The FASD Learning Series is part of the Alberta government’s commitment to programs and services for people affected by FASD and those who support them.

**Presenter:** Karmen Krahn Schulties  
**Date:** September 29, 2010

### Session Goals

1. Understanding regional brain function and the impact of prenatal exposure to alcohol
2. Interpreting all behavior as a function of the brain and its various regions
3. Identifying external support strategies including long-term supportive people

*Why are these goals necessary?*

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**A spontaneous lesson on self-regulation after a rough day.**

“In their attempts to explain behavior, scientists and philosophers frequently search for analogies among things they know.”

“In earlier times, the brain was compared to simpler mechanical devices such as a water pump or a clock.”

*An Introduction to Brain and Behavior, Kolb and Wishaw*
"No one is moved to act or resolves to speak a single word, who does not hope by means of this action to release anxiety from his spirit."

Ali Ibn Hazm 994‐1064

Person with an FASD

Support People

This is what you’re capable of

These are the current limits of your disability

This is the overlap about?

Shh! It’s Top Secret!

Practice: Controlling
Message: I’ll think for you
Legacy: Failed SR

Hi. I think this belongs to you.

Practice: Collaborate
Message: Can I help you?
Legacy: Self Regulation

#1 Reason to learn your brain: It’s yours.
The Ethics of Teaching the Brain

"Behavior management systems that merely manipulate the surface of youth behavior will never build controls from within."
L. Brendtro

#2 Reason to learn your brain: Because your brain is driving your behavior.

Behavior is a Brain Product

Motivation Hunches:
- Free will
- Basic needs
- Evolutionary reflexes
- Need for stimulation
- Chemistry/Electricity

FASD: The Missing Motivation
Brain dysfunction producing inexplicable behavior

The Self Regulation Pickle

<table>
<thead>
<tr>
<th>Job Description</th>
<th>Job Requirements</th>
<th>Capacities in FASD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan in sequence, organize time, thoughts,</td>
<td>Planning and</td>
<td>Difficulties problem solving, anticipating, ordering, organizing</td>
</tr>
<tr>
<td>space, and materials</td>
<td>organizing</td>
<td></td>
</tr>
<tr>
<td>Create goals, anticipate obstacles, solve</td>
<td>Goal Setting</td>
<td>Difficulties visualizing the elimination of work, habituated by obstacles</td>
</tr>
<tr>
<td>problems with innovation and strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generate an appropriate amount of emotion</td>
<td>Emotional regulation</td>
<td>Difficulty with emotional motivation, difficulty settling after arousal</td>
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<tr>
<td>for the situation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discern the severity of a perceived or</td>
<td>Proportional</td>
<td>Overreactions to benign threats, under-reactions to actual threats</td>
</tr>
<tr>
<td>actual threat or challenge</td>
<td>Threat Response</td>
<td></td>
</tr>
<tr>
<td>Store information, create meaning and</td>
<td>Remembering</td>
<td>Irregular recall and difficulty generalizing learning</td>
</tr>
<tr>
<td>retrieve as needed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If self-regulation **requires** strong executive functioning and executive function is a known **deficit** in FASD, how can we **expect** self-regulation?

**Old Answer:** With the External Brain.

**New Answer:** With strong parts of the brain plus external support.

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**The Superior Brain Myth**

FASD is tearing down the hierarchy that says one way of thinking is superior to all others.

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**Neuroplasticity:** a self-healing brain

“The extremely rapid adaptation indicates that functions that are normally inhibited in the brain’s visual cortex will come to the surface when they are needed. We believe that over time, if these adaptive functions are **sustained** and **reinforced** they will eventually lead to permanent, positive structural changes.”

Alvaro Pascual-Leone, M.D., Ph.D.
Berenson-Allen Center and Professor of Neurology at Harvard

**Reason #3:**
Because thinking is how the brain heals itself.
I am Brain Box Belief
Your whole brain is good

Brain Box Promise
For all the rest, I'm here to help you

Brain Box Principle
Strong parts of your brain will help the weaker parts

Brain Box Belief
Your whole brain is good

Reason #4 to learn your brain:
Because self-regulation builds independence and quality of life

A Life Built on a Resilient Foundation

The Impact of Learning My Brain

- Administrative or legal consequences
- Social consequences
- Defiant and oppositional
- Socially disruptive
- Responsibility taken
- Present but actively using strategies
- Behavior within normal social range
By understanding which parts of the brain are impaired, professionals should be able to utilize effective interventions developed for certain types of injury.

