

Vision for Children in the Developing World A New Way Forward



Vision testing in Eritrea (Photograph courtesy of Daphne Glover, Baney Media)

Report from a conference of international
child vision experts, development specialists and
low-income country government representatives held
at Wolfson College, University of Oxford,
25th-27th July, 2007

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A New Way Forward

The Situation

It is estimated that at least 180 million school age children in the developing world would benefit from vision correction and yet the majority of these children do not have access to an affordable eye examination or a pair of eyeglasses. This has real consequences for child development: uncorrected vision in children can lead to poor academic performance, absenteeism and dropout from school, and poorer employment prospects. Expanding investments in global education initiatives are leading to record numbers of school enrolments. Thus, the prevalence of visual impairment is increasing. Uncorrected vision in children is likely to reduce the benefit of these investments and as such, is a significant hindrance to the attainment of 'Education for All' (EFA) and the education-related 'Millennium Development Goals' (MDGs).

Thus, the following question demands an answer:

How can vision correction be delivered to children in developing countries in an affordable, cost-effective, systematised and sustainable way?

In July 2007, leading international child vision experts, development specialists and low-income government representatives met at the University of Oxford to discuss this critical question and draw on their expert knowledge and experience to identify the barriers to children's vision impairment and consider the methods available for delivering vision correction, especially in light of new, low-cost lens technology.

Three Barriers

In developing countries three barriers exist to children's vision correction:

- **Insufficient number of eye care professionals and equipment:** There is a severe shortage of both eye care professionals and equipment.
- **Inadequate supply and delivery of eyeglasses:** The supply of materials is often limited and the coordination of eye care professionals is often inefficient.
- **Vision correction is considered a low priority:** Poor vision is a chronic condition. Where other issues, such as food shortages or malaria pose more immediate problems, provision of eyeglasses is likely to be accorded low priority.

A Potential Solution

New, innovative, low-cost lens technology offers a potential solution to these barriers by providing a method for users to determine their own spectacle power and to dispense spectacles without the need for expensive equipment or eye-care specialists. Adjustable lenses are set in a frame whereby the user can vary the power of each lens to their own requirement: a process known as 'self-refraction'. Once clear vision is established, the power of the lenses is fixed and the wearer is left with a pair of functional eyeglasses for everyday use. Operationally, there is great potential for mass distribution of these glasses through existing school health and nutrition programmes of ministries of education.



Adaptive Eyewear has been successfully trialled in adults, worn here by a gentleman from KwaZulu Natal, South Africa, before the adjusters have been removed. (Photograph courtesy of Saatchi & Saatchi)

Testing the Technology

Adjustable lens technology is proven for use with adults, but can it be used among children whose eyes might respond differently to the technology? **The experts unanimously agreed that this was a hypothesis worth testing.** However, controlled trials of the new technology would be needed to assess whether children can accurately determine their prescription using adjustable eyeglasses under the supervision of an eye specialist. If successful, the next step would be to establish if children can accurately self-refract under the supervision of trained teachers, which would form the basis for operationalising the use of adjustable lenses through the education sector. A multi-site trial would accommodate the potential for variation cross-culturally, with trials to be conducted in China, South Africa, UK and the USA, and coordinated through the Centre for Vision for the Developing World, University of Oxford. Furthermore, the technology would be assessed in terms of cost, coverage and long term usage of spectacles among beneficiaries, all necessary precursors to implementing large scale, systematic and sustainable interventions.

A New Way Forward

The conference resolutions have been embodied in 'The Declaration of the Oxford 2007 International Conference on Vision for Children in the Developing World' (see box below) and pave the way for immediate action to redress the problem of uncorrected vision in children in the developing world. A core group of participants have taken the resolutions of the conference forward, establishing a global research team, to oversee a 'Child Self-Refraction Study', due to start mid-2008. The results of the study will inform the development of plans to operationalise scaled delivery of eyeglasses in countries throughout the developing world providing a new way forward to meeting the challenges of 'Education for All' and the 'Millennium Development Goals'.



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The Declaration of the Oxford 2007 International Conference on Vision for Children in the Developing World

At least 10% of school-aged children in the developing world could benefit from vision correction. This proportion is likely to increase as additional resources are directed towards education. Uncorrected refractive error can have profound consequences for children in school and is likely to reduce the benefit from increased investment in education. As such it is a significant hindrance to the attainment of the 'Millennium Development Goals' and 'Education for All'.

At an international conference of experts on Vision for Children in the Developing World, held at Oxford University in July 2007, new and existing data were presented and discussed in relation to the prevalence of refractive error in children; efficacy of techniques for screening, determining the need and delivering correction for refractive error; analysis and evaluation of such interventions; and possible models for the large scale provision of eyeglasses to school-aged children.

The conference concluded that the application of techniques and technology now available needs to be scaled up to address uncorrected refractive error in children, and that new approaches have the potential to increase dramatically the coverage of programmes in resource-poor settings. We urge world leaders to support such efforts and to provide the necessary resources.

For details on the proceedings of the 'Vision for Children in the Developing World' conference and a list of participants, please visit www.schoolsandhealth.org or email partnership02@imperial.ac.uk



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