



BRAINwaves

an e-newsletter from **THE UPSIDE NMOD**
organization

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OCTOBER 2008

"DON'T ANSWER THE PHONE – EVEN IF ITS ME CALLING!"

My wife Shawn and I are blessed with two great kids: Keenan, almost 13 and a seventh grader, and McKenzie, soon to be 17 and a very busy high school junior. A few weeks ago, McKenzie became a licensed driver.

As I shared with a colleague the duality of being proud of my daughter's new independence while terrified of her new exposure to potential harm, he asked, "So what advice does a brain guy like you give your daughter about driving?" My answer was instant, "Don't answer the phone, even if it's me calling!"

Contrary to popular belief, the brain is not good at multitasking. Simply put, decades of research suggest the brain is not biologically capable of multitasking. When our brain tries to perform two or more tasks at the same time or alternate between them, errors go way up and it takes nearly double the time to get the job done. According to David E. Meyer of the Brain Cognition and Action Laboratory at the University of Michigan: "The toll in terms of slowdown [when attempting to multitask] is extremely large—amazingly so...the bottom line is that you can't simultaneously be thinking about your tax return and reading an essay, just as you can't talk to yourself about two things at once. People may think otherwise but it's [multitasking] a myth." Wallis, Claudia, "Are Kids Too Wired for Their Own Good? What Science Tells Us About the Pluses and Minuses of Doing Everything At Once." TIME, March 27, 2006, p.53.



What are the inherent limitations in our brains that Professor Meyer is referring to? In his book: Brain Rules: 12 Principles for Surviving and Thriving at Work, Home and School (Pear Press 2008), developmental molecular biologist John Medina explains simply: *"The brain is a sequential processor, unable to pay attention to two things at the same time. Businesses and schools praise multitasking, but research clearly shows that it reduces productivity and increases mistakes."* Medina, p. 84.

In other words, the brain does things one at a time, one after the other. While it can toggle back and forth quickly from one stimulus to another, it does not parallel process. So when driving, any distracting stimulus - if paid attention to - will cause the brain to disengage from driving to attend to a new stimulus. For an inexperienced driver like McKenzie, disengagement from driving while behind the wheel can have devastating consequences - even if you do missthat important cell phone call.

What's Happening in There?

How the brain pays attention to competing stimulus helps us to understand how important it is for McKenzie - and all drivers - not to pick up that phone. Let's follow McKenzie's brain as she drives from our home in Falls Church, Virginia to the Waffle House in Forest Hill, Maryland (about 5 miles away) to meet some friends for a cheeseburger and just "hang-out."

Step 1: Executive Activation

As McKenzie exits the house and steps into her pickup truck (affectionately known as "McTruck"), her brain's executive system rushes blood to her pre-frontal cortex (PFC), a part of the frontal lobes immediately behind her forehead. This increased blood flow signals the PFC that a shift in attention is coming. Specifically, that it's time to drive. Think of this signal as the alert: *"All hands on deck, we're going driving!"*

Embedded in the alert are two instructions. First, find the neural circuit that holds the driving rules information. Second, direct that neural circuit to carry out the driving task.

Scientists refer to this two-step process as "rule activation." It typically takes McKenzie's brain (as it does most brains) several tenths of a second to rule activate for a new task. She starts up the McTruck, backs out, and proceeds north on Millwood Drive toward the Waffle House.

McKenzie knows that several members of her rock band will be meeting her at the Waffle House. In addition, invitations via text messages have gone out to other friends. McKenzie hasn't

"In other words, the brain does things one at a time, one after another. While it can toggle back and forth quickly from one stimulus to another, it does not parallel process."

heard back from all of them, but hopes they can come call while she is driving. She also wonders if her dad (me) will call as I'm expected back from a trip and missed seeing her when she left for Forest Hill. Sure enough, five minutes into her drive, McKenzie's cell phone rings. She thinks: *"Who's all coming to the Waffle House? What if it's my dad? Should I answer?"*

The Right Choice

Don't answer the phone - it's the right choice. Even if it is your dad calling. Why? Let's continue to follow McKenzie's brain and see what happens if she answers the phone.

Step2:Disengagement

Because the rules for receiving, processing and responding to herringing cell phone are different than the rules for driving (and stored in different neural circuits), McKenzie's sequential brain must first disengage from the driving rules before she can attend to the cell phone. After disengagement, the PFC is consulted and sends the alert that the brain will be shifting attention to answering the cell phone: "All hands on deck, we're now switching to cell phone protocol."

Step3:ExecutiveActionAgain

Embedded in the switching alert are the messages to locate the neural circuit with the cell phone rules and to direct that neural circuit to carry out the cell phone use as a task. As with the driving task, it takes several tenths of a second to carry-out the attention switch.

DoesItMatter?

