This paper describes an educational intervention program for academically failing students which focuses on visual perceptual skills and learning strategies. It considers visual perceptual problems as the undetected cause of much academic failure. Basic visual skills necessary for academic success are identified including visual acuity, binocular coordination, accommodation, peripheral awareness, visual fixation, eye hand coordination, visual perception, and visualization. Research on the correlation between visual problems, academic failure, learning disabilities, and juvenile delinquency is briefly reviewed, as is research on developmental aspects of vision and impact on cognitive ability. Several current programs and interventions are briefly reviewed prior to a description of the "Creating STARS" (Students Achieving Reading Success) program. The paper discusses each of the program's five components: (1) teacher and administrator training; (2) student developmental vision assessment; (3) visual stimulation activities; (4) learning strategy installation; and (5) reading and learning remediation. A pilot test with all second, third, and fourth grade students at one Oklahoma City school found that 20 hours of remediation resulted in an average of 1 year's progress and 68 percent increase in reading rate. (Contains 17 references.) (DB)
“Creating STARS”
An Educational Intervention Addressing Academic Failure

Carol A. Keymer
Southern Nazarene University
September 1, 1999

© 1999 - LD&RB, LLC
“Creating STARS”
An Educational Intervention Addressing Academic Failure

Introduction

Imagine going to your job day after day, year after year for 10 to 13 years and experiencing failure. No adult in the United States would do it. Most of us wouldn’t last a week let alone 13 years. Yet, this is what we ask students to do that are experiencing academic failure.

Let’s experience one day of failure. Imagine arriving at your job and heading to your first meeting. You are expecting your boss to give you feedback on the project you completed last week. The day before it was due, you worked late to finish it. You missed your son’s baseball game and your daughter’s soccer game trying to do a “bang up” job to get this project approved. During the meeting your boss hands you his copy of the project you have been working on. At the top in huge red letters is written “Denied.” During the meeting your boss says, “Needs more work,” and “Keep trying.” Your heart begins to pound and you get a lump in your throat. Your hands begin to sweat. A wave of frustration overtakes you and frustration elevates to disappointment and still further to anger. Next, imagine moving from meeting to meeting throughout the day and hearing additional comments such as, “Sit up straight,” “You work too slow,” “Hurry up,” “Keep trying, you’ll get better,” “You have a bad attitude,” “You just don’t want to do it,” and finally, “You’re just lazy.” These comments resonate in your head hour after hour. Yet, you are trying! You are working hard! You are not lazy! So therefore, you must just be STUPID!
For many students this is their experience with school. Yet, we expect them to keep at it until they are 16 years old. When students experience academic failure, their self-esteem drops. If failure continues, they experience psychological trauma that can manifest itself as anxiety, anger, depression and anti-social behavior. If this downward spiral continues, dropping out of school is inevitable and eventually the student will head towards juvenile delinquency. (Kaseno, 1985) Academic failure is a crisis!

Visual perceptual and learning strategy issues are leading causes for academic failure. Currently, school systems and parents are unaware of these issues contributing to academic failure. Learning Dynamics and Reading Breakthroughs, LLC, an Oklahoma based company, has as its mission to uncover and remediate student’s visual perceptual and learning strategy issues. The company is committed to help administrators, teachers, parents and students become aware of and eliminate these as potential issues that prevent academic success. Learning Dynamics and Reading Breakthroughs, LLC accomplishes this by working with school systems, or with parents and students privately in their offices.

The intent of this paper is to create awareness of visual perceptual and learning strategy issues contributing to academic failure and to introduce an educational intervention program that addresses and eliminates these issues. This paper first defines visual perceptual skills as well as emphasizes the need to focus on student’s learning strategies. Research provides a link between visual perceptual issues and academic failure. This supports the need for Learning Dynamics and Reading Breakthrough’s program that is described in its entirety.
Visual Perceptual Problems: Undetected cause of Academic Failure

There are many causes of academic failure. These include low intelligence, learning disabilities, attentional issues such as Attention Deficit Hyperactivity Disorder (ADHD) and physical disabilities. (Groffman & Solan, 1994) Within school systems and society, these issues are addressed through psychological testing, medical interventions and special education programs.

