

International review of the literature of evidence of best practice models and outcomes in the education of blind and visually impaired children

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Introductions

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Overview

- Nature of the literature in this area
- Method
- Population
- Recommendations
 - Drawing upon the ‘review focus’
 - Illustrated with example studies
- Implications for Ireland
- Questions

Nature of the literature

- Policy documents and expert views – not necessarily research driven
 - e.g. educational placement
- Educational research – the dominance of the concept of ‘access’.
 - Key barrier faced by visually impaired people is ‘access’ to visual information
 - Enhanced or alternative presentations
- Examples:
 - Typical research designs
 - Rare research designs

Literature 'types' and method

- Framework
 - Theme 1: Legislation, policy and service delivery
 - Theme 2: Classroom and the curriculum
 - Theme 3: Additional curriculum needs
- Method
 - Criteria, Stage 1 review, Stage 2 review
- Outcomes:
 - Review focus vrs Review context
 - Recommendations and Implications

Population

- Numbers and nature of the population
- E.g. UK-based study (Keil 2002)
 - 2.4 children per 1000
 - 50% no additional disabilities
 - 20% additional disabilities
 - 30% MDVI
- Heterogeneous, broad spectrum of needs

Illustrations

- Chaz (14). Visual Impairment. He has ocular albinism which reduces his ability to see fine details – particularly an issue for reading from the board and distant objects although he can read normal print with a hand magnifier. He settled well into his local secondary school and seems to be doing as well as would be expected for a boy of his age. Input to class teacher from QTVI once a term to monitor progress.
- Ava (age 9). VI with additional disability. She has congenital cataracts which affects her near and distant vision and has limited mobility due cerebral palsy. Started her formal education in a special school for children with physical difficulties but now attends her local primary school and will transfer to the secondary school next year. School has input from a QTVI once a month who also provides advice on Ava's mobility.

Illustrations

- Lara (5). Multiple disabilities that includes visual Impairment (MDVI). Lara has been diagnosed with cerebral visual impairment which affects her ability to process visual information. She has recently started at a special school for children with profound and multiple disabilities. She is functioning at an early stage of development for her age in all curriculum areas and requires additional support with her daily needs. The class teacher draws on advice from a QTVI (who is based in the school) when planning an appropriate curriculum for Lara. Prior to Lara attending school a visiting QTVI visited the home once a month to provide guidance and support to the family.

Recommendations

- Nine recommendations
- Framed as the 'key features' a service for pupils with a visual impairment should have
- Drawn from the review focus
- Present recommendations illustrated with an example study

Recommendations

- Access to the mainstream curriculum
 1. Assessment of learning needs
 2. Pedagogy and teaching strategies to access the curriculum
 3. Access to public examinations
 4. Print literacy
 5. Braille literacy
- Access to the additional curriculum
 6. Mobility and independence
 7. Social and emotional inclusion
 8. ICT
 9. Low vision training

1 – Assessment of learning needs

- Tobin's (1994) book on assessment – the 'access' problem
- Adapted, e.g. NARA print (2002), Williams (1957)
- 'Work arounds', e.g. BAS
- 'Particular'
 - Literacy, NARA braille
 - Early development, e.g. Oregon Project (1986), Reynell-Zinkin Scales (1979), 'The Developmental Journal' (e.g. Dale and Salt, 2007)
 - MDVI, e.g. Vision for doing (1992)
- 'Particularly relevant', e.g. Tactile SolP

1 – Assessment of learning needs

Given the challenges posed by access to assessments for children with visual impairment professionals involved in assessment should:

- Ensure they are cautious in their use and interpretation of mainstream assessment tools when they are applied to children with visual impairment;
- Where appropriate utilize specialist procedures designed for children with visual impairment (e.g. the assessment of Braille reading).

Consideration should be given to providing training opportunities to ensure that professionals are competent in using and interpreting assessment tools for children with visual impairment.

Consideration should also be given to developing new (or modifying existing) specialist assessment procedures for specific use in Ireland.

2. Pedagogy and teaching strategies

- Douglas and McLinden (2005) literature review of pedagogy: access -> 'enhanced' or 'alternative' presentation. Many case studies in different curriculum areas:
 - e.g. models, tactiles
 - e.g. reading / braille
- Implications for time of teaching
- Limited empirical evaluation

2. Pedagogy and teaching strategies

To ensure appropriate access for children with visual impairment, educational services with responsibility for curriculum design and delivery in Ireland will need to:

- Incorporate pedagogical strategies that are structured around 'alternative' and/or 'enhanced' modalities of presentation and communication;
- Recognise that these adapted methods of teaching may require more time than conventional teaching strategies;
- Ensure that due consideration is given to areas of the 'additional' curriculum that are 'over and above' the mainstream curriculum (e.g. mobility and independence education, Braille tuition, daily living skills etc).