Ostensibly, several tenths of a second doesn't seem like much. But in driving, it can be a deadly difference. Research reveals that if McKenzie answers that cell phone, she will be: 1) a half-second slower to hit the brake in an emergency; 2) slower to return to normal speed after an emergency; 3) less controlled and consistent in her "following distance" behind the vehicle in front of her; and 4) oblivious to as much as half the number of visual cues signaling a potential hazard (if some of you are thinking "that sounds like drunk driving; you're right!").

The vast majority of crashes (80%) occur within the first few seconds of driver distraction. At a speed of 70 miles per hour a driver travels 51 feet in a second, and tenths of seconds matter a lot. If McKenzie tasks switches and answers that phone, her odds of being in an accident skyrocket. It is the way your brains work.

McKenzie has a great brain. Like all our brains, it does have limits. So, I tell her: **"Don't answer the phone---even if it's me calling!"**

UPSIDE DOWN WORKSHOP: ONE OF OUR NEWEST TOPICS OF INTEREST!

Did you know that pre-teen and adolescent brains are highly vulnerable to addiction? That young brains are damaged faster than older brains by drugs, alcohol and nicotine? What happens to the brain when teens become addicted? What can we do about it? Explore these questions and discover how addiction changes the brains of our teens in this cutting-edge workshop.

Trouble Letting Go: Understanding Addiction and the Developing Brain

Presented by

Frank J. Kros, MSW, JD

Nov. 7, 2008

Hilton Garden Inn-White Marsh

5015 Campbell Boulevard | Baltimore, MD | 9a.m. - 4p.m.

Early-bird rate: \$139 before 10/30 • Regular rate: \$159 starting 10/30

Group rate: \$119 (three or more registrations)

In **Trouble Letting Go: Understanding Addiction and the Developing Brain**, you'll explore how and why young brains are more vulnerable than adults to the effects of alcohol, nicotine and drugs. Packed with practical advice for parents, teachers and helping professionals, this workshop reveals why this vulnerability exists and offers concrete suggestions on both prevention and intervention after use. **Learn what happens in the adolescent brain when intoxicating substances are used, why addiction happens, and how addiction changes the rapidly developing brain.**

This workshop has been approved for 6.0 contact hours of Category I CEUs by the Board of Social Work.

A WARM "SHOUT OUT"

As we enter this season of Thanksgiving, UDO would like to express our warm gratitude to all of you for the "word of mouth" marketing you've done on our behalf.

UDO is a nonprofit organization and relies almost exclusively on our participantsto tell others about our workshop experiences. Many of you have literally "stuck your necks out" to advocate for your organization to host a UDO seminar. For example, I recently traveled to Palm Beach Gardens, Florida to present two workshops at H.L. Watkins Middle School. I was hired by H.L. Watkins because parent liaison Yirela Alcantar told Principal Ann Wark that "we have to bring these guys [UDO] to Watkins!" after participating in one of our seminars at a national conference.

Bringusthey did and it was a terrific experience!

One attendee wrote me afterward:

Dear Frank,

Your presentation yesterday was astounding! I was transfixed by your passion for the topic and its content. I since rely hopeschool districts nationwide learn about the critical research you have gathered and implement appropriate changes.

Please add my name to your e-newsletter and kindly send me a complete copy of the Executive Functioning Prompts.

Thank you so much for what you have shared.

*Dr. Percy Walcott, ELL Language Arts
H.L. Watkins Middle School*

Thanksto Yirela, UDO was able to share our story and our research with a fantastic school in Florida.

Another colleague, Stuart Clark of Educational Service Unit #1 in Wakefield, Nebraska, was instrumental in bringing UDO to my home state in September.
Thanks, Stuart!

And thanksto each and everyone of you for helping UDO to further our mission of "Helping Adults Help Kids." Have a wonderful Thanksgiving organization!



ORGANIZATIONAL SPOTLIGHT: BARSTOW ACRES COUNSELING CENTER

[BarstowAcresCounselingCenter's](#) mission is to provide mental health services and enrichment programs to children and families. Special modalities for children are offered and include play therapy, art therapy, and dance and art therapy. Trainers from [TheUpsideDownOrganization](#) are periodically featured at their conferences and speak on a wide variety of topics with our AD/HD workshop being the most popular.

BarstowAcresCounselingCenter's services are accessible and provided in a home-like environment by competent and compassionate staff that are culturally diverse and client centered. In addition to individual, group and family therapy, they also offer therapeutic summer camp and parenting workshops. BarstowAcresCounselingCenter is a 501C3 nonprofit organization located in Prince Frederick, Maryland.

UPSIDE DOWN WORKSHOP: JUST ANNOUNCED IN TYSONS CORNER, VIRGINIA!

Recent discoveries in neuroscience offer exciting insights into how the brains of teenagers really work and the special "brain-based" challenges facing adolescents as they mature. This workshop reveals why teens are especially vulnerable to drug use, high-risk peer influences and depression as well as the proactive measures adults can take to minimize a teen's exposure to these dangers.

Giving a Fish a Bath: The Untold Story of the Adolescent Mind

Presented by

Frank Kros, MSW, JD

Dec. 5, 2008

Hilton Garden Inn-Tysons Corner

8301 Boone Boulevard | Vienna, VA | [\[Directions\]](#)

9p.m.-4:00p.m.