Poor visual perceptual skills are yet another cause of academic failure. Within education, 80-90% of the information presented is processed by the visual system. (Kaseno, 1985) With the explosion in technology, beginning with the invention of the printing press and continuing with our dependence on computers, comes the demand for sustained, fine-detailed near point tasks with reading as a critical component. If visual skills are not developed and fully functional, they can be a major contributor to academic failure. (Ives, 1998) In fact, some of the symptoms of visual perceptual problems are similar to those of ADHD, emotional disorders and learning disabilities. These symptoms are behaviors such as low motivation, distractibility, hyperactivity, or inattentiveness. Confrontations with authority in order to avoid reading may occur and disruptive behavior problems may result. In avoiding visual tasks, some of these children will compensate by becoming good “auditory” learners. (American Foundation of Vision Awareness, 1991) Yet, schools only screen for distance acuity, missing any near acuity, visual motor and and/or visual perceptual issues including the ability to visualize. Visualization is a major factor that contributes to efficient cognitive functioning or learning strategies.
What is Vision?

Vision is much more than the concept of sight measured in terms of acuity (20/20 vision) or the ability to see an object clearly. The American Foundation for Vision Awareness (AFVA, 1991) defines vision as, "The process of deriving meaning from what is seen." The concept of vision is made up of several abilities working together to enable us to not only see clearly, but to understand what we are seeing. These various abilities are called "visual perceptual skills."

To experience academic success, students need basic vision abilities to efficiently and effectively learn. The American Foundation for Vision Awareness (1991) defines these skills as:

- **Visual acuity** – the ability to see objects clearly at near (13-16 inches); intermediate (16-40 inches); and distance (chalk board, projection screens.)
- **Binocular Coordination** – the ability to use the two eyes together.
  - **Binocular fusion** - ability of the brain to combine images from each eye individually and form a single unified image.
  - **Depth perception** – ability to judge relative distances of objects and to see and move accurately in three-dimensional space.
  - **Eye movement** – the ability to move the eyes smoothly, easily and accurately from one point to another.
  - **Convergence** - the ability to turn the two eyes towards each other to look at a close object.
- **Accommodation** – the ability to adjust the focus of the eyes as the distance between the individual and the object changes.
Crisis Intervention - 6

- **Peripheral Awareness** – the ability to be aware of things to the side while looking straight ahead.
- **Visual Fixation** – the ability to aim the eyes accurately on a stationary or moving object.
- **Eye hand Coordination** – the ability to relate hand movements to what the eyes see.
- **Visual Perception** – the total process responsible for receiving visual sensory impressions and allowing interpretation and understanding of the visual information received.
- **Visualization** – the ability to form or create mental images of an object or concept in the “minds eye,” to retain them for future recall, and to synthesize these into new mental images on the basis of past experience and memory.

**Research**

The correlation between visual problems, academic failure, learning disabilities and juvenile delinquency has been explored for decades and numerous studies have substantiated the link. A small sample of this research is cited.

Dr. Joel N. Zaba, an optometrist who specializes in learning-related visual problems has been researching this connection for 20 years. One recent study he conducted with Johnson, (1992) documented the connection between adult illiteracy and vision problems. This study discovered that 74% of a total of 54 subjects who were identified as illiterate failed a visual screen. Only 20% demonstrated distance visual acuity issues and only 13% failed the near visual acuity test. The remaining 66% of the
visual issues were related to various visual perceptual problems. Further findings of Zaba's (Bachara & Zaba, 1978) links visual perceptual issues with juvenile delinquency. Youngsters who had run into difficulty with the law and whose visual perception problems were corrected were six times less likely to return to court for future violations than those juvenile offenders whose visual conditions were not corrected.

Similar findings have been reported by Dr. Stanley Kaseno (1985), who has been a pioneer in incorporating the elements of visual testing and training into juvenile delinquent treatment programs. He concludes that the recidivism rate dropped to around 15 percent when visual therapy was included in the correction program. In addition, the re-arrest rates for the general juvenile population in that facility had been almost 70 percent.

