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VISUAL PROBLEMS IN ISOLATED REMOTE COMMUNITIES

*
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In the more remote and isolated communities, teachers require greater self sufficiency in their knowledge base about the many factors that impact on child learning. Sensory impairment is one such factor and it is essential that teachers be alert to the possibility of undetected impairment.

It has been recognized that it is important to take preventative measures if hearing impairments in Aboriginal children are not to have a negative influence on later development and some recent papers in this journal have addressed this issue. The present paper advances the proposition that the same rationale for avoiding negative effects is relevant to a consideration of visual impairment.

Preventative care of the eye

The Royal Australian College of Ophthalmology (1980) stated that the prevalence of preventable eye disorder among Aborigines is unacceptable high, and an increased commitment is needed if the overburden of avoidable blindness is to be substantially reduced. General care of the body through hygiene and nutrition is vital to maintain its function and to prevent the rise of adverse health conditions and thus prevent some cases of eye disorders, such as trachoma and other corneal infections.

Teachers in isolated areas can contribute much to the reduction of visual problems and to the prevention of some eye problems through vigilance, observation, education and cooperation with the community and health professionals.

The sense of sight

Learning occurs through the integration and interpretation of the organization of data gathered by the sensory organs of sight, hearing, touch, taste and smell. The senses of seeing, hearing, and smelling bring us information about both distant and nearby environments. The sense of tasting and touching help to reveal what is making physical contact with us.

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For most people, the sense of seeing plays the role of a mediator with information gathered through other sensory organs and it puts objects, sounds, aromas, tactile impressions, and people in perspective (Barraga, 1986). It is the only channel that provides the brain with sensations for the interpretation of colours (Kaufman, 1974) and that allows the stationary individual to follow a complex movement (Marr, 1980). A larger quantity of information in a shorter period of time is gathered through the sense of seeing than any other sensory channel.

Definitions of visual problems

Functional definitions of vision are more appropriate for educational purposes than medical definitions. The use of functional definitions provides scope for behavioural observation and interpretation. Therefore only functional definitions are considered in this paper. Functional visual problems may be classified as **mild**, **moderate** or **severe** (Scholl, 1983).

Children with **mild** visual problems are able to rely on their sense of vision without the use of special equipment and require little or no modification in their educational programme. In most cases, the visual problem can be corrected.

Children with **moderate** visual problems are able to rely on conventional print for reading and writing, but require low vision aids and equipment for efficient use of their remaining vision.

Children with **severe** visual problems includes those who are blind or those whose vision is so defective that learning and living is dependent on the use of other sensory channels.

Prevalence of mild visual problems

The Australian Optometrical Association (1979) reported that 15% of children in early primary school and 35% of students in upper secondary levels have a referable vision defect that may require treatment. These visual problems may be attributed to three main causes.

1. Refractive errors

- a. Myopia (short sight)
- b. Hyperopia (long sight)
- c. Astigmatism (mis-alignment of the optical parts of the eye)

2. Childhood eye problems

- a. Strabismus (squint) that may lead to
- b. Amblyopia (lazy eye)

3. Accidents

In incidents that involve the eye, consideration of referral to a medical practitioner is imperative as long term consequences may ensue. Such incidents could arise when engaging in sports, swimming, using the contents of spray cans, etc. Any physical violence involving blows to the head may have immediate consequences such as a detached retina or collapse of the vitreous humour which may result in severe visual problems

The role of teachers

The more remote and isolated the schooling the greater the responsibility of the teacher to be alert to possible visual problems. Cultural differences may also increase the teacher's need for awareness, for example for children in cultures where oral traditions as opposed to print are dominant, visual problems may not be readily detected prior to school entry.

Professional services pertaining to vision in remote, isolated communities are often irregular, spasmodic, or non-existent. In addition the "out of sight, out of mind" situation decreases awareness of the general community, thus increasing the need for heightened awareness by the classroom teacher.

Children with severe and moderate visual problems are more easily identified prior to school entry than those with mild problems. Classroom teachers can contribute to the recognition of children with mild visual problems (see appendix A, teachers' observation check-list)

Some visual defects may not be severe enough to require educational programming from a specialist teacher but that does not mean they are insignificant to the child's learning.

Teachers are in a position to plan for subtle but concentrated observation of a child with a suspected visual problem. Furthermore, the teacher has the opportunity to observe a child's visual behaviour under different environmental conditions, changing conditions, and during different times of the day.

Because teachers have maximum incidental observation time of children, they could take the initiative in forging cooperative links between education and health. The consequence of such initiative would be a more efficient use of scarce resources and services. A suggested referral form (see appendix B) would encourage organized observation and enhanced communication with other professionals in the community.

Visual conditions in the classroom

Two important conditions must exist before an individual can perceive a visual stimulus:

- (a) an operable visual system, and
- (b) sufficient and appropriate illumination.

Teachers usually cannot control the nature of the student's visual system but they certainly can influence the environmental factors relating to effective illumination.

There are four factors related to classroom lighting that affect visibility.

1. Light refers to the quantity of illumination directed on the task, activity or work area.
2. Lighting involves the quality and brightness of the entire visual environment or classroom. The combination of light and lighting determine the degree to which something can be seen in its visual environment.
3. Glare is any brightness condition that causes discomfort, loss of visual performance, or eye fatigue.
4. Contrast refers to the differences between the light directed on the object or task and the light present in the surrounding area.

Good quality illumination always improves visibility and leads to better visual functioning, but visibility is not always improved by increasing the light (the quantity of illumination). For this reason, the kind of lighting in the student's work area and the presence of glare or contrast needs to be assessed. That the eye reacts more effectively to reflected light than it does to direct light should also be considered.

What can teachers do to produce appropriate visual conditions in the classroom?

