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MRIs Detect Mental Illness

By Olivier Uyttebrouck, *Journal Staff Writer*

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Schizophrenia and bipolar disorder can be tricky illnesses to diagnose, often resulting in treatment delays and years of frustration for patients and their families.

New research announced Tuesday by researchers at the Mind Research Network in Albuquerque suggests that brain imaging technology could offer a powerful new tool for diagnosing those illnesses.

Researchers using functional magnetic resonance imaging were able to distinguish with 93 percent accuracy people with schizophrenia from those with bipolar disorder and a healthy control group.

Vince Calhoun, the study's lead author, said the work could lead to rapid diagnosis using MRI technology. MRIs are widely used for other purposes in hospitals across the country.

"I think there's a lot of potential for imaging to make an impact, because you're actually measuring something, and it's a window into the brain," said Calhoun, director of image analysis and magnetic resonance at the Mind Research Network, a nonprofit research center.

For now, medical professionals use clinical interviews to diagnose elusive diseases like schizophrenia, he said.

"The underlying cause of both of these illnesses isn't fully understood yet, so diagnosis is based on symptoms," Calhoun said.

Prompt diagnosis and effective treatment can help improve the lives of people with schizophrenia and bipolar disorder, Calhoun said.

The Mind Research Network was started with funding secured by former Sen. Pete Domenici more than a decade ago to use brain imaging technology to study mental illnesses. One of his daughters began developing symptoms of schizophrenia at age 17.

Calhoun's research, published last year in the journal *Human Brain Mapping*, used MRI technology to compare brain responses in 21 schizophrenic patients, 14 bipolar patients and 26 healthy people.

Researchers now want to replicate the findings using undiagnosed and unmedicated patients, Calhoun said.

Sunday, November 30, 2008

Make the Most of Math Skills With KenKen, A Sudoku-Like Game Catching on in the U.S.

By Amanda Schoenberg, *Journal Staff Writer*
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It is 10:50 a.m. on a Monday. Student officers of Valley High School's Math, Engineering and Science Achievement Club file into a chemistry lab for a quick lunch meeting.

Before official business begins, senior Rebekah Pflieger checks out her first KenKen puzzle. Seconds later, she is scribbling numbers in boxes. In three minutes, she has figured out the game, a new Japanese puzzle similar to the logic game Sudoku.

Joel Cruz, Gary Martinez and Joe Stevens — all MESA Club officers — fill out their boxes soon after. Their mission? Master the game and report their observations to the Journal.

It doesn't take the students long to figure out the rules. In the basic three-by-three puzzle, no numbers can be repeated in the same line and each line must use the digits 1, 2 and 3. Each box outlined in black, called a cage, must add or subtract to equal a number in a corner of the box.

"This is a lot more mathematical than Sudoku," Cruz says. "It's pretty fun."

The students aren't the only ones trying it. Borders sells KenKen books in a prominent place near its cash registers. The New York Times puzzle master Will Shortz has endorsed the game.

KenKen was created by Japanese math teacher Tetsuya Miyamoto, whose teaching style is unorthodox, to say the least.

According to Robert Fuhrer, president and founder of Nextoy and KenKen Puzzle, Miyamoto has pioneered "The Art of Teaching Without Teaching" at his school. During tutorials students can't ask questions but must figure out puzzles on their own.

It's addictive

In his introduction to the book "Will Shortz Presents KenKen," Shortz writes that Miyamoto's students spend hours on the game and find it "more engaging than TV and video games."

Fuhrer, who has been making toys since 1982, learned about the game in Japan in April 2007. Fuhrer introduced the game to Shortz, who told him it was "addictive." When The Times of London added KenKen to its Web site in March, he knew it was headed for success, Fuhrer says.

KenKen is now featured in Reader's Digest, and The New York Times started running it on Thanksgiving. Handheld and mobile phone versions are expected next year, Fuhrer says.

Puzzle advocates say games like KenKen often find homes in the classroom.

Janice Chase, a math teacher at Valley High School, has used puzzles for extra credit throughout her 17-year career. In recent years, she has used Sudoku. This year she started offering Numbrix puzzles.

Anything that improves logical skills will help students' math skills, Chase says. It can also help them "logic out" answers on standardized tests like the SATs, she says.

"I keep telling them, 'this is logic,' " she says. "If it's math, they don't want to do it."

Chase isn't familiar with KenKen but likes the idea of a puzzle that improves what she calls "basic facts" — computation skills that many students still haven't mastered by high school.

Get kids involved

Julie Cervantes, regional coordinator for MESA, which works to motivate New Mexico students in science, math and engineering, says puzzles are one way to engage students.

MESA groups often use puzzles for in-school math competitions. They help reinforce skills for visual learners and