



## Recuperating Capabilities of students after Refractive Error correction

### KEYWORDS

Refractive Error, Visual acuity, Reading ability, Control group and Experimental group

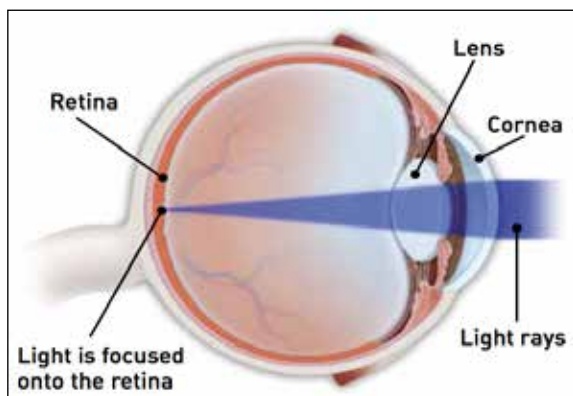
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**ABSTRACT** A refractive error is an error in the focusing of light by the eye and a frequent reason for reduced visual acuity. By wearing corrective glasses or contact lenses at the earliest possible, the problem can be rectified. The aim of this study is to investigate if any improvement in reading abilities of students (with refractive error) after their vision correction. The investigator has selected VII standard students from two schools in Maraimalai Nagar, Kanchipuram District. Out of 126 students 49 of them are identified as vision defective (all are Myopic only) with the help of Optometrist. From 49 students 46 of them were taken for this study, since the remaining 3 of them are already wearing eye glasses. Pre-test was conducted on reading ability of students. Since it is a two group design, one control group consists of 20 students and one experimental group consists of 26 students. Only the experimental group students were offered eye glasses. After a period of seven months, post-test was conducted on reading ability of both control and experimental group students. The judgment of this investigation is, a remarkable improvement has been observed in the post-test of experimental group students.

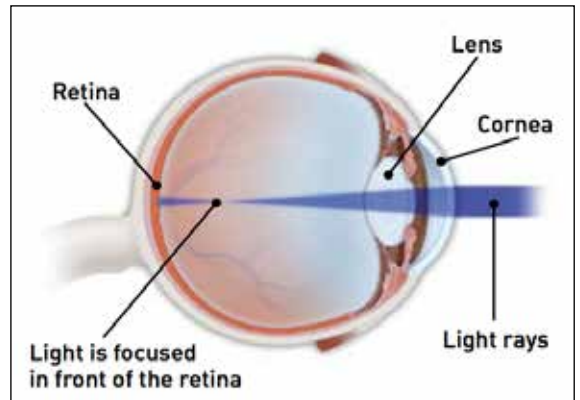
### Introduction

Our child's vision is essential to his success in school. When his vision suffers, chances are his schoolwork does too. Vision problems are common among school-age kids. According to Prevent Blindness America, one in four school-age children have vision problems that, if left untreated, can affect learning ability, personality and adjustment in school. School-age children also spend a lot of time in recreational activities that require good vision. After-school team sports or playing in the backyard aren't as fun if you can't see well. Low vision is characterized by irreversible visual loss and a reduced ability to perform many daily activities, such as recognizing people in the street, reading blackboards, writing at the same speed as peers, and playing with friends. In 1992, the World Health Organization (WHO) published a working definition of low vision: "A person with low vision is one who has impairment of visual functioning even after treatment and/or standard refractive correction, and has a visual acuity of less than 6/18 to light perception, or a visual field of less than 10 degrees from the point of fixation, but who uses, or is potentially able to use, vision for the planning and/or execution of a task for which vision is essential."



Normal Refraction

Source: occhicago.com



Myopia

Source: occhicago.com

### Definition

A refractive error is an error in the focusing of light by the eye and a frequent reason for reduced visual acuity (en.wikipedia.org/wiki/Refractive\_error)

### Objectives of the study

- To explore the difference if any between pre-test and post-test of control group students in their Reading ability.
- To explore the difference if any between pre-test and post-test of experimental group students in their Reading ability.

### Hypotheses of the study

- H1- There is no significant difference between pre-test and post-test of control group students in their reading abilities.  
(H1-a Time taken to read the passage and  
H1-b Number of mistakes committed while reading)  
H2- There is no significant difference between pre-test and post-test of experimental group students in their reading abilities.  
(H2-a Time taken to read the passage and  
H2-b Number of mistakes committed while reading)

### Variables

- Refractive Error
- Reading Ability

## Materials and methods

From the selected two schools, only the VII standard students were taken for the study by simple random sampling method. Age 12 is psychologically described as pre adolescence, since it is a transitional period from childhood to adolescence. Physiological as well as psychological changes revolutionized in this period, is a right choice for this study of investigation. And one more reason for selecting VI std students is the investigator's daughter has got the same problem at this stage only. An experienced Optometrist was appointed by the investigator specially to carry out this research work. Vision screening was made by the Optometrist with Snellen's chart. Of 126 students screened, 49 of them were identified as vision defective. Three of them were already wearing glasses; hence they were not included for this research process. To find out the Reading ability of the 46 vision defective students, pre-test was conducted. A print out comprising a story was prepared by the investigator in about two hundred words with normal size as tool to measure the reading abilities. All the students were asked to read the story aloud. Time taken to complete the story was noted by the investigator for all the students. Simultaneously the number of mistakes made by the students while reading was also carefully noted. Design of this study is known as two parallel groups with pre-test design. One control group consists of 20 students and one experimental group consists of 26 students. Only the experimental group students were taken to the Ophthalmologist, and they have prescribed the suitable eye glasses. The investigator offered eye glasses to the experimental group students. The same reading ability test was conducted after a period of seven months for both control and experimental group students and it was considered as post test.

