

LOW VISION

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Low Vision

- How do we know when vision is working well?

Definitions

- Blindness
- Functional Blindness
- Legal Blindness
- Low Vision
- Partially Sighted
- Visual Impairment

Definitions

- Other terms
 - Residual Vision
 - Visual Loss
 - Remaining Vision

Definitions

- What is blindness?
- What do blind people see?
- Is there a continuum of visual abilities?
- Is blindness an impairment, a disability, nad/or a handicap?

Types of Low Vision



- Low visual acuity
 - With clear ocular media
 - With cloudy ocular media or cornea
 - With central scotoma
 - Without scotoma

Measuring Visual Acuity

- Snellen Chart
- Low Vision Charts
- Objects at various distances
- Rolling balls
- Preferential Looking Test

Measuring Visual Acuity

- Use of Measures
 - Meaning of measures
 - Interpretation of measures
 - Measures for eligibility for services

Types of Low Vision



- Visual field restrictions
 - Central
 - Peripheral
 - Multiple scotomas
 - Hemianopsia
 - Retinal tears
 - Lack of regard

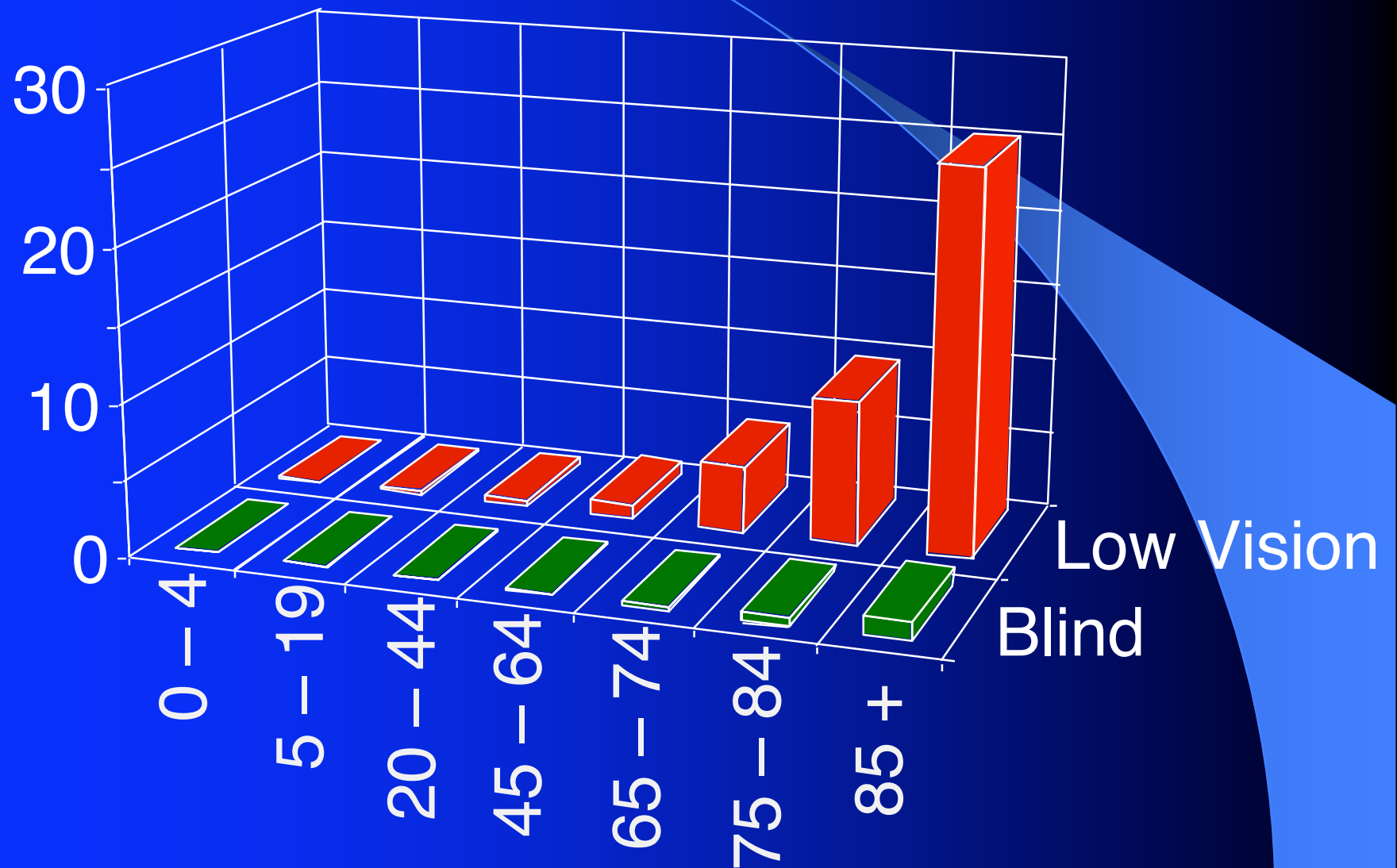
Types of Low Vision

- Low Contrast Sensitivity
- Illumination
 - Photophobia
 - Need for more light
 - Glare
- Eye Movement Disorders, e.g., Nystagmus
- Cortical Visual Impairments

