Therefore, imposing too much physical and verbal guidance without active involvement of the blind child leads to dependency and restriction, because blind children are forced to rely on the images of others rather than their own.

This is especially true for very young children who are at the time in life when self-concept and movement patterns are forming. Indeed, one of the common effects of withholding perception-based cane training from very young blind children is that when they finally begin using a cane, they may not adopt it as a natural perceptual extension, and don't fully buy into self-direction. They are the kids who leave their canes folded up, are routinely guided, and won't explore.

A perception-based approach to early cane training activates self direction and imaging when the brain is most receptive and responsive.

The perception basis I use differs from a skills basis in that it draws out natural development of the perceptual process from the inside,

rather than pushing in a contrived skill set from the outside. Through this approach, relevant skills tend to emerge naturally with each situation. A sighted child does not usually need formal instruction to run or play ball; these skills emerge with observation, motivation, and application.

Guiding philosophy of World Access for the Blind

In accordance with the International Classification of Function (a classification of the health components of functioning and disability agreed by the World Health Organisation) we do not address impairment in terms of what one cannot do, but rather in terms of style of functioning (how one does what one must). In Susanne Roley's guide to sensory integration, 2001 I define disability as: "A lack of capacity to achieve due to diminished access to physical, psychological, and/or social resources." Thus, anyone can be disabled or highly capable regardless of the extent to which one may be challenged by impairment.

The cane may be regarded, not so much as a probe or shield, but as an integrated extension of perception, much as is touch or vision. It should access information naturally to allow an unconscious flow of movement without much need to think about skills or techniques. We hardly think about using our hands to put on our clothes, or our eyes to walk or catch a ball. Likewise, the cane should integrate seamlessly into the perceptual process. For this to happen, use of the cane should be fostered in much the same way as the use of other senses.

What skills must be taught a sighted child before they can see? None. They just do it, with a little casual support – through a natural process of self directed discovery from birth. Why should it be different for blind children? Thus, we have never found pre-cane skills and devices, such as the hoople (a loop-shaped cane), to be necessary. Although there may be occasions for them, they can actually interfere with development of natural movement. We spend little time on pre-cane skills, and we teach them in parallel with the cane, not before, as we believe that would be out of context.

Now, the cane usage of a toddler may not look pretty, but it quickly becomes effective when properly supported. We do not worry about "bad cane habits" any more than "bad vision habits." We gently support refinement of cane use, just as we would vision, recognising that the perceptual system starts imperfectly for everyone, and develops over time.

Blind toddlers can learn to use a cane to get around safely and efficiently with self direction without need for constant guidance or environmental modifications. I have taught this over and over, and I've coached parents to teach it to their kids. Imposing a traditional approach on young children has met with limited success. These approaches are not native to the nervous system, and are therefore not easily received and integrated. It's a bit like using glasses that are the wrong prescription, or trying to write or eat with our "off" hand. The inherent difficulties have caused many to decide prematurely that early cane training is impossible or inadvisable, so it isn't done. We who do it know it can be done.

Thanks to Hannah Beech for photos of Lydia.

Further reading

www.worldaccessfortheblind.org

See What I'm Saying: The Extraordinary Powers of Our Five Senses by Lawrence D. Rosenblum

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Editorial
Deborah Webber
RNIB,105 Judd Street
London WC1H 9NE

Tel 020 7874 1322
Email: insightmagazine@rnib.org.uk

Designer: Ian Roberts

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Insight

Welcome to Issue 28 of Insight, the leading magazine about children and young people with sight problems.

Budget cuts: the first effects
It's the first issue after the election, and we are starting to find out where the expected cuts are going to fall. Read more about BECTA's demise and the implications for children with sight loss in News on page 4.

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In this issue
The main theme is assessment. Discover how Guide Dogs for the Blind assesses and trains children as young as 12 to prepare them for having a dog, page 10. And the Head of Regulatory Policy at Ofqual explains how inclusion can be built into exams from the start, page 15.

Also in this issue, the inspiring and opinionated Daniel Kish shares his methods for teaching long cane use to toddlers on page 38.

Deborah Webber,
Editor

Cover image: Loughborough student using learner survey (page 18)

Photos on pages 5, 15, 16, 42 and 45 are posed by models.

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Deborah Webber
RNIB,105 Judd Street
London WC1H 9NE

Tel 020 7874 1322
Email: insightmagazine@rnib.org.uk

Designer: Rachel Dean

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Welcome to Issue 29 of Insight, the leading magazine about children and young people with sight problems.

In this issue
Life beyond school can be a frightening prospect. Here we look at some of the options for young people with sight problems in further education and the world of work. An exciting new programme run by RNIB helps people find a career, not just a job, page 19. And at Henshaws College they use an impressive array of ICT gadgets to support the whole curriculum, page 22.

Accessible technology without the price tag: get some great tips on using the internet, page 29. And there's more on early years mobility on pages 8 and 39.

In our free photocopiable resource, Curriculum Bitesize, we look at English and drama. I hope you enjoy this issue and welcome your feedback. Email me at insightmagazine@rnib.org.uk

Deborah Webber,
Editor

In the next issue
Our main features will focus on the theme of the November conference: Visual Impairment and Autism. For conference details email children@rnib.org.uk

Cover image: Lee in his workplace (page 10)

Photos on pages 5, 18, 21 and 45 are posed by models