Best Doctors ’08

NELLY ON STL:
“We gave this city hope, man.”

Our Bite-by-Bite Review of Sc ape

Inside the Mystifying Worlds of Autistic Children

903 PHYSICIANS YOU CAN TURN TO — AS CHOSEN BY THEIR PEERS

Including
Dr. Michael C. Mauney,
Cardiothoracic Surgery Star

Missouri Baptist Medical Center
BC HealthCare

AUGUST 2008
$4.99
FOR SIGHT-IMPAIRED KIDS, THE THREE R’S
—ESPECIALLY READING
—CAN BE NEARLY IMPOSSIBLE TASKS.
UM—ST. LOUIS’ PUPIL PROJECT COMES TO THEIR RESCUE

BY AMY RECKTENWALD
PHOTOGRAPHS BY FRANK DI PIAZZA
WOLFIE'S JUST AN ORDINARY KID,

with light brown hair and an infectious smile, seated at a table far too big for the tiny room he occupies, playing with Legos. They turn out to be an Indiana Jones set, complete with snakes to drop on the plastic people and walls that fall over on unsuspecting Indy. The 11-year-old Wolfie is intent on his play, not even noticing the adults setting up the computer for his tutoring session. He informs me that when he first came to the Pupil Project, he couldn't build with Legos—it was too complicated.

Wolfie is one of the 55 to 60 children, ages 5 to 18, who participate each year in the Pupil Project. A collaboration between the University of Missouri-St. Louis' colleges of optometry and education, the project helps children who've been struggling in school due to vision problems improve both academically and visually. While parts of the program sound simple enough in theory, the results are nothing short of spectacular. In its depth the program resembles services optometrists offer in their private practices, and though there is something similar at a school in Indiana, it is not of this scope; really, this is the only project of its type in the country.

"There's never been this kind of merger, between colleges of optometry and education, before," says Stephen Viola, one of the founding members and the director of Continuing Education Alternative Certification Programs at UM-St. Louis. "Colleges of optometry are doing vision therapy, getting those eyes working correctly. But they have never taken it to the next level. How does vision impact reading? How does it impact learning?"

Visually impaired kids often do fine reading letters on a chart, but by second and third grade, when they're supposed to have some reading fluency, they're grasping words in fits and starts. "All that extra processing time adds up," Viola says. "The other kids are done and out at recess, and the child with vision problems is still sitting there struggling. When reading speed slows down, concentration and comprehension drop, too, and the frustration builds."

In the Pupil Project, each child is assessed by a team of optometrists, educators and a school psychologist. Rigorous tests follow: vision, intelligence, reading ability and comprehension. If the team determines that the child's difficulties are due to a vision-related problem, the child qualifies for the program, which provides vision therapy in addition to tutoring.

Wolfie's been coming to the Pupil Project for three years now and is counted as a success. His mother says initially, she was despondent about his reading—nothing at all was working, no matter what they tried. And they had tried it all.

Wolfie's difficulties began in kindergarten. By the first grade he was falling behind, and by second grade he was completely lost and couldn't read at all. Even with the school's intervention, his reading
was not coming along. Then a learning specialist at Wolfie's school suggested the Pupil Project.

That's a common path: Children often enter the program at the recommendation of a counselor or special educator who's noticed they are not making progress. Kids are given psychoeducational, IQ and visual-processing tests, and optometrists perform extensive vision testing. They check for acuity of vision, eye-movement skills and eye-teaming skills, trying to determine if the child's eyes move together to provide proper binocular vision.

Other tests measure how a child's brain processes visual information. Can the child tell a b from a d? Is he or she capable of remembering visual information and a sequence of visual events? The area of greatest concern is the temporal aspect of vision, which determines how quickly visual information reaches the brain. “This is where we see issues with reading comprehension and fluency,” explains Dr. Aaron Franzel, chief of Pediatrics/Binocular Vision Services at U-M-St. Louis. The testing tracks not only how much of the text a child will read, but also how long it takes him and how many times he loses his place. The secret is a special set of goggles called a Visagraph, which measures the movement of the eyes across the page, noting every time they skip, move back or jump ahead.

Most of the students seen by the Pupil Project have timing issues with their reading, and they often receive additional diagnoses of dyslexia or learning disabilities. When Wolfie came to the Pupil Project, he had eight diagnoses across the visual and educational fields, and he was reading 50 words per minute, far below his grade level of about 115. This is the point where vision therapy begins.

