A vision questionnaire for elementary school teachers

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A vision questionnaire for elementary school teachers

Abstract
A questionnaire was distributed among nine schools in the Beaverton School District, Beaverton, Oregon. The questionnaire contained a combination of general and specific questions about vision, many of which related to children's vision and related problems in grades one through six. Distribution and returns were accomplished through appropriate administrative channels. Questionnaire results were tabulated and assessed as relevant to the initial proposal and implications for the profession of optometry,

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A VISION QUESTIONNAIRE
FOR ELEMENTARY SCHOOL TEACHERS

A THESIS
PRESENTED TO THE FACULTY
OF
PACIFIC UNIVERSITY
BY
GREGORY F. KING

IN PARTIAL FULFILLMENT
OF THE REQUIREMENT FOR THE DEGREE
DOCTOR OF OPTOMETRY

MAY 1979

ADVISOR
NORMAN S. STERN, O.D., PH.D.
Accepted by the faculty of the College of Optometry, Pacific University, in partial fulfillment of the requirements for the Doctor of Optometry degree.

Thesis Advisor

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Gratitude to the principals, secretaries and teachers of Beaverton schools for their time and assistance. My sincere thanks to Dr. George Russell, Superintendent of Instruction, for his approval of the project and for keeping the door open between professions.

Very special thanks to Beth Bazin for her support and for helping me become more aware of the educator's point of view and responsibilities.
ABSTRACT

A questionnaire was distributed among nine schools in the Beaverton School District, Beaverton, Oregon. The questionnaire contained a combination of general and specific questions about vision, many of which related to children's vision and related problems in grades one through six. Distribution and returns were accomplished through appropriate administrative channels. Questionnaire results were tabulated and assessed as relevant to the initial proposal and implications for the profession of optometry.
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INTRODUCTION AND LITERATURE REVIEW

Through my clinical experience as an optometric intern, it has become very apparent that there is a void in communications between the professions of teaching and optometry. We as optometrists have the knowledge and skills to enhance vision and therefore performance via vision, while teachers work with performance in the classroom and learning, vision playing an intimate part in each.

I conceived of a questionnaire which, when completed by teachers in an elementary school, would give insight to a vision care specialist regarding the teachers' knowledge about vision and their thoughts concerning how vision relates to learning.

At the onset it is best to define vision. The Visual Science Dictionary (1968) refers to vision as "The special sense by which objects, their forms, color and position, etc., in the external environment are perceived." It also refers to vision as a function or process. Such a definition is necessarily broad when concerning such an involved sense and its function. To explore its meaning in the minds of educators meant designing some specific questions, as well as creating questions with more general overtones.

Hereditary plays an important role in vision, but environment has likewise shown to be of import. For example, myopia (nearsightedness), while virtually nonexistent among older Alaskan Eskimos who had little or no schooling, is increasing sharply in Eskimo children since schooling has become available.

In almost every available survey of school children in any country, it is shown that myopia grows rapidly during the school years. An insignificant correlation between myopia and heredity was found by Kanefuji (1953). Bayer (1966) stated that hereditary prediction of refractive status such as myopia is very unlikely. Thus, we see that environment is as much a key factor as heredity.
Although the question concerning the relative influence of heredity and environment is interesting, performance areas are more relevant to the classroom. Tole Greenstein (1976) states the following regarding word reversals, a common problem, and vision. "If the child cannot make controlled saccadic s and instead fixates erratically, he will be unable to acquire the information in its proper temporal sequence. This interruption of flow of information leads to difficulty in interpreting the ideas which the language should be communicating. It is therefore not surprising to hear the child read 'sacred God' instead of 'scared dog.'"

Writing difficulties can be in part a visual problem. Getman (1973) stated that "handwriting is the visual control of direction." Many difficulties in writing behavior are usually seen in the absence of such control, such as difficulty staying on the line (may write uphill or downhill), difficulty staying within the lines when coloring, using many erasers to make the work like it should be.

We also know that the child that has inadequate far to near and near to far fixation skills may also be extremely slow in copying tasks from the chalkboard. Such a child may not always complete the copying tasks before the board is erased.

Low power spherical lenses for near-seeing tasks, i.e., coloring, drawing, writing, typing, etc., are now being prescribed. They are used for a visual problem and not an eye problem, that is, for the purpose of preventing eye problems and enhancing visual information processing. Such "learning lenses" for near use do not allow clear vision at a distance, such as seeing the classroom chalkboard. Taking glasses on and off for different distances is inconvenient; therefore, a "dual-focus" or "bifocal" lense is prescribed.