Types of Low Vision

- Combined Types
- Other (alone do not cause low vision)
 - Monocular vision
 - Color deficiencies
 - Strabismus
 - Visual perceptual disorders

PERCENTAGE OF U.S. POPULATION BY AGE CATEGORY



Clinical Measures



- Low Vision Acuity Charts
- Low Vision Color Tests
- Low Vision Contrast Sensitivity Charts

Functional Measures



- Functional Vision Assessment
- Learning Media Assessment
- Orientation and Mobility Assessment

Expectations for Visual Functioning

- Meet John:
 - O.U. 20/200
 - Age 21
 - Oculocutaneous albinism
 - Average IQ
 - Efficient user of optical devices

Expectations for Visual Functioning

- How many of you believe John is able to:
 - Read a paperback novel (Star Trek)?
 - Read a street sign from across the street?
 - Read for an hour at a time?
 - Read a menu at a fast food restaurant?
 - Drive a car?

Myths of Low Vision

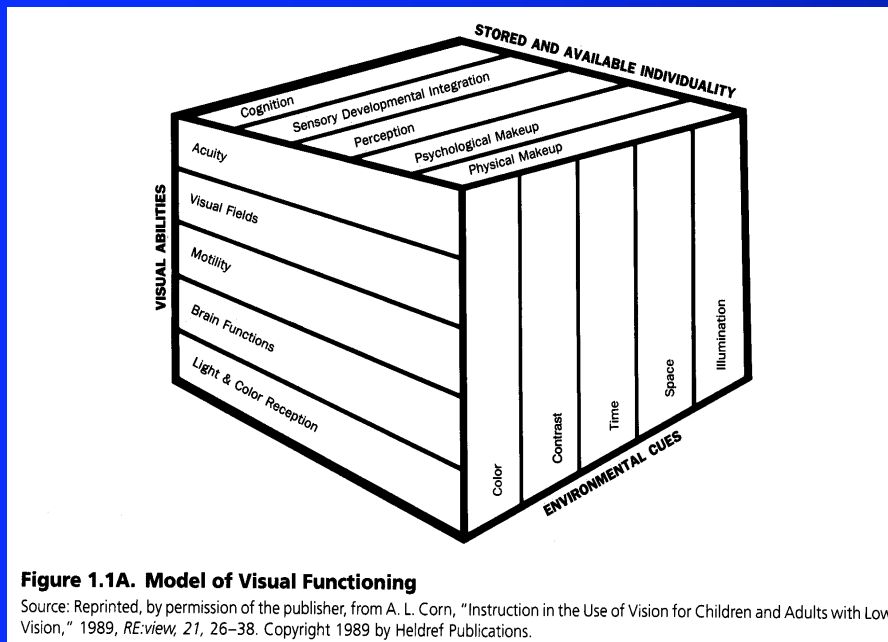
- People with low vision only see a few feet in front of them.
- People with low vision will harm their eyes if they are used.
- People with low vision see blurry images
- All people with low vision need large print.

Myths of Low Vision

- People with low vision are old people.
- People with low vision should learn how to function as blind people.
- People with low vision are “faking it”
- People with low vision should only learn to use their vision.

