



= 3 months of salary in Africa



→ 500 million people with troubled vision worldwide



0 dioptre lens



- dioptre lens



+ dioptre lens



### The principle of Alvarez

Refractive strength of the lens can be adjusted by shifting the two parts of the lenses

# Universal spectacles



Rianne Blom

Worldwide, more than a half million people have poor eyesight due to eye defects. Most of those people live in low-income countries. Through poor eyesight it is difficult to work or to attend school. *Vision 2020*, a programme of the WHO aims to ban most visual handicaps before 2020. One of the initiatives of *Vision 2020* is *Universal Spectacles (U-Specs)*.

A pair of glasses could be the solution to bad eyesight. However, a pair of glasses with the correct strength has to be corrected often. This costs a lot of money. *U-Specs* could be an answer. Remarkable about those glasses is that the refractive power of the spectacles can be varied to the preferred level. The user can change the dioptric range from -6 to +3 diopters, without interference of a (medical) professional. Through the use of mass production and modern techniques the price of the *U-Specs* is only a few euros.

The idea for the *U-specs* was initiated by the VU medical centre (VUmc) in Amsterdam. The principle of the glasses is based on the invention by Nobel Prize winner L.W. Alvarez. He discovered that the refractive strength of the lens can be adjusted by

shifting the two parts of the lenses.

The goal of universal spectacles is to help children with poor vision in developing countries to have cheap spectacles with adjustable refractive power. The glasses will assist the children to participate better in the educational programme.

The biggest challenge of the programme is the distribution of the *U-specs*. In 2005, the VUmc and the D.O.B. foundation have joined their forces to make the glasses suitable for cheap mass production and local distribution. The D.O.B. foundation invests in and supports social entrepreneurs. In 2008, the first pilots started at several places in India. The results are promising. Optically, the vision of the *U-specs* was as good as normal glasses of the same strength. Notable, also the color of the frame is important - Indians strongly prefer a dark frame.

### Further reading

- [www.u-specs.nl](http://www.u-specs.nl)
- [www.dobfoundation.org](http://www.dobfoundation.org)
- [www.vision2020.org](http://www.vision2020.org)