Stress also effects vision and learning. As researched and defined by Hans Selye (1956), stress affects many functions, including the process and development of vision. Shipman said, "Stress brings up a constriction of the
perceptual fields, and the child observes less, sees less, remembers less, learns less, and becomes generally less efficient.\textsuperscript{12} With regard to visual function, Harmon stated that reading is a stressful task.\textsuperscript{13}

Another area of consideration in vision is what eye care specialists refer to as \textit{asthenopia}. This refers to symptoms experienced by patients. Because the visual system is part of the whole person and how he functions, asthenopia due to inadequate visual function may not be easily related to the same. A few examples of symptoms experienced include headaches, fatigue, eyestrain, temporary blurry vision at various distances, inability to do sustained near work although one is rested.

Asthenopia also includes non-specific ocular discomfort and fatigue as well as jumping of words and other difficulties when reading.\textsuperscript{14,15} Murray (1954) found that 76\% of 3,585 cases of reported eyestrain were due to poor functioning of the automatic convergence (of the visual system), which responded to treatment.\textsuperscript{16} Vaithilingam and Khave (1967) studied locations of the headaches which were associated with use of the eyes.\textsuperscript{17} Temporal, frontal and occipital headaches were found to relate to specific visual refractive states.

There are many other ocular conditions; for example, when one eye is not aligned with the other, the condition is known as \textit{strabismus}. In one study by Ludlam, a 76\% cure rate was shown by using orthoptics as a therapeutic measure instead of strabismus surgery.\textsuperscript{18} A follow-up study showed that 89\% of those successfully treated retained their functionally cured status when re-examined 3-7 years after training was completed.\textsuperscript{19}

According to the Dictionary of Visual Science, the term \textit{amblyopia} means reduced visual acuity not correctable by refractive means and not due to obvious structural or pathological anomalies of the eye. The term "lazy eye" is used by some to denote this condition.
After the foregoing literature review, the questionnaire was formulated, incorporating those as well as some additional ideas. The questions were intentionally sequenced, beginning with general and leading to more sophisticated levels of information regarding vision.

The questionnaire concept allows an objective means whereby vision care specialists can become more aware of, and communicate more adequately with, educators. More interprofessional exchange will result in more effective means of meeting student needs.

**METHODS**

The following steps were established as a guideline for the project:

1. Formulate the questionnaire; this includes form and format.
2. Choose a school district.
3. Write to principals for permission and assistance.
4. Print multicopies of the questionnaire.
5. Send a package of questionnaires to each school for distribution; include return postage.
7. Summarize any trends that are evident.
8. Evaluate the questionnaire as to its usefulness to practicing O.D.'s.

The subject population included 167 elementary school teachers in nine schools of the Beaverton School District, Beaverton, Oregon. Access to the schools was attained through the administrative office of the superintendent of instruction. Personal contact was made with the superintendent of instruction as well as with the principals and secretaries of each school.

Copies of the questionnaires were distributed and pick-up dates were established, allowing as much consideration as possible for the individual school calendars.
RESULTS

Of the 167 questionnaires distributed, 112 were returned. This gives a completed response return of 67%.

The responses are presented in graph form on the following pages. Question numbers 7, 8, 12, 18 and 19 lent themselves in part or fully to list presentation and are tabled in the appendix.

In many instances the respondents found it necessary to add an additional response; most of these extras are incorporated in the final tabulation.
RESULTS (continued)

Vision is based on ___ (see questionnaire #1)

Percentage of respondents believing that wearing glasses leads to a dependency on them. (see questionnaire #2)

Response breakdown to the following statement. A child with an eye turned in or out will have learning problems. (see questionnaire #3)
What can a spectacle prescription be for?

Responses to: 1. What can a spectacle prescription be for? (see questionnaire #4)

Responses to: 2. Those responding to whether or not they have children with visually related learning problems in their classroom. (see questionnaire #5)

Responses to: 3. Response percentage for the following: Is there any difference in visual demands at near vs. far tasks? For example: Reading the blackboard from mid classroom vs. doing an assigned reading. (see questionnaire #6)
Half of the teachers have experienced uncomfortable vision when doing near work. A list of the symptoms can be found in the appendix.