An early study conducted (Dzik, 1966) found that 91 percent of all juveniles in a correction facility were academically functioning below grade level. Visual testing showed that nearly all those in the study had a learning-related visual problem.

As recently as 1994, Helson & Maples conducted a study where fourteen adult females participating in a remedial reading program were assessed for visual perceptual problems. All of the fourteen subjects failed at least one aspect of the assessment and a great majority of these failures were documented in more than one test area, which verifies visual dysfunction in this sample.

Further research has been conducted to document the effects of visual training and gains in academic performance. Solan (1967) demonstrated that reading efficiency improved with the help of tachistoscopic training, a technique to train eyes to track from
left to right at increased rates. The average of the three separate studies showed an increase in reading rate of 100% with additional gains in comprehension.

Sigler & Wylie (1994) documented the effects of vision therapy on reading rate. They concluded that reading rate increased more rapidly than the subjects' historical rates during the period of vision therapy. And, reading rate gains were maintained and even increased in two thirds of the subjects during the post-vision therapy period.

Developmental Aspects of Vision and Impact on Cognitive Ability

Vision abilities and skills are developmental in nature and are building blocks that lead to academic success (Ives, 1998). Children who do not have the basic developmental vision skills often do not have the more advanced visual perceptual abilities and the ability to visualize or hold a picture in their “mind’s eye.” Johnson and Myklebust (1983) proposed that learning occurs at a number of levels and proceeds from sensation to perception, then imagery, language, and symbolization through visualization and finally conceptualization. Interruption of this hierarchy at any level jeopardizes functioning at more advanced cognitive levels. Without these skills they compensate with poor sensory processing skills that leads to poor cognitions or learning strategies. This too, can contribute to academic failure.

A learning strategy is a set of specific sensory steps a student uses to input information, store information, understand concepts and recall information (Dilts, 1995). A learning style is the preferred sensory modality a student uses to process information (Barbe, 1985) Often students with poor visual perceptual abilities rely exclusively on auditory and tactile learning styles. These pathways become the preferred modality while
ignoring or minimizing their visual modality. If the student processes exclusively with only one sensory modality or learning style, learning can be difficult and ineffective.

Current Programs and Interventions

The American Foundation of Vision Awareness (AFVA) has been created to educate society in vision awareness. Their mission is, “To educate people of all ages about their vision; to create awareness of quality eye and vision care; and to support vision-related scientific research.” AFVA is a charitable foundation which awards research grants and scholarships, conducts public service projects and provides education material to the public.

American Foundation for Vision Awareness
243 N. Lindbergh Blvd.
St. Louis, MO 63141
1-800-927-AFVA

Parents Active for Vision Education (PAVE) is another organization whose mission is to raise public awareness of the critical relationship between vision and achievement. (PAVE, 1994)

Parents Active for Vision Education
4135 54th Place
San Diego, CA 92105
1-800- PAVE-988

The theory and procedures underlying the diagnosis and management of vision disorders are taught in all of the schools and colleges of optometry. (Special Committee Report, 1987). There are developmental and behavioral optometrists across the country. However, not all optometrists practice developmental and behavioral optometry.
help locate one in a particular geographic area, the Internet provides a “Directory of Vision Therapy Providers.” (www.children-special-needs.org)

Optometrists have two organizations that publish research and information concerning the prevention, early detection and correction of learning related vision problems. They are:

College of Optometrists in Vision Development (COVD)
243 N. Lindbergh Blvd., Suite 310
St. Louis, MO 63141
(314) 991-1167
www.covd.org

Optometric Extension Program Foundation (OEP)
1921 E. Carnegie Ave., Suite 3-L
Santa Ana, CA 92705
(949) 250-8070
www.oep.org

Even with this abundance in research as well as foundations and organizations aimed at creating awareness, few, if any, elementary and secondary schools have processes in place that detect and eliminate visual perceptual problems that contribute to academic failure. One exception to this was noted. In 1992, an interdisciplinary task force (Bosse, Mallet & Santoro, 1992) reviewed the Colorado state vision screening program and deemed it inadequate because it only assessed distance acuity. Colorado has since revamped the screening to include not only distance acuity but also, near acuity, near point convergence, cover test, depth perception and color vision.

