

# Brain workouts boost mental performance



Learning expert Donalee Markus tries to find barriers that create weakness in the cognitive abilities of her clients. (Joel Schachtel, Handout / March 21, 2012)

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For more than 25 years, Donalee Markus, a Highland Park-based learning specialist, has helped struggling students by emphasizing the importance of "exercising their brain muscles."

The onetime junior high teacher helps kids build their mental muscles to address their weaknesses and master subjects that frustrate them. But you don't need to be flunking geometry to benefit from her tools — she has also worked with NASA engineers. With end-of-the-year panic about to set in regarding papers, projects and final exams, Markus talked about life, learning and confronting your deficits.

**Q. What's the difference between what you do and tutoring?**

A. We use puzzles and exercises involving visual imagery to diagnose gaps in critical thinking skills, such as analysis, inference and progression. Because the exercises are content-free, the objective is not to solve the puzzle but to generate as many ways of approaching the game as possible. So, if you make a mistake, you learn from it.

**Q. Can you give me an example of how these exercises help in a real academic situation?**

A. When I teach the ACTs, I have students circle what they think is the right answer and then mark the second best answer ... so you can do your own error analysis. For one student, 19 of her second answers were right ... so, we looked at where she was making her mistakes. She could see that she selected the most detailed answer when the test wanted the most concise description.

**Q. So how can parents help their kids break down a big project into something manageable?**

A. You have to set the stage for success ... and that doesn't mean more nagging. So, let's say your child has a paper due on Edgar Allen Poe. You might mention something unusual about his background as a way to engage your child. You might create a work space in the dining room, so every time he walks past, it will be a reminder.

**Q. I completed eighth grade already. Why do parents need to do that kind of hand-holding?**

A. It's about starting them down the road. I learned how to write a dissertation by seeing other dissertations ... so I could understand what is expected of me. Great chefs don't just

start cooking. First, they watch, then they might get a small task, like chopping onions ... then, a tougher job. The goal is not to get the paper done. It's about the process ... and transferring that process to the student.

**Q. Isn't that level of involvement a crutch? Won't kids expect Mom or Dad to get them started every time?**

A. Each time, you pull back a little until they do it on their own. What I'm talking about is a kind of mentoring. After all, you won't be around to write their papers in college.

**Q. You don't think our constant reliance on technology is a good thing. Can you explain?**

A. Visual imagery skills are the foundation for abstract thinking and technology frequently keeps us from using our prefrontal cortex. So, before Mapquest, if you were going on a trip, you'd have to look at the map, plan your route, figure out how long it would take to get from here to there. There are lots of steps involved ... and we don't have to do them anymore. That's how we strengthen executive planning, which is what distinguishes us from other mammals.

**Q. You don't like the term "learning disability." Why?**

A. It sounds like a permanent diagnosis. There can be a weakness in a specific area of learning, but it's not written in stone. The brain has tremendous plasticity, so new neural connections can be made. ... It's like having a weak serve in tennis. We can rehearse and strengthen the skill.

**Q. You emphasize the importance of failure. Can you explain?**

A. The biggest problem — especially for gifted kids — is that they do something so terrifically that they think learning is automatic ... not something within your control. So, then your perception is either you are good at something or you're not ... but your weaknesses can hold you back. Gifted kids don't appreciate the importance of rehearsal because they have very limited experience with rehearsal.

**Q. Well, no one is good at everything. So, what's wrong if you channel all your energy into being a highly skilled musician, dancer or baseball player?**

A. None of us know what life has in store for us. So, if you are a violinist and you hurt your neck in a car accident or a pitcher who has an arm injury, what will you do? It's OK to be wonderful in one thing and not so good in something else. But you don't want to have such a large gap that it limits your participation in life. We all need choices.

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