

Vision Screening in the Learning Disability  
Classroom

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## Introduction

Is it possible for an optometrist to work in the classroom with the learning disability teacher in order to better meet the needs of the students? This is one question that was addressed in a study undertaken last fall.

It has been shown that visual impairments can hinder learning. This is especially true when looking at the effects that visual problems have on reading ability. Therefore it is important that these problems be identified and corrected as early as possible. This can be accomplished by visual screening in the learning disability classroom.

First we should define what we mean when we speak of learning disability. Learning disability refers to children who:

- 1) Have a disorder or deficiency in essential learning processes, e. g. perception, integration and expression.
- 2) Demonstrate a difference between expected and actual school performance - by I Q test.
- 3) Manifest an imperfect ability to either listen, think speak, write, spell, read or perform mathematically.
- 4) Require special educational remedial procedures either part time or full time.<sup>1</sup>

From an optometric point of view, visual function should be looked at in terms of the specific task requirements of learning indicating areas of visual dysfunction that can and do impinge upon areas of academic performance. Optometrists are concerned with visual function based upon a broad analysis of vision and seek, at the clinical level, to relate their measurements to school performance.<sup>2</sup>

Vision has been shown to play a significant role in learning and in

particular, reading. Thus it is very important that the visual problems of these children be identified and that the optometrist appropriately guide the direction of care for the vision developmental aspects of underachieving children.

The North Carolina Study arrived at the following conclusions regarding visual problems and reading difficulties.<sup>3</sup>

There was an increase in myopia between the fifth and eighth grades and was related to good grades and good reading. Hyperopic pupils with distinct phorias tended to show retardation in reading. Esophoria seemed negatively related to school success.

There was a marked increase in the number of fusional difficulties during the high school period. This defect showed little relationship to pupil performances on brief reading tests, but on longer tests these poor fusion cases showed slower rates and poorer comprehension. Cases with no fusion at all (suppressing vision in one eye) showed normal speed and comprehension.

Hyperopia appears to be associated with less than normal progress and to be more frequent among disabled readers.

Significant differences in phorias have been reported between groups of good and poor readers.

There is a hierarchical relationship amongst the various senses which should evolve in the direction of visual dominance.<sup>4</sup> Some children with more severe reading difficulties display evidence of interference with either the initial intersensory integration or the satisfactory emergence of hierarchical visual dominance.<sup>5</sup>

#### Purpose and Goals

A vision screening was undertaken in Ms. Sydney Lamb's learning disability classroom at Walled Lake Central High School, Walled Lake, Mi.

The students ranged in age from 15 - 21.

The goals of this program were to:

- 1) Collect and provide information on the visual status of the students placed in a high school learning disability classroom.
- 2) Have an optometrist and a learning disability teacher work together in the classroom in order to better meet the student's needs. In this way they could both contribute the strengths from their professions and hopefully learn from each other.

### Procedures

#### Vision Screening

The vision screening was administered by a fourth year optometry student from Ferris State College, College of Optometry under the supervision of licensed O.D. faculty.

The screening that was administered was based on the Modified Clinical Technique. The following are the tests that were given to each student.<sup>6</sup>

- 1) Visual Acuity: Distance and Near.
- 2) Refractive Error: Static retinoscopy and lenses were used to measure this.
- 3) Ocular Health: The external and internal health of the eye were examined for any pathology using a direct ophthalmoscope.
- 4) Binocular Coordination was measured at distance and near by a complete cover test.
- 5) Pursuits, fixations and saccades were measured using the K D fixation test and pencil eye rotations and saccades.
- 6) Dynamic Retinoscopy was used to measure the lag of accommodation.

The following criteria were used for screening failure and referral:

- 1) Visual acuity - 20/40 or less

2) Field of vision



2) Refractive Error

Hyperopia + 1.00 D

Myopia - 0.50 D

Astigmatism  $\pm$  1.00 D

Anisometropia  $\pm$  1.00D

3) Binocular Coordination

Any strabismus

	Distance	Near
Esophoria	5 P. D.	6 P.D.
Exophoria	5 P.D.	10 P.D.
Hyperphoria	2 P.D.	2 P.D.

4) Ocular Health

Any ocular abnormality noted externally or internally.

Results

A vision screening utilizing the Modified Clinical Technique was administered to thirteen special education students and to thirty one general education students.

Of the thirteen special education students, ten students (77%) failed or demonstrated below acceptable limits in one or more of the areas.

Of the thirty one general education students, twenty students (65%) failed the screening and were referred for a complete eye examination.

Discussion and Recommendations

These results indicate a significant number of students in both the special education and general education population who are in need of further visual examinations.

Although many studies in the past have failed to show any relationship between school achievement and visual anomalies, this was probably due,

partly, at least, to the criteria of achievement and of visual defects.<sup>7</sup>

It is strongly recommended that a complete visual examination be given to every child prior to entering a special education program and that a report be included in the child's record. These children should also be screened a minimum of once every two years once they are in the program. This should also be the case for all general education students.

Perhaps the best result to come out of this project, was the communication between the two professions of optometry and the special education teacher. It is hoped that this project was also of some benefit to the students. I believe that only through team diagnosis involving education, optometry, ophthalmology, pediatrics, neurology, psychology, psychiatry, internal medicine and audiology will we be able to realistically help the underachiever.<sup>8</sup>

### Summary of Screening Results

Of the thirteen special education students screened, ten (77%) failed and were referred for complete visual examinations.

Fifty percent (50%) were found to have refractive errors greater than acceptable limits.

Forty percent (40%) failed the screening due to binocular coordination problems with half of these being due to the presence of strabismus.

Of the thirty one students from the general education population, twenty students (65%) failed the screening. Of these students, the majority failed due to unacceptable refractive errors (90%). Of these students, fifty five percent (55%) exhibited hyperopia and hyperopic astigmatism. Many of these students complained of reading and near point difficulties.

None of the students were found to have ocular health problems that needed to be referred.

## References

- 1) Notes from Dr. Richman's Developmental class, 1979
- 2) Flax, Nathan: "Vision and learning Disabilities: Optometry's Contribution" Vision and Learning Disability, 1976
- 3) Spache, George: The Role of Visual Defects in Reading Disabilities, "Investigating the Issues of Reading Disabilities"; Am. Journal of Orthopsychiatry, April 10, 1940
- 4) Birch, Herbert G.: "dyslexia and the Maturation of Visual Function in Reading Disability," Progress and Research Needs in Dyslexia, edited by John Money, The John Hopkins Press, 161-169
- 5) Flax, Nathan: Op. Cit.
- 6) Richman, Jack E.: "Vision Screening of Selected Exceptional Children in Mecosta - Osceola Intermediate School District," The Michigan Optometrist, December 1979
- 7) Hirsch, Monroe J.; "The Relationship of School Achievement and Visual Anomalies," JAAO, 1955
- 8) Wold, Robert M.: "Vision and Learning: The Great Puzzle," Optometric Weekly, March 7, 1971