A School Targeted Program

Learning Dynamics and Reading Breakthroughs, LLC has developed a program titled “Creating STARS”™ (Students Achieving Reading Success) to address academic failure
resulting from undetected visual perceptual problems leading to poor cognitive functioning or learning strategies. The skills learned in this program are essential for academic success as well as a subsequent productive life. "Creating STARS" is an intervention designed to assist administrators, teachers, and parents in helping students who are experiencing reading and learning difficulties. The program has five components. They are: 1) teacher and administrator training, 2) student assessment, 3) visual stimulation activities, 4) learning strategy installation and 5) reading and learning remediation.

Teacher Training

"Creating STARS" is a school based intervention that begins with a three day teacher and administrator training. The training creates awareness of visual perceptual problems and their link to cognitive processing. Participants review learning style theory and proceeds with developing student rapport building skills. The workshop culminates with instruction on learning strategies and how to install them (Blackerby, 1996). Listed are the objectives defined for this training.

1. Understand and appreciate the visual needs of students.
2. Identify children's behaviors that indicate visual deficiencies.
3. Assist individual students with recommended visual activities.
4. Implement visual activities for the entire classroom.
5. Develop lesson plans incorporating visual activities.
6. Answer questions of parents regarding student's visual capabilities and needs.
7. Learn personal teaching/learning style.
8. Develop rapport building skills to use with students, teachers and administration.
9. Develop rapport with students.

10. Identify student’s sensory learning style.

11. Identify student’s current learning strategies.

12. Install six academic learning strategies.

13. Reinforce, support and encourage student’s use of effective learning strategies.


Development Vision Assessment

During this part of the “Creating STARS” program teachers, using their newly learned skills of identifying students with visual perceptual problems, identify students to participate in a development vision assessment. Selection of students for visual screening is based upon behavioral observations that indicate possible visual perceptual problems. Teachers also use student’s achievement test scores and reading ability to aid them in selecting students targeted for the developmental vision assessment.

The development vision assessment is conducted by the staff of Learning Dynamics and Reading Breakthrough, LLC and includes these components.

1. Physical Screen
   a. Visual acuity
   b. Depth perception
   c. Accommodation
   d. Ocular pursuits
   e. Saccadic eye movements
   f. Near/far fixations
   g. Near point convergence

2. Visagraph (computer software)
   a. Charting of physical reading ability

3. Computerized Placement Appraisal
   a. Grade level reading placement

4. Ability to visualize

© 1999 - LD&RB, LLC
Visual Stimulation Activities

School administration, teachers and parents are provided a copy of the Developmental Vision Analysis Report. This report identifies the areas where the student demonstrated visual perceptual deficiencies. Students whose visual screen indicated significant acuity and/or development vision issues are referred to the school nurse who recommends to the parents the need for professional developmental optometric care. The report also makes recommendations for specific visual stimulation activities to address the identified issues. Visual perceptual activities are designed to stimulate the visual system, and strengthen skills in this area. They include activities such as 1) String and Beads, 2) Pencil Push-ups, 3) Hole in Paper, 4) Phonetic Focus, 5) Tracking Activities and 6) Pins on a Stick. Teachers work with the students in the classroom during their regular school day to complete the visual stimulation activities. As these activities are completed, the visual perceptual problems will begin to subside and the student will begin to experience academic success.

Learning Strategy Installation

In addition to visual stimulation exercises, students are taught learning strategies or “how” to learn. In most educational settings, “what to learn” is taught. Teachers have not been instructed to emphasize learning strategies (efficient cognitive processing) or “how to learn” but concentrate only on academic concepts. Teachers can improve student’s academic performance by instructing them how to memorize, store and retrieve information. During the teacher training, teachers were taught how to install or teach
students these learning strategies. Teachers, with the help and support of the Learning Dynamics and Reading Breakthroughs staff, teach students this vital component contributing to academic success.

