## Vision Impairment Education: Examining what 'matters' and what 'works' in our field

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### Overview

- Introduction
- Part 1 What matters? Exploring what we value as a field
- Part 2 What works? Nature of evidence and evidence-based practice
- Part 3 Balancing curriculum access through a systems perspective
- Concluding thoughts

### Introduction

- Who we are:
  - VICTAR
  - Department of Disability Inclusion and Special Needs (DISN), School of Education
  - A long record of innovative social and educational research, and offering high quality programmes of study and professional development.
  - Research rated as having "internationally outstanding impact" UK Research Excellence Framework (REF) 2014

https://www.birmingham.ac.uk/research/victar/index.aspx

### Introduction

- What we do:
  - Mandatory Qualification for Teachers of Children and Young People with Vision Impairments (QTVI)
- Research themes and achievements include:
  - International literature reviews of practice
  - Innovative work in sub-Saharan Africa educational support, early childhood development
  - Research into literacy braille, Moon, low vision
  - Employment and preparation for adulthood
  - Educational outcomes and transitions work



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#### Tackling unemployment for blind and partially sighted people Summary findings from a three-year research project (ENABLER)

May 2013 Authors: Alex Saunders, Graeme Douglas and Paul Lynch







#### Introduction

• What we value:

'Through education, through research, and through access to appropriate resources, the barriers to learning and participation that may be experienced by people with vision impairment can be better understood and reduced'.

VICTAR mission

#### PART 1 – What matters?



### Part 1 – What matters?

- What is 'our field' i.e. how might we describe 'vision impairment education'?
  - who (population)
  - distinctive need(s)
  - educational response

# Part 1 – Population

- Childhood vision impairment is a broad and complex term capturing a wide range of reduction in visual function and includes ocular and cerebral conditions.
- International analysis reveals clear links with issues of 'health and wealth' that means that there are significant population differences between countries.
- High income countries: low incidence (e.g. UK approx. 2 per 1000); co-exists with other disabilities including learning disabilities (e.g. Solebo et al., 2017).
- Low income countries: higher incidence, commonly associated with poverty and/or poor public health, or refractive errors which could be corrected by the prescription of spectacles.
- Different causes of vision impairment and associated experiences of functional vision have implications for intervention approaches that are drawn upon.
- Arguably consists of different 'sub-populations' illustrated through *Learning Through Touch* text (MDVI).

# Population –examples

- Child 1 (6 years old) congenitally blind/early braille literacy
- Child 2 (12 years old) late onset; deteriorating condition, learning media assessment (LMA)
- Child 3 (14 years old) low vision/print literacy/access technology
- Case 4 (17 years old) CVI/complex needs/tangible objects

# Part 1 – Distinctive need(s)

- Common analysis revolves around **ACCESS**, and the implications of this:
  - vision coordinates and integrates;
  - impairment in visual function restrict both the quantity and the quality of information available to a child and young person (CYP);
  - reduced opportunities to acquire accurate incidental information;
  - challenges in *accessing* the curriculum.
  - e.g. Lowenfeld (1973): (i) restriction in the range and variety of *experiences*;
     (ii) restriction in the CYP's *mobility*; and (iii) restriction in the CYP's interaction with the *environment*.
- Implications: much literature provides commentary on development:
  - e.g. difficulties with mobility, communication, literacy

## Part 1 – Distinctive need(s)

- Implications: educational response involves challenging and understanding these access needs (e.g. Douglas and McLinden, 2005)
  - The teaching strategies are necessarily sensitive to the modality of the interaction because of the children's impaired vision (i.e. its accessibility);
  - This can be done by either 'enhancing' the visual mode (e.g. enlarged print) or using 'alternative' presentations (e.g. through speech or a tactile code);
  - The use of these strategies may take longer than (or have different qualities to) traditional teaching strategies (most obviously, they may be slower and may not be incidental).

## Part 1 – Educational response

• **Challenge 1:** population is heterogeneous and individual needs are so variable... what therefore are the implications for defining 'what matters' and 'what works'?

#### • Interactive activity:

- note down one thing that you feel matters and we should value as a field
- share with a neighbour then we can share 5 examples as a group

## Feedback: What *matters*?

- Many things drive our answers for example:
  - Addressing the diverse needs and challenges discussed?
  - Making positive differences through effective interventions and support?
  - Preparation for life after school?
  - Personal agency/voice
- But what underpins 'what matters' must be *articulated* as values and theories...