## Analysis of Data

Collected informations were subjected to statistical analysis such as student 't' test.

**Table No.1 't' test for time taken to read the passage by control group students**

Reading Test	N	Mean	SD	't' value	Remarks at 1% level
Pre-test	20	316.00	30.84	1.62	NS
Post-test	20	321.00	33.79		

**Table No.2 't' test for number of mistakes made while reading the passage by control group students**

Reading Test	N	Mean	SD	't' value	Remarks at 1% level
Pre-test	20	18.05	08.10	0.39	NS
Post-test	20	17.70	05.93		

**Table No.3 't' test for time taken to read the passage by experimental group students**

Reading Test	N	Mean	SD	't' value	Remarks at 1% level
Pre-test	26	295.00	43.56	13.72	S
Post-test	26	226.92	42.87		

**Table No.4 't' test for number of mistakes made while reading the passage by experimental group students**

Reading Test	N	Mean	SD	't' value	Remarks at 1% level
Pre-test	26	18.73	11.48	7.93	S
Post-test	26	08.42	05.60		

## Results and Discussion

- From this investigation, it can be observed about two-fifths of the students are affected by the problem of Refractive Error. Only three-fifths of the students are in good eye sight.
- When testing the reading ability of control group students, they have taken almost the same time to read the given passage and made nearly around the same number of mistakes in pre-test and also in post-test.
- When testing the reading ability of experimental group students, they have taken less time to read the given passage and made minimum number of mistakes in post-test than in pre-test.

Around 40 % of the students (exactly 38.88 %) were affected by the problem of Refractive Error. All of them were affected only by myopia. The findings of this study is consonance with the investigation of Bataineh.H.A and Khatatbeh A.E (2008). The findings obtained by Mohammed al-Jerafi et.al (2007) viewed that 54% of the participants suffered from some kind of eye problem. According to them Myopic, hypermetropic and astigmatic students who wore eyeglasses scored better in tests than those who did not, and better than those with good vision. Therefore, correction of those refractive errors appeared to improve the reading ability of those students and, hence, their educational achievement. The present study also confirmed that the Reading ability of the experimental group students has been improved after getting vision correction not the control group students, since vision problem not corrected for them. According to Sheila M. Williams et.al (2008) children with hypermetropia had slightly reduced verbal and performance IQ, in comparison with the children without refractive errors.

## Recommendations

The prime responsibility of parents is to furnish applicable health for their children, in particular about vision. Early detection of vision difficulties can be cured, otherwise it leads to severe problems. But we cannot expect this much of awareness from uneducated parents. Then, this will become the responsibility of Teachers and institutions. Hence the institutions must facilitate periodical medical checkup for all the children with specialist in all fields of medicine. And also appointing special teacher to provide knowledge and awareness about Health is to be considered.

## Conclusion

If not detected and treated early, vision problems in children can lead to a variety of Long-term consequences. Children are not known that they are seeing less than they can, and they are not complaining about their visual difficulties. Untreated Vision Problems can lead to:

- Permanent loss of vision
- Learning difficulties

An understanding of the importance of vision screening by administrators, teachers, and parents will make good academic success among students. Vision problems are common among preschool and school aged children. Early detection and treatment of these problems will diminish the possibility of any damaging long-term effects and have an enormous improvement on each child's academic Performance.

## REFERENCE

- Bataineh H.A and Khatatbeh A.E (2008) Prevalence of Refractive Errors in School Children (12-17 Years) of Tafila City . The Internet Journal of Ophthalmology and Visual Science. Volume 6, Number1, DOI:10.5580/a65 ISSN:1528-8269. | Mohammed al-Jerafi, Mohammed al-Khamaisi, Salah Obaid, Abdulwahid al-Teriadi, Hafsa al-Sharafi, Najwa al-Najjar, Raghda'a al-Matheel, Wedad al-Hubaishi, Tayseer Amer and Ghallab al-Najjar. (2007) conducted a study on Poor eyesight dims students' educational performance Sports, Health & Lifestyle | Sheila M. Williams, Gordon F. Sanderson, David L. Share and Phil A. Silva (2008) Refractive error, IQ and reading ability: a longitudinal study from age seven to 11 Article first published online: 12 NOV 2008 DOI: 10.1111/j.1469-8749.1988.tb14635.x | <http://www.nutrifye.com/healthy-vision/> | [http://www.visiontraining.com/en/eNewsletter/Archive/Accommodative% 20stress.html](http://www.visiontraining.com/en/eNewsletter/Archive/Accommodative%20stress.html) | <http://lib.bioinfo.pl/meid:64494> |