There are six learning strategies that cover the academic areas of spelling, vocabulary, facts and information, reading comprehension, math facts and math conceptualization (Blackerby, 1996). Using specifically designed lesson plans teachers install these learning strategies. Subsequently, teachers encourage, support and reinforce students use of these strategies in all academic endeavors.

Reading and Learning Remediation

Students are often functioning far below their grade level when parents and teachers become aware of the visual perceptual and cognitive processing problems. Once the assessment has been completed, visual stimulation activities practiced and learning strategies installed, the student can begin reading and learning remediation.

The remediation process requires the student to complete a computerized program that continues to build and strengthen both visual perceptual skills and cognitive processing while improving reading rate, comprehension and learning ability to achieve grade level norms.

Post-testing

Once a student has completed the "Creating STARS" program, post-testing is conducted. Post-testing tracks student’s visual perceptual progress. It consists of a follow-up developmental vision screen along with a reading assessment that documents reading rate and comprehension. These results are shared with administration, teachers
and parents. If the results show the student is functioning at grade level, the program is completed. If not, the student continues in remediation until grade level performance is achieved.

Program Results

Although in its infancy, this program has demonstrated significant results. During the 1998-1999 school year, Martin Luther King Elementary School in Oklahoma City, Oklahoma participated in a pilot program. All second, third and fourth grade students completed the "Creating STARS" program. All three grades gained approximately one year's progress in 20 hours of remediation and increased reading rate calculated in words per minute by 68 percent.

Conclusion

As demonstrated through the results obtained from the pilot study, focusing on development of visual perceptual skills followed by instruction in efficient and effective ways to process information is an effective means to remediate and prevent academic failure. For more information about "Creating STARS," contact Learning Dynamics and Reading Breakthroughs, LLC, 4720 North Classen Boulevard, Suite 300, Oklahoma City, Oklahoma, 73118, (405) 528-0865.
References


**I. DOCUMENT IDENTIFICATION:**

<table>
<thead>
<tr>
<th>Title:</th>
<th>Creating STARS: An Educational Intervention Addressing Academic Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s):</td>
<td>Carol A. Keymer</td>
</tr>
<tr>
<td>Corporate Source:</td>
<td>Learning Dynamics &amp; Reading Breakthroughs, LLC</td>
</tr>
<tr>
<td>Publication Date:</td>
<td>Sept. 1, 1999</td>
</tr>
</tbody>
</table>

**II. REPRODUCTION RELEASE:**

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, Resources in Education (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2A</th>
<th>Level 2B</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Sample" /></td>
<td><img src="image2" alt="Sample" /></td>
<td><img src="image3" alt="Sample" /></td>
</tr>
</tbody>
</table>

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) and paper copy.

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only.

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only.

Documents will be processed as indicated provided reproduction quality permits.

If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

**Signature:** Carol A. Keymer  
**Printed Name/Position/Title:** Carol A. Keymer, Co-President  
**Organization/Address:** 1024 NW 47th Suite A  
**OKC, OK 73118**  
**Telephone:** (405) 528-6876  
**Fax:** (405) 528-6877  
**E-Mail Address:** keymer@uokcs.ks.edu  
**Date:** 9/21/99  

(over)
III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

<table>
<thead>
<tr>
<th>Publisher/Distributor:</th>
<th>Learning Dynamics and Reading Breakthroughs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address:</td>
<td>4720 North Classen Blvd, Suite 200</td>
</tr>
<tr>
<td></td>
<td>Oklahoma City, OK 73118</td>
</tr>
<tr>
<td>Price:</td>
<td>(Contact Company)</td>
</tr>
</tbody>
</table>

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:

Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

University of North Carolina at Greensboro
ERIC/CASS
101 Ferguson Building
300 Ferguson Building
Greensboro, NC 27402-6171

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
1100 West Street, 2nd Floor
Laurel, Maryland 20707-3598

Telephone: 301-497-4080
Toll Free: 800-799-3742
FAX: 301-953-0263
e-mail: ericfac@inet.ed.gov
WWW: http://ericfac.piccard.csc.com

F-088 (Rev. 9/97)
PREVIOUS VERSIONS OF THIS FORM ARE OBSOLETE.