#### 'Social' and 'individual' models of disability

- One might attribute a difficulty to the person (vision, a learning disability, lack of skill or ability)
- One might attribute a difficulty to social structures (quality of the teaching, building, attitudes)
- Or perhaps a bit of both?
  - One might attribute a difficulty to 'lack of skill or ability' (of the person) which had not be taught (by the social structure)
  - So there is an interaction between personal agency and social structures
- Such theory (whether conscious or sub-conscious) is important because it frames:
  - the way we see the world;
  - how we deconstruct a problem;
  - how we design interventions / educational response.

# WHO – International Classification of Functioning, Disability and Health (ICF)



## VI Education: 'Dual access model'



- And this can help define how you design your advice, intervention, school and service policy, recommendations for IEP, transitions planning, etc...
- Helps us define what education is for? What matters
- Helps us recognise tensions and decisions which must be navigated

## **Dual access model**

- Access to learning
  - Inclusive teaching (accessible and modified materials, environmental audits and adjustments, peer and staff awareness training)
- Learning to access
  - Concepts of independence (mobility, living skills, technology), additional curricula ('Expanded Core Curriculum' ECC)



#### Child's age / developmental level (Time)



#### Increased independence; Emphasis upon additional curriculum

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#### **PART 2 – What works?**

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Social Research Number: 39/2019 Publication parts: 12/09/2019 A Rapid Evidence Assessment of the effectiveness of educational interventions to support children and young people with vision impairment	Support for children and young people with vision impairment in educational settings
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#### Literature reviews

- REA Wales (2019) "A Rapid Evidence Assessment of the effectiveness of educational interventions to support children and young people with vision impairment"
- REA framed around the dual access model described.
- Online search: REA Welsh Government Vision Impairment <u>https://gov.wales/sites/default/files/statistics-and-</u> <u>research/2019-09/effectiveness-educational-interventions-</u> <u>support-children-young-people-vision-impairment.pdf</u>

## Part 2 – What Works?

- We consider what the educational response is to the curriculum access needs, i.e. what educational interventions have been found to be effective?
- We draw on a recent review of effective educational interventions to show there is limited 'strong' research evidence to guide teaching practice in many curriculum areas, although the nature of evidence is complex.
- We examine implications of what this means for the field
  - Hint: Professionals should frame their actions and decisions around what matters, draw upon evidence-based practice, and gather their own evidence when needed.

# REA – aims, approach and method

- Rapid Evidence Assessment (REA)
- Funded by the Welsh Government
- Systematically identify and report research studies concerned with the effectiveness of educational interventions to support children and young people with vision impairment.
- Educational interventions defined as 'studies which sought to describe the effect of some kind of educational approach upon a targeted outcome. These studies might be qualitative designs, controlled trials, or single subject designs.'
- Outputs:
  - Full report (pp140)
  - Teacher guide (pp30)

# REA – aims, approach and method

- Aged: up to 25 years; 1981-2017; met strict criteria as an **intervention**
- 10 core educational strategy areas:
  - communication; literacy; low vision training; teaching strategies; access to examinations; mobility and independence; social and emotional functioning; use of technology; teaching support; and inclusion.
  - Massive...

# REA – aims, approach and method

- What did we find? approx. database 15,000 hits
- 54 studies met the criteria
  - 41 moderate to strong quality
  - 13 impressionistic to moderate quality
  - 21 small N case studies / multiple baseline studies
- A further 400 were categories as 'good practice'
- Consensus that these interventions are important, but very little evidence of 'effectiveness'
- Does this evidence capture "what is the breadth, and length, and depth, and height"<sup>1</sup> of what it is to be a QTVI?
- <sup>1</sup> St Paul, Ephesians 3 (c/o Liz Hodges)!

# Nature of evidence

- Strong 'evidence of need'; Weaker 'evidence of effective intervention'
- Challenging carrying out research in low incidence heterogeneous populations
- There is other evidence which is not captured in 'what works' reviews
- Educational practice demonstrates that some interventions broadly work e.g. learners with vision impairment are able to learn to:
  - use assistive technology successfully;
  - learn to touch type;
  - make use of long canes for mobility;
  - learn to read and write braille;
  - use low vision devices to access print;
  - benefit from optimised lighting.