Several suggestions may assist in the provision of an appropriate visual environment in classrooms.

Fluorescent lamps may produce stroboscopic effects when the eye is looking at an object illuminated by a single tube. This effect can be eliminated when two tubes are linked in a series sequence circuit in which stroboscopic effects are mutually cancelled. Inoperable or flickering tubes should be replaced as they can substantially reduce the quality of the visual environment. The intensity of illumination can be regulated by adjusting the distance from the light source or by lowering the output of the source with a dimmer.

Fluorescent tubes also tend to be noisy and cannot be dimmed as easily as incandescent light source (bulbs). However, a recently developed fluorescent tube mixture provides a more balanced spectrum of light, particularly the "delux phosphoric" mixture tubes. Continuing noise from fluorescent tube "starters" should be addressed by replacing the starter (or locating it remotely).

Both fluorescent and incandescent lighting can be satisfactory if they are of appropriate intensity, shaded or reflected properly, and controlled or directed for individual students or for a particular work area.

Glare can be controlled by limiting the amount of light admitted to the eye (e.g. by blinking or closing an eye), by spreading the amount of light over a larger area, or by moving the person or object to be viewed to a more shaded area for example, when talking or demonstrating, teachers should position themselves so that students are not looking towards windows or other source of glare.

Glare reduction can be achieved in several ways. White boards can be changed into matt surface "black" boards or the glare producing white boards can be coated with a matt contact vinyl. Similarly to reduce glare from posters or other shiny materials, matt surface contact vinyl or laminate may be used.

A glare producing surface sprayed with hair spray, will also result in a matt finish, although cannot be written upon. Shades, venetian or semi-transparent drapes on windows can also reduce glare while still admitting appropriate levels of light. The use of adhesive or spray-on window tinting is another alternative that has the advantage of also reducing the amount of heat in a teaching area.

Providing appropriate contrast for tasks can make visibility easier for students. If the task centres on something black or dark in colour, the lighting in the surrounding vicinity needs to be made more intense. On the contrary, if the task involves something white or light in colour, the immediate area should be darker in order to provide the desired contrast visibility.

Conclusion

If children with mild, moderate or severe visual problems are expected to function in an inappropriate classroom environment, they are likely to develop behaviours that will have a negative effect on their learning and subsequent proficiency with school based and out-of-school tasks. These behaviours may include limited persistence due to fatigue, frustration with task completion or refusal to commence tasks. Motivation may vary according to the visual and spatial requirements of the task. The awareness of teachers can reduce the adverse effect of visual problems with advantageous long term consequences for the child.

References

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Appendix A.

Teachers observation check-list

Observations

1. Eyelids

- a. crust on lids among lashes
- b. red eyelids
- c. recurring styes or swollen lids

2. Others

- a. watery eyes or discharges
- b. lack in coordinating in directing the gaze of the two eyes
- c. reddened conjunctiva
- d. sensitivity to light

Behaviours

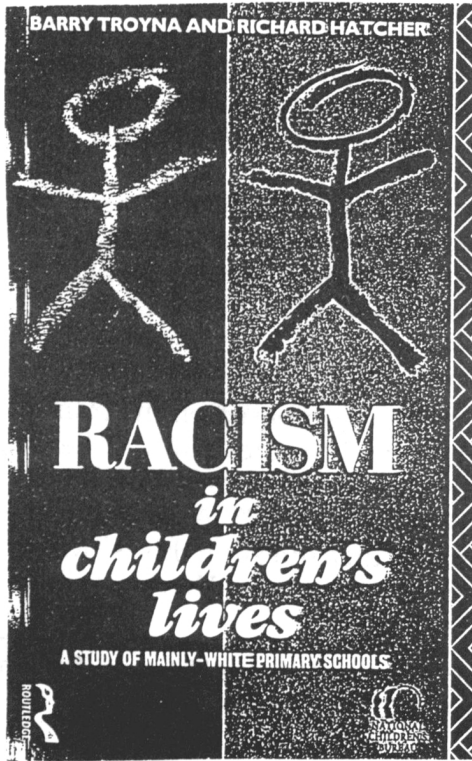
- 1. Rubs eyes frequently
- 2. Attempts to brush away blur
- 3. Is inattentive to chalkboard, wall chart, or map lessons
- 4. Has dizziness, headaches, or nausea following close work
- 5. Complains of itchy, burning, or scratchy eyes
- 6. When looking at distant objects
 - a. holds body tense
 - b. contorts face in attempt to see distant things clearly
 - c. thrusts head forward
 - d. squints eyes excessively
- 7. When reading
 - a. blinks continually
 - b. holds book too far from face
 - c. holds book too close to face
 - d. makes frequent change in distance at which book is held
 - e. is inattentive during lesson
 - f. stops after brief period
 - g. shuts or covers one eye
 - h. tilts head to one side
 - i. tends to look cross-eyed
 - j. tends to lose place on page

Appendix B

A Suggested Referral Form

School Name: _____		
Address: _____		
Phone: _____		
Child's Name: _____	D.O.B.: _____	Grade _____
Address: _____		
Phone: _____		
Teacher's observations: _____		

We recommend that your child's vision be screened/checked by		
a. Health worker ☐		
b. Eye specialist ☐		
		Teacher _____



We have received a book that will be of value to teachers :

Racism in Children's Lives.

The authors are Barry Troyna and Richard Latcher and the book, is set in Britain, works through case studies to find the sources of racism and offers responses to racist incidents.

Available in paperback (216 pages) at \$24:95, The book is available from :
Reply paid 148, Marketing Department,
The law Book Company Ltd.
44 - 50 Waterloo Road
North Ryde, N.S.W. 2113

We hope to have it reviewed shortly.