Models of Visual Functioning

- Corn (1983)
 - Model of Visual Functioning
 - Congenital
 - Advenitious



Models of Visual Functioning

- Visual Abilities Domain

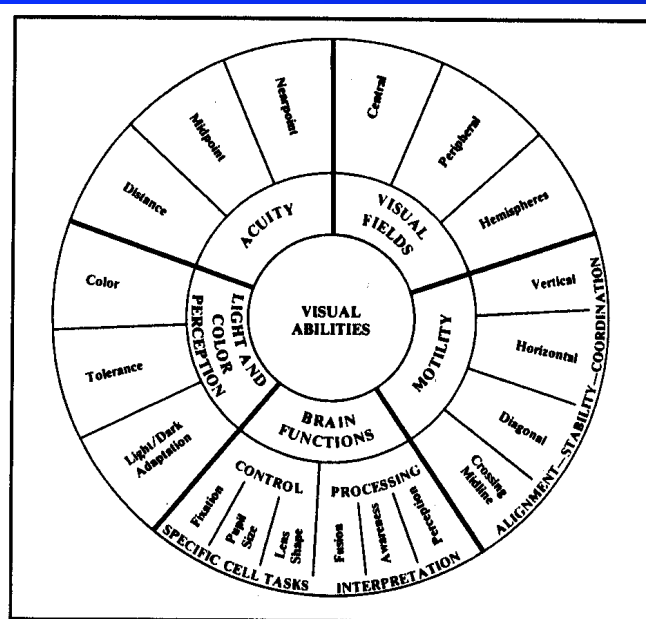


Figure 1.1B. Components of the Visual Abilities Dimension

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Models of Visual Functioning

- Environmental Cues Domain

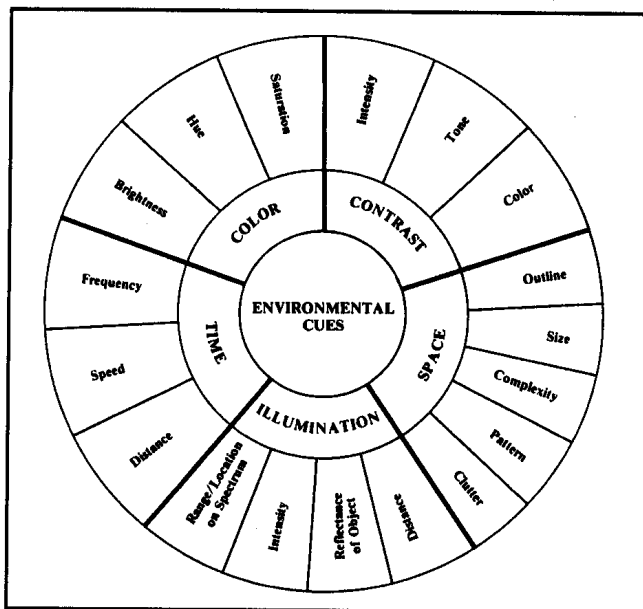


Figure 1.1C. Components of the Environmental Cues Dimension

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Models of Visual Functioning

- Stored and Available Individuality Domain

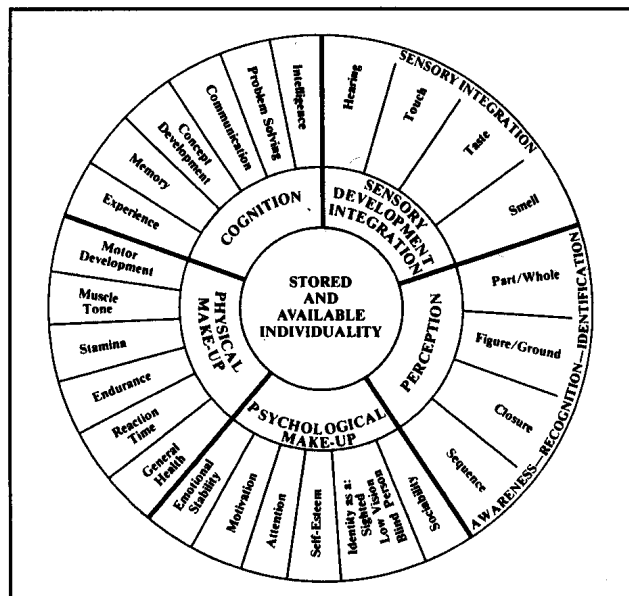


Figure 1.1D. Components of the Stored and Available Individuality Dimension

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Models of Visual Functioning