And this is the point where the parents cry, not the children. They're so relieved, Franzel says, to know there's a treatable cause for their child's struggle.

In the vision therapy sessions, the tasks seem simple enough. A light flashes on a board hanging from the wall. Each time the light is touched, it jumps to a new position. The trick is to spot the light and touch it as many times as possible within the time limit. Tracking this moving light, called a saccadic fixator, improves visual awareness and speeds up response time to visual information, a vital skill for a reader.

Another exercise used in both vision therapy and tutoring is guided reading. Words scroll across a computer screen, forcing the child's eyes to track left to right, which trains the eyes to follow a sequenced direction rather than skip around on the page.

In a third exercise, called a tachistoscopic drill, a letter or number appears on the computer screen for a length of time, then vanishes. The student must click on the character before it disappears. Other exercises include naming numbers or pictures of familiar objects and taking timed tests for word recognition, spelling and processing speed. Students learn new words as the computer program intersperses them with increasing frequency among familiar words.

After every seven weeks of therapy, there's a week of evaluation. Typically, students remain in vision therapy for three to six months before moving over to the academic portion of the program. After 24 weeks of vision therapy, Wolfie started working with tutor Debbie Iadevito. Three full years after joining the Pupil Project, he's still excited and enthusiastic about what he's doing. Today, even though they're using the reading program's Internet version (which he confides that he doesn't like), he's cheerful; his feet are propped up on the computer desk as he leans back in his chair, eyes on the computer screen. He can choose from about 40 stories at his program level; because he's here, he picks a story about a newspaper reporter.

First Wolfie has to learn key words for the story. He has turned this part into a game, keeping score on who can guess the sentence's missing word first before he flashes it on the screen. He keeps excellent score, correcting Iadevito when she claims he's winning. He's not—not yet. With a push of a button, the missing word flashes on the screen so fast, you can barely catch it—blink, and you've missed it completely. The speed of the flashes is actually an example of tying vision therapy into the tutoring program in order to build visual recognition and memory.

Wolfie manages to remember and type many of the words without rechecking them, sounding them out or breaking them down into smaller words. The few he can't guess are new to him: “editor,” “rewriter,” “route.” The new words expand his vocabulary, but he's more interested in relating them to me and my work.

Iadevito says that the program Wolfie is using, Reading Plus, is available to the public, but having a professional present to monitor progress, point out discrepancies and deficiencies, and resolve issues makes all the difference in the success of the student. She sits beside Wolfie, casually observing his position and perceptual acuity. Is his head straight? Are his eyes moving correctly across the text? Is he grasping what he's reading?

He finishes the key words section, and the challenge steps up a notch: Now he has to read a selection of text aloud. The computer times how long it takes him and calculates a words-per-minute speed. Then the speed is automatically increased by two to five words per minute, a way to train Wolfie's eyes and brain to work together more quickly.

Next the text is presented again, this time scrolling left to right at the speed Wolfie requests. After he reads it, he takes a quiz to test his comprehension, asking him to name a character or draw conclusions about the main idea of the story. If he misses a factual answer, he's given the relevant section to reread. If he can't state the main idea, he rereads and reconsiders the entire passage.

As soon as a student's doing well with a particular skill, the computer will move that skill out of the list and slide another one in. The student is then asked to identify cause-and-effect relationships and rate the consequence level of the events described in the stories.

Even with the computer tracking Wolfie's speed and success, Iadevito still prompts him to go back if he's breezed over a word, or if he's substituted “mom and dad” for “mother and father” in the text, or if he reads a word and fills in a cliché rather than voicing what is on the screen. She listens for correct consonant sounds, pointing out when he uses a w sound for the r in “Larry.”

It seems so simple: Touch lights. Read some moving text. Play a game to guess the key word. But for Wolfie and the other children, these are obstacles faced and victories won.

Wolfie's mother admits that she was a little doubtful the program would work. But she followed the Pupil Project's recommendations, started Wolfie on vision therapy and saw an immediate improvement. This year, Wolfie is in all nonspecialized classes for the first time. Last quarter, he made honor roll. He reads by himself, with 100 percent comprehension. His speed has tripled, increasing to 150 words per minute, which is right at his grade level.

Nothing could have made his mom happier than to have her doubts proven wrong. "We'd cancel an appointment with the pope," she says, "to get him here."