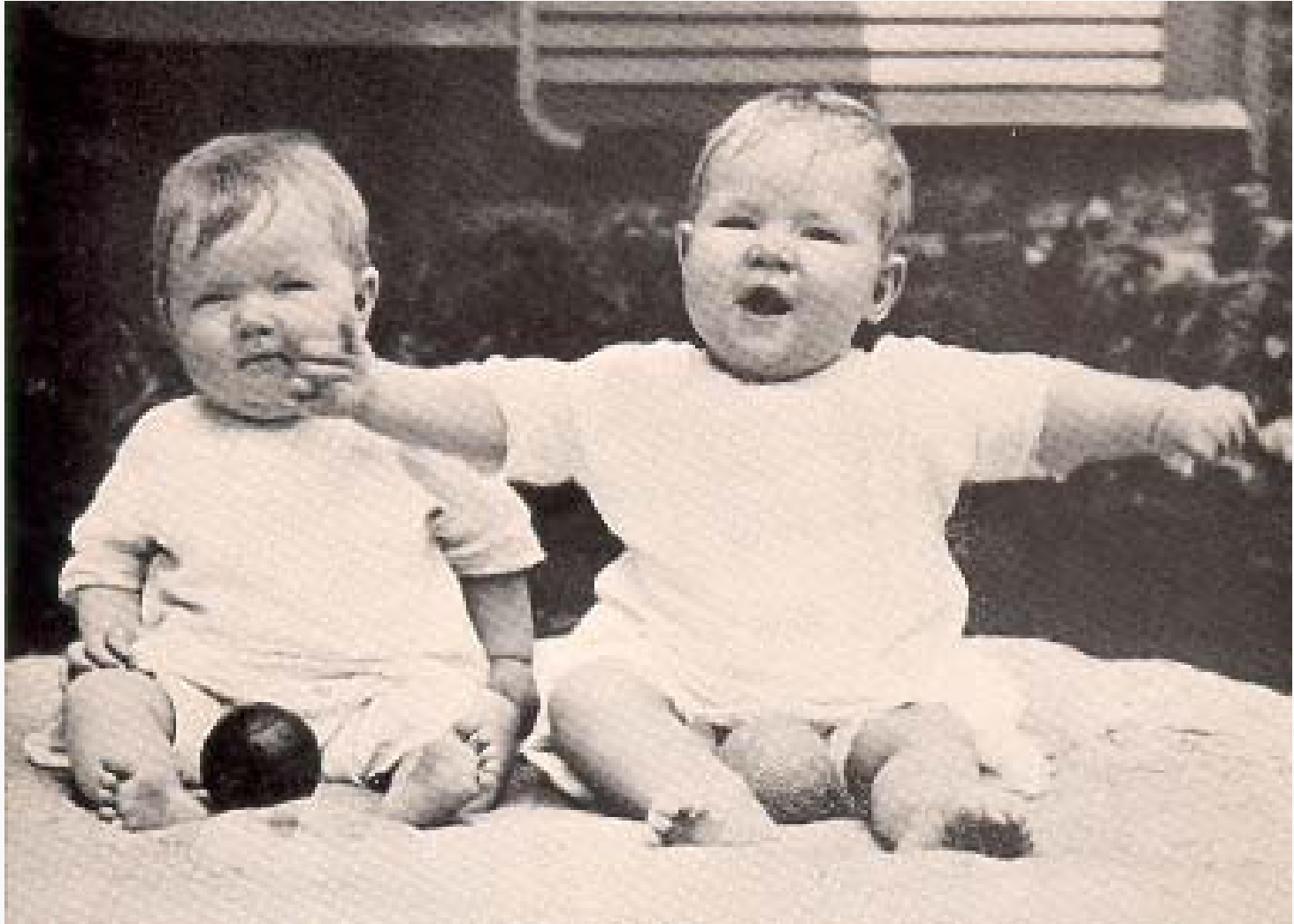


Temperament and the Development of Self-Regulation

Mary K. Rothbart
University of Oregon



Serene Winnie & Expansive Fred at 35 Wks.

Temperament

Biologically based individual differences in **reactivity** and **self-regulation**, influenced over time by heredity, maturation and experience.

Emotional, Motor, Attentional Reactivity

Effortful Control, Soothability Self-Regulation

These are reactive dispositions, that is, tendencies or inclinations, and self-regulative capacities.

They are not shown continually.

They can be influenced by the environment.