To whom a child is recommended for professional help related to learning and vision is listed in a percentage breakdown in the appendix.

Teachers posed with the question of visual stress interfering with learning responded in the above percentages. (see questionnaire - #9)

Poor reading kids were categorized in the above two areas. (see questionnaire - #10)

Twenty percent of the teachers feel a pediatrician is qualified to fully evaluate a preschooler's vision (visual readiness) for school.
yes... They are in part a visual problem.

no... They are essentially a _____ problem. (see list in appendix)

When asked if word reversals were a visual problem, the teachers showed the above response. (see questionnaire - #12)

a. 2-dimensional spatial arrays
b. 3-dimensional spatial arrays
c. a and b are the same in this regard

Respondents indicated that ease of viewing and drawing information for a sustained period is better for the visual system as per the above graph. (see questionnaire - #13)

a. little
b. nothing
c. a good deal
d. ?

The graph indicates responses to the question relating what visual efficiency has to do with intelligence measured in 3rd graders. (see questionnaire - #14)
Over half of the respondents feel that an elementary student can benefit from the use of a bifocal lens prescription. (see questionnaire - #15)

Nearsightedness is the product of the above percentage categories as per the respondents. (see questionnaire - #16)

The graph shows the response to the following question: What does the term amblyopia mean to you? (see questionnaire - #17)

Ninety one percent of the respondents are aware of nonsurgical approaches to straighten eyes that are not aligned. See the appendix for a list of their impressions of this treatment.

Fifty two percent checked in the space asking for further information about vision and how it relates to learning. Please consult the appendix for additional comments and suggestions provided by the educators.
DISCUSSION

The questionnaire in its present form is not an effective tool of inquiry. By utilizing feedback information from the pilot questionnaire returns, one can arrive at a more viable design.

Redesign should have fewer fill-in blank answers and more options in the multiple choice answers. For example, question #8 would have multiple choice categories of: a) Optometrist, b) Ophthalmologist, c) both a and b, d) school nurse, and e) ____________.

Space at the end of the questionnaire would allow for any questions, impressions or comments elicited by the questionnaire. This would eliminate the cumbersome response categorization encountered in question #7 and especially #18. This would streamline and still allow the inquirer to pursue this information while giving the participant freedom of expression. This facilitates understanding the teachers’ thoughts and is an entry point for further communication.

I found one school district’s administrative policies and central powers too restrictive and difficult to communicate with; therefore, I sought another district to work with. This is a note to anyone involved in a similar project. Diplomacy and good will are essential in the mechanics of distribution and questionnaire impact.

Of the ten schools approached, only one principal would not allow his teachers to participate in the questionnaire. He was trying to establish an in-house philosophy and policy without disruption. This was prompted by Public Law 94-142 and subsequent legal precedents currently being set and their implications as to responsibility of the schools.
Finally, although the administrative process was cumbersome, it was ultimately effective. Any vision care specialist working with elementary school children should become aware of and sensitive to teacher and administrative demands and should work as closely with educators as possible.

CONCLUSION

An in-depth analysis of the responses is not necessary at the present time, but it is important for the reader to note the diversity of response to some questions and the unity in others. There are some contradictions which become apparent when comparing various answers. For example, although nearly all teachers felt that visual stress interferes with one's learning, only one out of four believed that many children with visually-related learning problems were in their classroom.

Other inferences become apparent as one examines the results of the questionnaire. Thus, the questionnaire not only serves a quantitative but a qualitative function.

It is evident from the responses that there is a definite need for vision care specialists to relate to teachers the dynamics of vision to classroom demands and behavior. This can be accomplished through an active approach to communication and sharing knowledge between the professions.
March 2, 1979

TO: Elementary Principals
FROM: George Russell
RE: Survey by Greg King

This will introduce Mr. Greg King, 4th year intern, Pacific University College of Optometry. As part of his postgraduate work in optometry Mr. King has developed a questionnaire intended to ascertain the understanding of vision related information held by elementary teachers. The ultimate goal is to have an effective tool of inquiry for use by graduating optometry interns and practicing doctors of optometry, especially those interested in helping children with learning problems.

Mr. King would like to have teachers from your school complete the questionnaire. It should take about ten minutes. He will work out arrangements with you.

Please understand that this venture is voluntary on the part of you and your teachers. I encourage you to participate if you can see your way clear to do so.
APPENDIX II

To participants:

The following questionnaire is part of my thesis and helps fulfill requirements for attaining my degree as a doctor of optometry.