- Streissguth

Self-regulation is built into our genetic heritage!
### Brain Stem Behaviors

<table>
<thead>
<tr>
<th>What is visible</th>
<th>Misinterpreted as</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hoarding, taking things w/o consent</td>
<td>Selfish, greedy, stealing, sneaky</td>
</tr>
<tr>
<td>Defensive, aggressive, physical</td>
<td>Violent, mean</td>
</tr>
<tr>
<td>Scared, anxious, inattentive, panicky</td>
<td>Paranoid, ridiculous, irrational, ADHD</td>
</tr>
<tr>
<td>Excessive eating or mouth stuffing</td>
<td>Selfish, gluttonous, “growing boy”</td>
</tr>
<tr>
<td>Indulgent and impulsive</td>
<td>Undisciplined</td>
</tr>
<tr>
<td>Adventure seeking</td>
<td>A trouble maker, self abusive</td>
</tr>
<tr>
<td>Impulsive and reactionary</td>
<td>Out of control, poorly parented</td>
</tr>
<tr>
<td>Tremors</td>
<td>Parkinson’s Disease, Tourette’s</td>
</tr>
<tr>
<td>Intrusive errors, survival lies</td>
<td>A liar, dishonest, immoral</td>
</tr>
<tr>
<td>Racing thoughts and words</td>
<td>ADHD, too much sugar</td>
</tr>
<tr>
<td>Keen sense of justice</td>
<td>A tattle tail, bossy, intrusive</td>
</tr>
<tr>
<td>Fleeing, hiding, avoiding</td>
<td>Guilty, ashamed, unaccountable</td>
</tr>
</tbody>
</table>

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### Behavior and Reward

- **Dopamine**
- **Serotonin**
- **Oxytocin**

"PEA induced a long-lasting reduction in the activity of dopamine neurons... the effect was not in the cell loss but possible changes in the electrical properties of dopamine."

*Australian Clinical and Experimental Research*
“All activities of the lower brain are automatic and reflexive. In cases of extreme panic, this lower brain overrides thought and reason.”

Downshifting, by Leslie Hart

Behavior and Threat

A threat is perceived. Perception produces the same response as actuality.

Our job: Notice body changes. Salvage any SR. Do not call upon underdeveloped skills.

The body is now acting on pure reflex. There will be limited self-awareness, reasoning or sensory regulation.

Our job: Safe, rapid, socially valid control.

You decoded these colors using an older, more reflexive part of your brain. Once the code was learned, the reflexive, automatic brain took over the job. Automatic, reflexive behaviors are really hard to override. Wanna try?
You decoded the font color using an older, more reflexive part of your brain. Likely, the newer, self-regulating part of your brain really wanted you to say the color the word was spelling, not the color of the text.

How is this analogous to behavior?

**A Brain Stem Support Plan**

<table>
<thead>
<tr>
<th>Adapt</th>
<th>Teach</th>
<th>Reward</th>
<th>Respond</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Stop trying so hard and try something new</td>
<td>• Teach delayed gratification</td>
<td>• Stop punishing unwarranted</td>
<td>• Stop triggering during crisis</td>
</tr>
<tr>
<td>• Reduce stress</td>
<td>• Teach coping and resilience</td>
<td>• Start rewarding the absence of the bc</td>
<td>• Stop assuming natural consequences work</td>
</tr>
<tr>
<td>• Questions not lectures</td>
<td>• Teach a skill that minimizes opportunity</td>
<td>• Do regular reinforcement</td>
<td>• Use zero tolerance strategies</td>
</tr>
<tr>
<td>• Safe adventure and discovery</td>
<td>• Teach a skill that replaces the bc</td>
<td>• Meaningful rewards</td>
<td>• Is our response reinforcing?</td>
</tr>
<tr>
<td>• Fit expectations with ability</td>
<td>• Teach unrelated communication</td>
<td>• Meaningful reward schedule</td>
<td>• Overall, you are struggling, scare or demand</td>
</tr>
<tr>
<td>• Be generous with non-contingent rewards</td>
<td>• Teach sensory modulation</td>
<td>• Use the least amount of support needed for mastery</td>
<td>• Reassure and let in safe, quiet, socially accepted way</td>
</tr>
<tr>
<td>• Nutrition and exercise</td>
<td>• Foster independence</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

**Session II – Building Brain Boxes**

- Emotional Behavior
- Survival Behavior
- Imaginative Behavior
- Planning Behavior
- Communication Behavior
- Body Behavior
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For information on upcoming sessions in the FASD Learning Series:
www.fasd-cmc.alberta.ca

Please take the time to fill out the on-line evaluation

Thank You!