# Nature of evidence

- Children are generally not able to learn to do this without teaching, and without teaching by someone who:
  - 1. recognises that these things are possible;
  - 2. recognises these things are important;
  - 3. has specialist knowledge.
- But lack of research evidence means that interventions lack precision
  - when, to whom, and exactly how these interventions should be implemented
- Suggests teachers must problem solve and gather evidence of progress QTVI as a practitioner-researcher (we expand upon this in the second keynote).
- Analysis of 'what matters' helps navigate missing evidence, or if the evidence presents dilemmas. e.g. print literacy.

# **Print literacy: context**

- Much evidence associated with *need* reading speed, accuracy, comprehension is commonly delayed (print and braille).
- The most researched area in vision impairment education (mainly *reading*).

# **Print literacy: evidence**

- Visual optimisation: adjustment of the printed materials, or the use of optical /digital magnification. Comparison which dominates the evidence.
- Strong evidence: individually prescribed LVDs + training and support will perform as well as use large-print reading materials.
- Young children (as young as 4 years) can use LVDs 'dome' LVDs may be easier; some evidence of low uptake of (optical) LVDs amongst teenagers.
- No investigations into use of mainstream electronic technology as LVDs (e.g. mobile phone screens, tablet screens), but it seems likely this would work.

# **Print literacy: implications**

- Access to learning suggests that text modification / print enlargement is a key 'here and now' strategy. It seems inclusive and avoids children feeling different.
- Learning to access suggests developing technology skills will have good long-term benefits, and instil a sense of agency.
- What matters suggests access to learning is helpful, but learning to access approaches should be emphasised as early as possible.

# PART 3 – Balancing curriculum access through a systems based perspective



# **Part 3** – Balancing curriculum access through a systems based perspective

- Given the above how do we balance equitable curriculum access throughout a given educational pathway?
- What is distinctive about the role of the specialist educator (TVI/QTVI) in supporting this?
- A systems perspective has informed our recent work
   examples of outputs on the next slide.

# Part 3 – Balancing curriculum access: a systems based approach



# Part 3 – Balancing curriculum access: a systems based approach

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• Ireland review (e.g. McLinden and McCracken, 2017)

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672 Views 4 CrossRef citations to date 0 Atmetric	Artides Review of the visiting teacher children with hearing and vis supporting inclusive education Ireland: examining stakehold through an ecological systems Mike McLinden 2 & Wendy McCracken Pages 472-489   Received 12 Feb 2016, Accepted 25 Mar 2016, Published onli © Download citation © https://doi.org/10.1080/08856257.2016.1194570 Full Article © Figures & data @ Reference @ Citations Liab Metric	s service for ual impairment in nal practice in er feedback s theory ne: 16 Jun 2016 @ Oma water s & Reprints & Permissions Get access	<	FINAL REPORT JUNE 2014
G Select Language   ▼ Translator disclaimer	Abstract In line with recent developments in inclusive practice in Irelan needs are increasingly educated in mainstream rather than sp	d, children with sensory	ur Journals	PROFESSOR WENDY MCCRACKEN: UNIVERSITY OF MANCHESTE PROFESSOR MIKE MCLINDEN: UNIVERSITY OF BIRMINGHAM

#### Part 3 – Balancing curriculum access: A systems based approach

- Bioecological Systems Theory (BST) is more than a description of 'context'
- The 'cornerstone' of this theory was defined by Bronfenbrenner as:

'the scientific study of the progressive, mutual accommodation, *throughout the life course*, between an active, growing human and the changing properties of the immediate settings in which the developing person lives, as this process is affected by the relations between these settings, and by the larger contexts in which the settings are embedded.' (Bronfenbrenner, p107, original italics).

• Implications for distinctive role of specialist educators in different national contexts (McLinden, Douglas et al., 2016)

#### Bronfenbrenner: Bioecological Systems Theory (BST)



**Mutual Accommodation** 

*Progressive* Mutual Accommodation

#### Part 3 – Balancing curriculum access: A systems based approach

Suggests a distinctive role for the specialist teacher in facilitating participation in education through:

- promoting accommodations between the *active*, growing learner;
- the changing properties of the immediate settings in which they live (i.e. 'progressive' and 'mutual' accommodation).