They form the building blocks for social-emotional development.





Google "Mary Rothbart" for Questionnaire website

Mary Rothbart's Temperament Laboratory at the University of Oregon
Welcome!

A little background information...

Dr. Rothbart's earliest research interests involved humor in theoretical and empirical work regarding temperament, which reactivity and regulation." Most recently, in collaboration with infants and young children.

To better understand Dr. Rothbart's interests, you may want to follow [this link](#) to download the forms. Upon completion of your research, we request that you send a second letter or electronic message describing the results of your project as they relate to the temperament scales. In this way, we hope to coordinate attempts at validation of the scales.

(Note: If you are using Netscape as your Internet browser and have problems downloading the files, you may want to try downloading them using Internet Explorer.)

The Instruments

Dr. Rothbart has developed parent- and self-report questionnaires on the links below, you can get basic information on the various questionnaires.

Please note that these questionnaires are to be used for research that you first send a brief email describing your plans for use of the questionnaire and specify temperament scales and/or factors in your email.

- [The Infant Behavior Questionnaire \(IBQ\) \(3-12 months of age\)](#)
- [The Early Childhood Behavior Questionnaire \(ECBQ\) \(18-36 months\)](#)
- [The Children's Behavior Questionnaire \(CBQ\) \(3-7 years of age\)](#)
- [The Temperament in Middle Children Questionnaire \(TMCQ\) \(7-10 years\)](#)
- [The Early Adolescent Temperament Questionnaire-Revised \(EATO-R\)](#)
- [The Adult Temperament Questionnaire \(ATQ\) \(adults\)](#)

Other

Besides Dr. Rothbart, several other researchers have been involved in our laboratory's work. By clicking [here](#) or email.

- At the University of Oregon
 - The [Psychology Department](#)
 - The [University of Oregon](#)

Questionnaire Downloads

Clicking on the links below will allow you to download current versions of Dr. Rothbart's questionnaires, as well as score sheets indicating items-by-scale and directions for calculating scale scores. All documents are either in Word (.doc) or Rich Text Format (.rtf) which should be viewable in either Microsoft Word or Corel WordPerfect. If you find that you are unable to read the files and would like us to send hard copies through the mail, please contact Penny L. Moore at: plmoore2@darkwing.uoregon.edu

Infant Behavior Questionnaire (IBQ) (3-12 months)

- The [Standard IBQ](#) containing 6 scales and 94 items.
- The [Standard IBQ Score sheet](#)
- The [IBQ-Revised](#) containing 14 scales and 191 items.
- The [IBQ-R Score sheet](#)
- A [Spanish IBQ-R -- European people](#) containing 14 scales and 191 items.
- The [Score sheet for Spanish-European IBQ-R](#)
- A [Spanish IBQ-R -- Mexican Spanish with Idioms](#) containing 14 scales and 191 items.
- The [Score sheet for the Spanish-Mexican IBQ-R](#)
- The [IBQ Documentation](#)
- The [IBQ-R Documentation](#)

Early Childhood Behavior Questionnaire (ECBQ) (18-36 months)

- The [ECBQ](#) containing 18 scales and 201 items.
- The [ECBQ Score sheet](#)

Children's Behavior Questionnaire (CBQ)

Extraversion/Surgency Factor

- **Activity Level.** Tends to run, rather than walk, from room to room.
- **Smiling and Laughter.** Often laughs out loud in play with other children.
- **Positive Anticipation.** Becomes very excited before an outing (e.g. picnic, party).
- **Impulsivity.** Often rushes into new situations
- **High Intensity Pleasure.** Likes to go high and fast when pushed on a swing.
- **Shyness.(-)** Acts shy around new people.

Negative Reactivity Factor

- **Anger/Frustration.** Gets angry when told s/he has to go to bed.
- **Fear.** Is afraid of the dark.
- **Sadness.** Tends to become sad if the family's plans don't work out.
- **Inhibitory Control.** Can easily stop an activity when told "No".
- **Discomfort.** Is likely to cry when even a little bit hurt.
- **Soothability.** (-) Is easy to soothe when s/he is upset.

Effortful Control Factor

- Inhibitory Control. Can easily stop an activity when told “No”.
- Attentional Focusing. When drawing or coloring in a book, shows strong concentration
- Low Intensity Pleasure. Likes the sound of words, as in nursery rhymes.
- Perceptual Sensitivity. Notices it when parents are wearing new clothing.