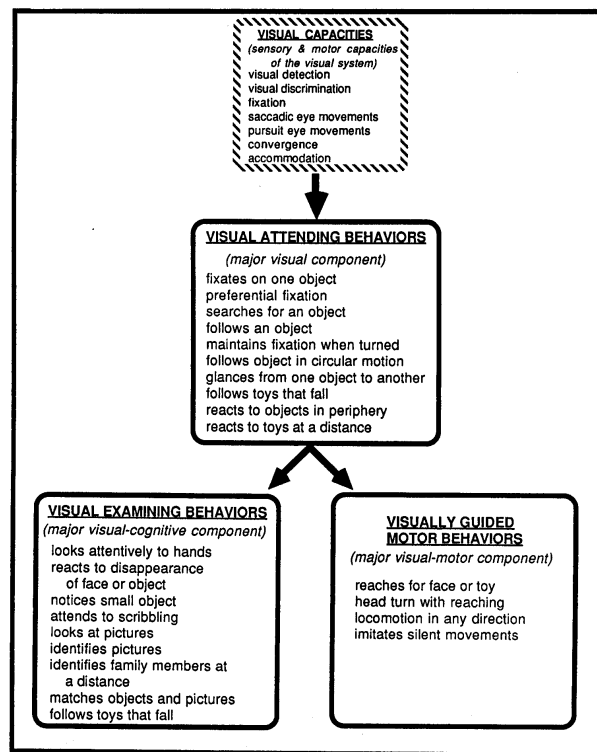


Figure 1.2A. Visual Behaviors of Visually Impaired Children from Birth to Age 2

Source: From A. Hall and I. L. Bailey, "A Model for Training Vision Functioning," 1989, *Journal of Visual Impairment & Blindness*, 83, pp. 390-396. Copyright 1989 by the American Foundation for the Blind.

- Hall and Bailey, 1989
 - Visual Behaviors: A Model for Training Visual Functioning
 - VISUAL CAPACITIES
 - VISUAL ATTENDING
 - VISUAL EXAMINING BEHAVIORS
 - VISUAL GUIDING BHEAVIORS

Interventions

- Optical Devices
- Non Optical Devices
- Environmental Modifications
- Techniques

Interventions

- Low Visual Acuity – expand retinal image
 - Magnifiers Telescopes
 - Monoculars Bionic Systems
 - Closed Circuit TV Software
 - Reduce distance
- Visual Fields
 - Central – magnification, eccentric fixation
 - Peripheral – prisms, reversed telescopes, eye scanning

Interventions

- Contrast Sensitivity
 - Filters
- Illumination
 - More illumination
 - Reduced illumination – non optical devices, therapeutic contact lenses
- Non Visual Approaches
 - Combined with visual
 - Non visual learning – tactual, auditory

Major Research Questions

- What differences exist in the clinical measures and functional abilities of normal and low vision populations?
 - Are there differences in how children with and without low vision use their peripheral vision?
 - Are there differences in reading fluency of adults of with congenital and adventitious low vision who have similar clinical measures?

Major Research Questions

- What relationships exist between the pathology, clinical measures and functional abilities?
 - At what stage of diabetic retinopathy do functional limitations begin to impact mobility?
 - Are there differences in the patterns of visual attention for students with Stargardt's Disease and those with Leber's Disease?

Major Research Questions

- What interventions are effective in increasing functional visual abilities?
 - What impact does the use of individually prescribed optical devices have on the reading fluency of students with low vision?
 - Does training in the use of peripheral vision result in fewer impact incidents of adults with acquired low visual acuity?
 - Does teaching eccentric fixation improve reading rates of those with acquired central scotomas?

Major Research Questions

- In what ways does low vision impact children's and adults' lifestyles?
 - What is the impact of oculocutaneous albinism on African-American teenagers with albinism?
 - How do the employment rates and earnings of young adults with low vision 3-5 years out of school compare with those of students with other disabilities and with those without disabilities?

Multidisciplinary Approaches

- Ophthalmologist
- Optometrist
- Clinical low vision specialist
- Teacher of students with visual impairments
- Orientation and mobility instructor
- Rehabilitation teacher

Providing Access to the Visual Environment



- Project PAVE
 - Multidisciplinary
 - Direct Service
 - Consultation
 - Continuing Education
 - Research