CEU credits: 6

Early-bird rate: \$139 before 11/25

Regular rate: \$159 after 11/25

Group rate: \$119 (three or more registrants)

If you've ever thought that the adolescent mind could not be understood, this workshop will equip you with the latest insights and information on teaching, guiding and empowering the teenage brain.

[\[REGISTER NOW\]](#)

ASK FRANK

Frank J. Kros, UDO president, answers your questions about kids and the brain:



Dear Frank/ I saw your "Teenage Brain" presentation in Austin last month (August) at the Texas Network of Youth Services Annual Conference. I'm a social service professional and very interested in learning more about the brain and how neuroscience can help my clients. I did not have any neuroscience courses in undergraduate or graduate school. Can you recommend how I can get started with developing a working knowledge of the brain? // **Kim in Texas**

Last month, in response to Kim's question, I shared with you some of my favorite print resources for getting started on learning about the brain. This month, as promised, I've listed some of my favorite online resources.

Dear Kim // I strongly recommend Eric Chudler's "Neuroscience For Kids" website and newsletter (<http://faculty.washington.edu/chudler/help.html>). Professor Chudler works at the University of Washington and publishes information and resources for teachers, social workers and parents on getting our children interested in neuroscience. His newsletter, in particular, has helped me assemble a "virtual library" of websites relating to the brain and kids. "Neuroscience For Kids" received its start-up funding through a Science Education Partnership Award from the National Center for Research Resources. I urge you to log onto the website and sign-up for the free newsletter.

For keeping track of the amazing rate of new discoveries from science, www.sciencedaily.com is a helpful resource. Summaries are provided on a daily basis of newly emerging research with links and resources for follow-up when you find those topics you are interested in researching. While not exclusively dedicated to neuroscience, science daily typically includes many brain research studies in its summaries.

The Society for Neuroscience **is** exclusively about the field of neuroscience and you can find research summaries and a host of other informative resources on the brain at www.sfn.org.

For a fun, highly interactive, "across the pond" experience, check-out <http://www.youramazingbrain.org.uk>. Sponsored by England's Bristol University, this site contains scores of interactive opportunities to learn about the brain.

These are sites that will get you started on your brain journey. "I promise you'll find lots of exciting, useful and inspiring information as you navigate them!"

For those who have favorite sites of their own to share, email us at info@upsidedownorganization.org. Perhaps we can create a "Brain Bank" of useful sites to share with all our fellow brain journey travelers.

If you have a question for Frank, e-mail info@upsidedownorganization.org, subject: "Ask Frank."

CALENDAR OF EVENTS

Guide to upcoming events and The Upside Down workshops:



Nov.7

OPENWORKSHOP: "TroubleLettingGo: UnderstandingAddictionandtheDeveloping Brain"

PresentedbyFrankKros,MSW,JD
HiltonGardenInn-WhiteMarsh
Baltimore,MD

Nov.7

AssociationforExperientialEducation-36thAnnual Conference
"AlltheClassisaStage"

PresentedbyTerryLong
Vancouver,WA

Nov.13

MarylandAssociationofResourcesforFamilyandYouth(MARFY)-2008Annual Conference

"TheSaddestSong:Teens,SuicideandtheDevelopingBrain"
PresentedbyHeatherHiggins,LCSW-C
OceanCity,MD

Nov.21

TheUniversityofMarylandSchoolofSocialWork
"Jack'sBrain,Jill'sBrain:WhyGenderDifferences Matter"

PresentedbyTerryLong
Hagerstown,MD

Dec.5

OPENWORKSHOP: "GivingaFishaBath:TheUntoldStoryoftheAdolescentMind"

PresentedbyFrankJ.Kros,MSW,JD
TysonsCorner/Vienna,VA

ATTENTION: ANYONE WORKING WITH AT-RISK STUDENTS

The **National At-Risk Education Network (NAREN)** will hold its annual conference for at-risk education professionals in **Panama City, Florida on February 17-19, 2009**. Goto www.atriskeducation.net for more details. NAREN is a true grass roots organization dedicated to discovering, promoting and sharing tools, resources and alternatives for at-risk students. Despite education's economic challenges, attendance at this conference grows every year, we think because of the genuineness of the participants and the focus on practical tools in all the workshops.

UDO will be providing several workshops at the NAREN conference, so make plans to attend. **The location is beautiful, warm Florida in February is great but it will be the huge bag of tools and the heart full of inspiration you bring back that will make it all worthwhile!**



The Upside Down Organization (UDO), formerly The Institute for Transformation Education, is a nonprofit organization dedicated to the education and advocacy of Transformation Education, an organizational philosophy and operating system for child-serving organizations. UDO offers professional development experiences, mentoring services, learning tools and organizational branding that help improve the skills of people who educate, parent, guide and care for young people.

Visit UDO online, contact 410-444-5415 or e-mail info@upside-downorganization.org.