3. Access to public examinations

- Miller et al. (2005) review distinction between “access arrangements” and “universal design”
- EAGCE (2000), State Examinations Commission (2008) demonstrate that Ireland provide access arrangements.
- Nevertheless,
 - NCBI (2007) query the implementation of these arrangements
 - More recent work suggests that there is less options for range of hard copy font sizes and access to electronic versions of exams (compared to other countries, e.g. Scotland)

3. Access to public examinations

The procedures described by the Advisory Group on Reasonable Accommodations (AGRA, 2007) offer a suitable framework for considering the public examination access needs of pupils with sensory needs. It is recommended that reference be made to this framework in reviewing the particular access needs of children with a visual impairment in Ireland to ensure that their needs are met. An exploration of the use of digital question papers may also be helpful (as in Scotland).

4. Print literacy

- Access and reading development:
 - Reading speed, accuracy and comprehension ‘lags’ e.g. Douglas et al (2002)
- Solutions:
 - Establish optimal print size (Bailey et al 2003)
 - LVAs or enlarged print? - Lussenhop and Corn (2002) 8 study review concluded LVAs.
 - Poor take up of LVAs, e.g. Mason (1999).

4. Print literacy

Given the particular challenges children with visual impairment face in accessing print literacy, specialist services with responsibility for supporting their education will need to:

- Ensure that a child's optimal print size is established as part of a functional visual assessment;
- Recognise that while teaching children using large print (i.e. large text presented on paper) is a useful technique for providing optimal print size in some circumstances, priority should be given to teaching children to use Low Vision Aids (LVAs) effectively to optimise their access to print.

5. Braille literacy

- Reading development and teaching
 - Low numbers
 - Lag in reading speed, but not accuracy or comprehension, e.g. Greaney et al (1998)
 - Little evidence on the relative efficacy of teaching approaches, but they are different to print, and they work.
 - MDVI and tactile codes - 1990s onwards, e.g. McCall and McLinden 2007. Moon as a route to literacy – case studies of success

5. Braille literacy

[..] It is recommended therefore, that specialist services with responsibility for supporting children with visual impairment ensure that appropriate expertise is available for undertaking an assessment of a child's literacy needs with appropriate reference to the range of guides that have been developed to assist with this decision making process.

This assessment will need to acknowledge that:

- While Braille may be an appropriate route to literacy for most blind children in some cases children may need to learn through print *and* Braille simultaneously.
- Braille may not be appropriate for some children with very low vision, including those with multiple disabilities and visual impairment (MDVI). Alternative tactile codes, such as Moon, should be considered as possible routes to literacy for some children.
- cont...

5. Braille literacy, cont...

Cont...

- Given the particular demands of learning Braille, appropriate expertise, resources and adaptive technology will need to be available to support children in mainstream settings.
- The co-ordinated central or regional production of Braille materials probably remains essential. [... Implications for infrastructures ...]

6. Mobility and independence

- Developmental delays (e.g. reaching, posture control, self-initiated mobility) – e.g. Dale and Salt, 2007
- Case study work clearly demonstrates successful teaching of M&I skills, e.g. long cane, daily living skills. But few comparative studies.
- Significant research by Pavey et al, 2002 provides examples of good practice linked to the service delivery, but not systematic evaluation.

6. Mobility and independence

Children with visual impairment (particularly severe visual impairment) are often developmentally delayed in relation to motor development. However, there is clear evidence that they can be taught mobility and independence skills given appropriate support. It is recommended that:

- Visually impaired children should be assessed to establish their needs in relation to mobility and independence.
- Services should provide appropriate teaching to visually impaired children in the area of mobility and independence.
- This teaching is likely to require one-to-one work with a mobility teacher in combination with consistent practice and reinforcement from other carers (especially parents in the early years).

7. Social and emotional inclusion

- Early years: lack of opportunities for social interaction
-> systematic instruction.
 - No identified study that demonstrate the effect of these interventions.
- Later years: commonly identified as a priority by VI young people (RNIB, 2001, McBroom, 1997).
 - Few interventions, e.g. Terrell (1981) attitude towards VI pupils before and after training of mainstream pupils showed positive impact.

7. Social and emotional inclusion

There is general acceptance of the importance and benefit of early identification and interventions to encourage social development in young children with visually impairment. While the literature review did not identify a study to demonstrate the efficacy of these interventions categorically, it is recommended that:

- Services should identify children as soon as possible after diagnosis of their visual impairment and offer support and advice to carers in relation to encouraging communication and early development.