The questionnaire is designed to learn what concept of vision is held by teachers of grades 1 - 6 including other special subject or method teachers in regular contact with the children. This being the initial design, I hope to evolve a more effective tool through feedback from the first returns.

It is my intent for this to be further refined by subsequent graduate students. The ultimate goal is to have an effective tool of inquiry for use by graduating optometry interns and practicing doctors of optometry. This is meant to be used by those especially interested in helping children with learning problems achieve their maximum learning potential.

Thank you for your assistance in this project.

Sincerely,
Greg King
4th year intern

Pacific University
College of Optometry
Forest Grove, OR. 97116
(503) 640-1731
APPENDIX III

THIS QUESTIONNAIRE IS A PILOT PROJECT -
YOUR PARTICIPATION IS APPRECIATED.

THANK YOU.

Greg King
4th Year Intern
Pacific University
College of Optometry
Forest Grove, Oregon 97116
Please respond by circling a letter, checking (√), or filling in where appropriate.

1. Vision is based on ______
   17% a. genetic factors
   2% b. environmental factors
   52% c. both a and b
   27% d. more a than b
   2% e. more b than a

2. Do you believe that wearing glasses leads to a dependency on them?
   45% yes  1% ?
   55% no

3. A child with an eye turned in or out will have learning problems.
   46% true  2% could
   54% false

4. What can a spectacle prescription be for?
   0% a. clear vision at far
   0% b. clear vision at near
   97% c. both a and b
   3% d. don't know

5. In your classroom are there many children with visually related learning problems?
   25% yes  71% no  4% some

6. Is there any difference in visual demands at near vs. far tasks? For example: Reading the blackboard from mid-classroom vs. doing an assigned reading.
   92% yes  8% no

7. Have you experienced uncomfortable vision when doing near work?
   50% yes  I have experienced the following:
   50% no

8. To whom do you recommend a child go for professional help related to learning and vision?

9. Do you believe in visual stress interfering with one's learning?
   95% yes  4% no  1% ?
10. Of the poor readers, how many kids have ... copying difficulties?

- 19% few
- 41% some
- 40% many

writing difficulties?

- 14% few
- 50% some
- 36% many

11. Do you feel a pediatrician is qualified to fully evaluate a preschooler's vision (visual readiness) for school?

- 20% yes
- 80% no

12. Are word reversals a visual problem?

- 73% yes ... They are in part a visual problem.
- 25% no ... They are essentially a ________ problem.
- 2% both

13. In your opinion what is easier for the visual system to view over a sustained period and draw information from?

- 11% a. 2-dimensional spatial arrays, i.e., reading (print on a flat page) or symbols on a flat page
- 71% b. 3-dimensional arrays, i.e., play chess (solid objects)
- 18% c. a and b are the same in this regard

14. Poor visual efficiency has ____ to do with intelligence measured in 3rd graders.

- 26% a. little
- 14% b. nothing
- 55% c. a good deal
- 5% d. ?

15. An elementary school student can benefit from the use of a bifocal lens prescription.

- 65% true
- 21% false
- 14% ?

16. Nearsightedness, i.e., clear at near, blurred at distance, is

- 52% a. hereditary
- 0% b. environmental
- 38% c. both a and b
- 10% d. ____________
17. What does the term amblyopia mean to you?

- 47% a. lazy eye
- 23% b. decreased visual acuity
- 3% c. a turned eye
- 26% d. I don't know its meaning
- 1% e. ?

18. Are you aware there are nonsurgical approaches to straighten eyes that are not aligned? For example: "crossed eyes" or "wall eyes?"

- 91% yes
- 9% no

If you answered "yes," what are your impressions of this treatment?

19. I would like further information about vision and how it relates to learning.

- 52% (check here)

Below is room for additional comments and suggestions.
APPENDIX IV

Of those replying "yes" to question #7, the following is a list of uncomfortable near-work symptoms, as reported by the teachers:

Eyes tense -- pulling inward.
Some blurred vision even with glasses. Usually at night or when I am tired.
Aging eyes -- use reading glasses.
Blurring and tiredness.
Need to put my glasses on.
With age I cannot read printed page very well without glasses. Find it very frustrating.
Headaches and dry, tired eyes.
Headaches.
Tired eyes -- unfocused vision after long periods.
Blurring.
Blurred vision -- I need bifocals.
Unless highly motivated, I get sleepy from strain of keeping both eyes on same plane (horizontally).
When tired, my eyes do not focus readily.
Blurring.
Try grading papers for four hours straight and you'll get the idea!
Strain, therefore wear glasses.
Headaches.
For long periods -- feeling of eyestrain and tired eyes.
After prolonged period, my eyes tire.
Without glasses I have difficulty, but I had no problems until age 46 -- I use glasses only for reading.