Project PAVE



- Clinical low vision evaluations

Project PAVE



- Instruction in visual efficiency

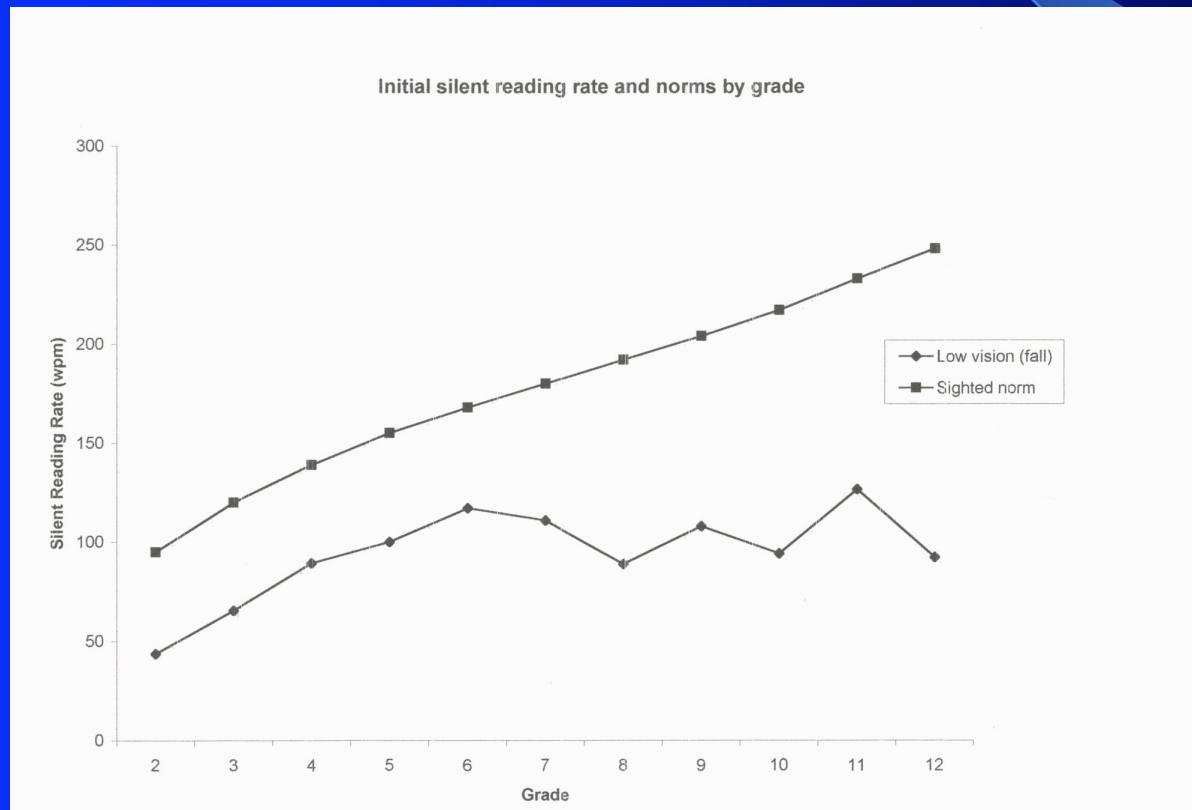
Project PAVE



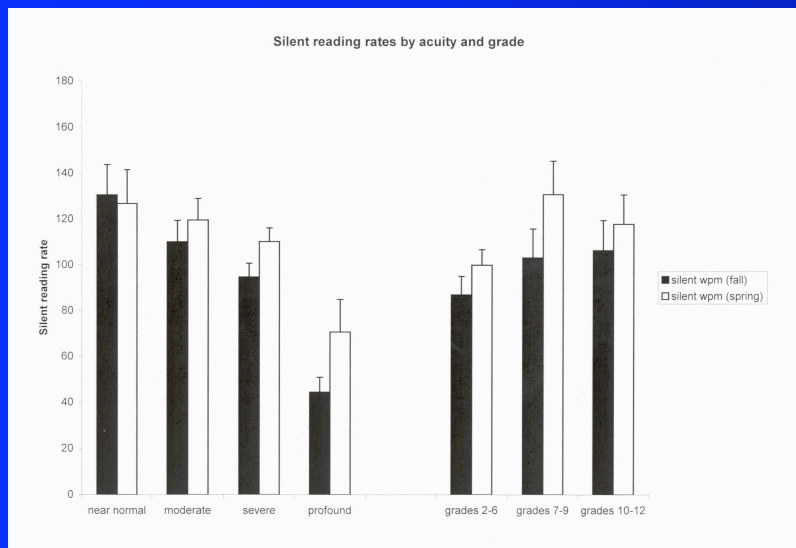
- Instruction in the use of optical devices

Project PAVE

- Research



Project PAVE



- Research

Project PAVE



- Psychosocial

Resources

- Local Schools
- Special Schools for Students with Visual Impairments
- State Agencies for the Blind
- American Foundation for the Blind
- Distributors of adaptive devices
- Technology companies

Resources

- Professional Organizations
 - International Low Vision Research and Rehabilitation (ISLRR)
 - Association for Education and Rehabilitation of the Blind and Visually Impaired
 - Lighthouse International
 - American Foundation for the Blind

Resources

- Consumer Organizations – Impairment Specific
 - Macula Diseases International
 - National Organization for Albinism and Hypopigmentation
 - American Nystagmus Network
 - Achromotopsia Network
 - RP Fighting Blindness

Resources

- Consumer Organizations – Low Vision and Blindness – Different Philosophies
 - National Council of the Blind
 - National Federation of the Blind

Resources

- Special Interest Groups
 - American Academy of Ophthalmology
 - American Academy of Optometry
- Journals
 - Journal of Visual Impairment and Blindness
 - Visual Impairment Research
 - RE:view

Conclusion

- “You may be as enthusiastic as you please on my behalf in endorsing the telescopic lenses. I never knew there was so much in the world to see.”
 - Ann Sullivan Macy, 1924