Cont...

7. Social and emotional inclusion

Among older children and young people, there is also a broad consensus in the literature that visual impairment can be associated with isolation at school as well as challenges in forming friendships (including mainstream school). It is recommended that:

- Services can usefully provide interventions that facilitate the personal development of the visually impaired child (e.g. assertiveness training and communication skills), as well as the training of sighted peers (e.g. to improve sighted children's attitudes towards visually impaired children)

While visually impaired children can benefit from such support at various points in their school career, it might be targeted at times when children are particularly vulnerable (including when vision is deteriorating, at transition between schools, and in later teenage years).

8. Information and Communication Technology

- Access technology case study, e.g. Evans and Douglas (2008).
 - Screen reading software gives access to otherwise inaccessible material
 - But, comparative study demonstrated that access was slower for blind users
- Educational technology case study, e.g. Bozic et al (1995).
 - Children with language delay and low vision
 - Switch-based activities with appropriate computer-based ‘rewards’ successfully engaged children in communication activities

8. Information and Communications Technology

‘Access technology’ (e.g. screen magnifiers and screen readers) is an important tool for visually impaired children in accessing the curriculum. Beyond general access, technology offers potential for teaching particular curriculum areas (e.g. visual training, Braille) and has particular benefits when working with children with MDVI. It is recommended therefore that:

- Visually impaired children should be given appropriate training in order to make effective use of access technology (e.g. training in touch-typing, training in the use of particular access software).
- Educators should also draw upon relevant technology to support their teaching of particular curriculum areas to visually impaired children.

9. Low Vision Training

- Early training of visual skills show mixed / inconclusive results – e.g. Vervloed et al. (2006) literature review, cf. Sonksen et al. (1991) RCT.
- Low vision aids. Positive results in terms of their use (e.g. Lussenhop and Corn, 2002), case studies of other equipment (e.g. CCTV) and with a range of groups (MDVI e.g. McLinden et al, 2002). But:
 - Require multi-disciplinary teams
 - Low take up by children

9. Low Vision Training

The majority of visually impaired children have some remaining or 'residual' vision. It is recommended that:

- Specialist services should carry out regular functional visual assessments of visually impaired children to enable professionals to design appropriate educational interventions.
- Such assessments should draw upon the views, expertise and assessments of a broad range of stakeholders including optometrists, ophthalmologists, teachers and parents.
- When low vision aids have been prescribed, appropriate training should be provided for staff and pupils to reduce their low take-up in educational settings.

Review context and implications for Ireland

- Expert view literature
 - Combining:
 - Review context
 - Irish context
 - Recommendations
- ⇒ 6 Implications for Ireland

Implication 1 - Educational services for visually impaired children – teaching and curriculum requirements

- Designing and developing service provision
 - Distinction between the ‘mainstream’ and ‘additional’ curriculum.
 - Develop service standards

- Reviewing service delivery

Implication 2 - Inter-agency working and systems

- Effective links and referral routes between health and education services for identifying and supporting children with visual impairment are required
- It would be helpful to review areas of provision that particularly demand inter-disciplinary communication. These areas include:
 - the provision of low vision services;
 - diagnosis, planning and delivery of early intervention programmes for visually impaired children and babies;
 - mobility and independence education.

Implication 3 - Educational infrastructure

- Access to the curriculum requires the availability of additional materials and equipment, e.g. LVAs, braille, ICT, mobility:
 - Providers include NCTE, St Joseph's, NCBI
 - The infrastructure in place could be usefully reviewed

Implication 4 - The role of special schools / specialist centres

- Literature suggests that special schools have a role in supporting effective inclusion in mainstream schools.
 - e.g. teacher training, intensive placements, the supply of specialist resources, assessment of preschool children.
- St Joseph's Centre for the Visually Impaired already has many of these roles which could be built upon.

Implication 5 – Professional training

- The review suggests that teaching of children with visual impairments requires input from professionals with appropriate training.
 - The development of standards for teachers to work with children with a visual impairment in Ireland.
 - Review training routes for specialist advisory teachers, Special Needs Assistants, and potentially short courses particularly in the area of braille teaching and mobility and independence education.

Implication 6 - Identification of visually impaired children

- Numbers of children with VI being supported in the education system in Ireland seem low (based upon UK-based prevalence estimates): 780 vrs 1192.
 - E.g. children with MDVI may not be known to the services
 - A formal analysis is required
- The established method of profiling childhood visual impairment in Scotland might be usefully considered in Ireland.

Thank you and questions