In the "no" response category for #7, a few short explanations were as following:

Not wearing glasses.
I wear glasses and have for 23 years.
Teach music so don't see this part of it.
Question #8: To whom do you recommend a child go for professional help related to learning and vision?

The response breakdown for this question is as follows:

19 Ophthalmologist
18 Optometrist
11 Student nurse
10 Ophthalmologist or Optometrist
7 Not allowed to recommend
6 Eye doctor
6 Doctor
5 Learning disability teacher
5 Own family doctor
3 Pacific University College of Optometry
3 Special Ed.
3 Parent
1 M.D.
1 Principal

More singular answers:
Pediatrician specializing in that area.
School district, doctor.
Special reading teacher.
Vision clinics in Portland.
Dr. S for another screening -- Washington County Educational Service District.
I don't.
I don't, I just state problem.
Building specialist -- we cannot recommend a certain professional.
Ask pediatrician to recommend.
First a vision screening with an ophthalmologist -- then work with a specialist.
Professional eye exam -- sometimes eye doctor specializing in motor perception.
Teacher for learning. Optometrist for vision.

(continued)
APPENDIX V -- continued

We do not specify -- recommend vision check only.
Reading specialist and/or counselor.
Specialist with degree.
The special ed. teacher does the recommending.
Cannot do either -- just tell parent their child has a vision problem.
Optometrist or Ophthalmologist specializing in perceptual difficulties.
APPENDIX VI

Question #12: Are word reversals a visual problem?
The "no" responses give the "problem" as being:

7 Perceptual
2 Maturation
2 Neurological

Comments:
Don't really know -- maybe a processing problem.
Brain -- visual area?
Can be.
No.
Don't know.

Question #15: An elementary school student can benefit from the use of a bifocal lens.

Only a few comments were given, as follows:

True -- if eyesight is bad enough.
Depends on the child's eyes.
True -- only if something is wrong with the eyes.
I can't judge this.
True -- it depends on the nature of the problem.
This is for a Dr. to deal with.
True -- maybe -- I would think some other means of correcting vision problems would be better for children this age.
APPENDIX VII

Question #18: Are you aware there are nonsurgical approaches to straighten eyes that are not aligned? For example: "crossed eyes" or "wall eyes?" If you answered "yes," what are your impressions of the treatment?

One of my students had such treatment -- it was a great value to him.
Don't know first hand -- worth trying.
Treatment of muscles through exercise or glasses.
Exercise or special glasses.
I'm not a doctor.
Glasses.
Perhaps I am not aware of techniques; I understood special eye exercises were used.
Visual training can be effective if it is maintained for a long time period.
Do not have enough knowledge on it to form an opinion.
Questionable; controversial.
None--- prescribe a certain type of glasses.
Very good.
Valid -- it helped my sister!
Don't know.
Consistency is essential.
Good.
I understand it is successful.
Prefer correction with operation.
Our son went to Optometric Clinic at Pacific University. It worked!
Know only of contact lenses.
Excellent -- I had a friend who had this problem in high school and she now has no problem.
Have seen only a few persons try such approach -- have not heard strong feedback for such approach.
Don't know enough about it.
It should happen.
Corrective glasses.
Works in some cases.
It works great.
Glasses, exercises.

(continued)
Eye exercises. 
If practiced regularly it works. 
No opposition. 
Eye exercises. 
I don't know enough about it. 
Eye training exercises. 
Have seen some very successful cases. 
I have heard of some but know little about any of them. 
It helps, according to parents who have children with such needs. One of granddaughters is going through this now. 