#### Child's age / developmental level (Time)



#### Increased independence; Emphasis upon additional curriculum

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# Distinctive role of the QTVI in facilitating curriculum access

- Whilst it can be challenging for specialist teachers to find the balance between these two roles, its importance is highlighted in literature which associates independence skills with positive employment outcomes.
- A bioecological systems theory provides a lens through which to conceptualise and navigate the issues teachers negotiate in facilitating an appropriate curriculum balance.
- The multifaceted role of the specialist teacher can be illustrated in providing support 'within' and 'between' the different 'systems' within this theoretical framework.



### Distinctive role of QTVI through BST

(adapted from McLinden, Douglas et al., 2016)



# Examples of support strategies for facilitating curriculum access provided by specialist teachers – *MICROSYSTEM*

EARLY PRINT READING FOR LEARNER WITH LOW VISION

	'Access to learning' strategies	'Learning to access' strategies
•	Identifies books of appropriate level with modified print, bold and attractive pictures.	<ul> <li>Introduces magnifiers to access print books.</li> <li>Introduces eBooks, and teaches how print presentation can be adjusted.</li> </ul>
•	Designs and produces bespoke modified print materials with modified pictures / associated material.	<ul> <li>Encourages learner to make adjustments to optimise lighting.</li> <li>Teaches touch typing skills (and associated</li> </ul>
•	Encourages early writing with high contrast bold pen. Introduces specialist equipment to create an optimised reading environment (lighting, angled desk) Uses talking books.	<ul> <li>software).</li> <li>Teaches methods for making adjustments to computers to improve accessibility (e.g. change resolution, increase icon size)</li> <li>Teaches speed control for talking books</li> <li>Where appropriate considers alternative</li> </ul>
		routes to literacy (e.g. braille, Moon).

#### Examples of support strategies for facilitating curriculum access provided by specialist teachers – *MESOSYSTEM: TRANSITION PLANNING*

	'Access to learning' strategies		'Learning to access' strategies
•	Establishes connections with teachers and peers in next educational setting to explain learner's needs. Undertakes an environmental audit in a learner's next educational setting. Reviews with habilitation staff the mobility needs to and from home for the next educational setting.	•	Promote opportunities for the learner to meet with staff and peers and talk about his/her needs. Involves the learner in carrying out environmental audit in their next setting and determining recommendations. Facilitates mobility training to enable young person to get to new setting
			independently.



- What matters? Explored what we might value as a field
- What works? Examined the nature of evidence and evidence-based practice
- Considered how we can think about balancing curriculum access through a systems based perspective

'In concluding our analysis we emphasise that in the absence of strong evidence to guide teaching practices, the approaches educators draw upon to facilitate equitable curriculum access for children and young with vision impairments should acknowledge:

- the significance of the practitioners involved in supporting curriculum access;
- acceptance that an analysis of how to design targeted interventions in response to educational need must pay attention to targeted longer-term educational outcomes as well as immediate access needs;
- the economic and cultural context in which the education takes place.'

McLinden, Douglas et al. (2020)

In the second keynote we will explore in further detail the significance of the specialist educators thinking in particular about their roles:

- as researcher-practitioners;
- as agents of change (working within and between systems);
- in the national and cultural contexts in which education takes place.

#### **Educator / QTVI: researcher-practitioner / agent of change**

(1) Practitioner toolkit	(2) Researcher toolkit
<ul> <li>Subject knowledge</li> <li>Approaches and interventions</li> <li>Technical knowledge</li> <li>Pedagogical knowledge, charm</li> </ul>	<ul> <li>Assessment tools</li> <li>Systematic approaches to trying things out</li> <li>Data on progress</li> </ul>
<ul> <li>(3) Part of a collaborative team</li> <li>class teachers, parents, TAs, habilitation workers</li> <li>young people themselves, peers.</li> </ul>	<ul> <li>(4) Theory</li> <li>Fills in the gaps</li> <li>Gives direction and purpose</li> <li>Reminds us 'why'</li> <li>Helps us navigate dilemmas</li> </ul>

## 'I'm an agent of change'





### 'We are all agents of change'



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