I have known children successfully treated -- however I think "quality" treatment is necessary. 
Various eye exercises are done several times a day. 
Visual training, glasses. 
No opinion -- I think they do work. 
Does work -- involves lots of "stroking" for child and parents. 
I would like more statistical data before answering the question. 
I have never been treated or trained in the treatment of this -- have you? 
Exercises and lenses. 
Never tried it! 
Use of muscle exercises and corrective lenses. 
Don't know. 
It will work for a while if treatment is done long enough. 
Anything that works. 
It's an exercise approach and can be effective. 
These are not for teachers to question -- but if they work, I am for them. 
Sometimes the eye is covered. 
I have seen success and again not. 
I would want to consult an ophthalmologist (this person has amblyopia). 
But experience in family did not result in correction -- surgery was required. 
I don't know if this is a good procedure. Eye exercises are very beneficial. 
One child in a past class did eye exercises to strengthen muscles. 
Exercises which strengthen the eye muscles. 

(continued)
APPENDIX VII -- continued

Depends. It can work for some.
I hope treatment is successful.
Have heard of some good results and also have heard of many that it has not
helped -- and the cost is great.
No help to me as a child!
In cases in which it works -- great!
Better than surgery. I assume you mean putting a patch over the strong eye
to force the weak eye to develop.
Using eye patch exercises.
I am not that familiar with the program -- eye exercises.
Occasionally successful.
Know no results.
If it works, great!
I really don’t know. I would imagine in most cases I would prefer surgery.
Good glasses have cleared up many problems of weak eye muscles.
Good.
It can help some.
APPENDIX VIII

Comments and suggestions from the respondents are as follows:

It is very difficult to answer some of these questions, for example #1. I am not sure of the meaning of vision used there. #7 -- what does that have to do with children in the classroom? #15 -- how would I know, not being trained in this area? #16 -- the same. #18 -- I don't know the research on either type of approaches.

* * * * * * * * *

I am the Physical Ed. teacher and some of these questions do not pertain to my situation with the child.

* * * * * * * * *

I had no idea optometry was into this until last year -- I worked with Mrs. C's kindergarten and she was very well versed on the subject.

* * * * * * * * *

(Regarding #19 and comments:) You must be kidding! I have a continuing quest for knowledge about the field of learning. However, I would not be interested in the results of this questionnaire since, from the general nature of your questions, I doubt if any real value could be derived from it. Did you share your questionnaire with your faculty advisor before sending it out? If not, you should have! Its design is an insult to teachers and their intelligence. Did you test your questionnaire with a small sample at first to identify if it was serving its purpose? You stated that you hoped it would be "an effective tool of inquiry for use of graduating optometry interns..." but you never stated a useful purpose for it, other than "This is meant ..." The latter is hardly a concrete statement.

* * * * * * * * *

(continued)
APPENDIX VIII -- continued

Some of these questions are somewhat difficult to answer unless you've had more experience in a lot of these areas. I would say a good majority of teachers I know aren't even familiar with these areas you speak of. Therefore, to me, this survey is invalid.

* * * * * * *

Need more accurate testing in schools!!!!!!

* * * * * * *

I have found a real variance of opinions on learning difficulties related to vision: optometrists vs. ophthalmologists. I've always recommended ophthalmologists and have lately found they do not always check for the problems causing learning difficulties and do not offer or prescribe eye exercises. I understand some optometrists will. I would like to know where to refer children with these difficulties -- so they can get the help they need: correcting perceptual problems, eye training and exercises!!

* * * * * * *

My answers may not be valid for your survey since I have the retarded students housed in the public school -- ages 9 - 12.

* * * * * * *

As a learning disabilities teacher -- I need more information in regard to vision and perceptual problems. I have referred children to ophthalmologists and the perceptual problems have been overlooked. I would appreciate more information regarding the program for children with reading problems.

* * * * * * *

(Regarding #19 and comments:) Not from your sources as I feel it would be slanted in favor of vision training which is shown to be controversial in research.

* * * * * * *

I'm sure that there is much we could learn about vision and its relation to learning problems.

* * * * * * *

(continued)
APPENDIX VIII -- continued

Teachers can tell parents what they observe. But you do not recommend treatment, nor question treatment of children.

* * * * * * *

How do various lighting systems affect children's eyes?

* * * * * * *

Suggested referral places for students with vision problems would be a great help.

* * * * * * *

I feel many of your questions are vague and force ambiguous answers. You are expecting simple answers to complicated questions.

* * * * * * *

Would like more information on visual perception.

* * * * * * *
REFERENCES AND BIBLIOGRAPHY

1. The act of seeing with the eye; the power, faculty, or sense of sight. 


REFERENCES AND BIBLIOGRAPHY -- continued