Broad Dimensions of Temperament.

CBQ: 6-7 Years

Extraversion/Surgency

Activity
Smiling & Laughter
High Intensity Pleasure
Impulsivity
Shyness (-)
Positive Anticipation

-.25 (PRC)
-.01 (USA)

Negative Affectivity

Fear
Anger
Sadness
Discomfort
Soothability (-)

.03 PRC)
-.28 USA)

Effortful Control

Attentional Shifting
Attentional Focusing
Inhibitory Control
Low Intensity Pleasure
Perceptual Sensitivity

Effortful Control

One of three higher-order factors that emerge from factor analytic studies of temperament questionnaires in childhood, adolescence, and adulthood

Definition of Effortful Control:

the ability to inhibit a dominant response in order to perform a subdominant response

Effortful Control



**Effortful
Control**

Laboratory Tasks (Children) – Kochanska

Delay

Walk-a-line (as slow as possible)

M&M task (delay as long as possible)

Conflict

Day/Night Stroop

Red Sign/Green Sign (Simon Says)

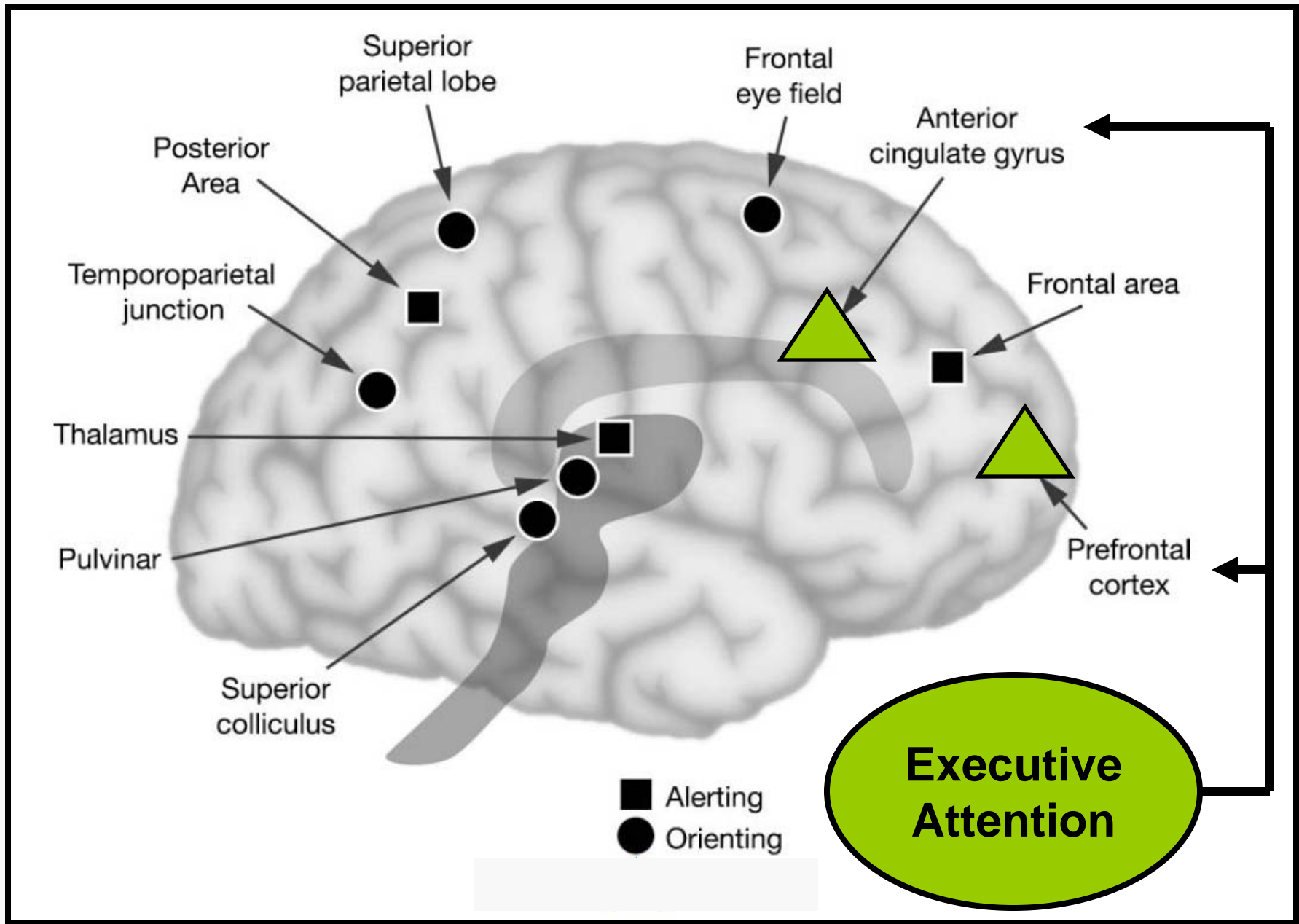
Effortful Control is Related To:

- Lower **Negative Emotionality** (Eisenberg, et. al., 2005)
- Lower **Impulsivity** (Eisenberg, et. al., 2005)
- **Smiling** to an Unwanted Gift (Kieras, et. al., 2005)
- Higher **Prosocial Behavior** (Valiente, et. al, 2006)
- Low **Externalizing Problems** (Olson, et. al., 2005)
- Low **Conduct Problems** (Loukas & Roalson, 2006)
- Low Symptoms of **ADHD** (Nigg & Casey, 2005)
- Higher **School Performance** (Valiente, et. al., 2007)
- Higher **Ego Resiliency** (Eisenberg, et. al, 2003)

Attention networks of the Human Brain (Posner & Fan, 2008)

- Alerting Network
- Orienting Network
- Executive Attention

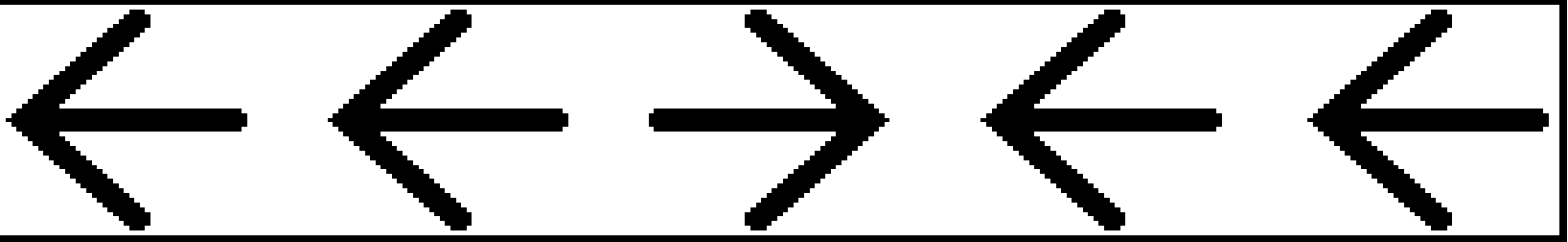
- Links between Effortful Control and Executive Attention



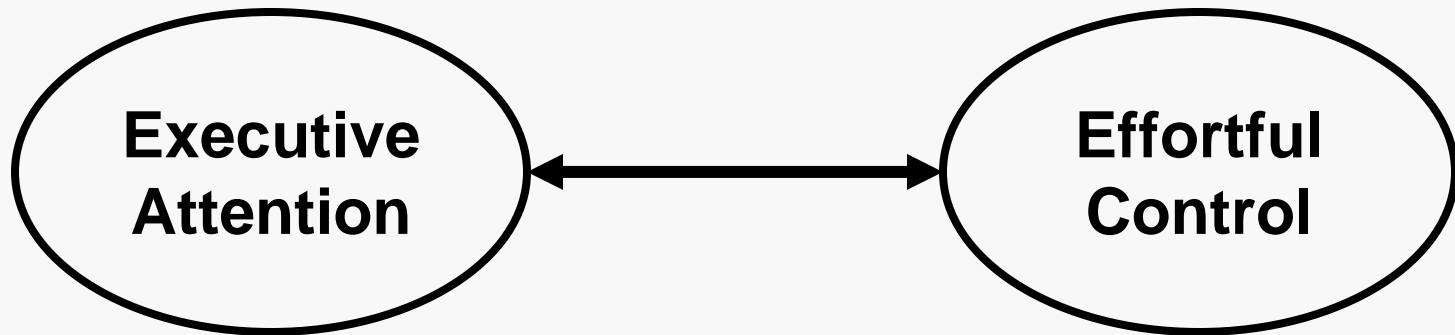
Conflict
Resolution

Error
Detection

Planning



RED GREEN BLUE



Evidence linking Effortful Control (EC) and Executive Attention (EA)

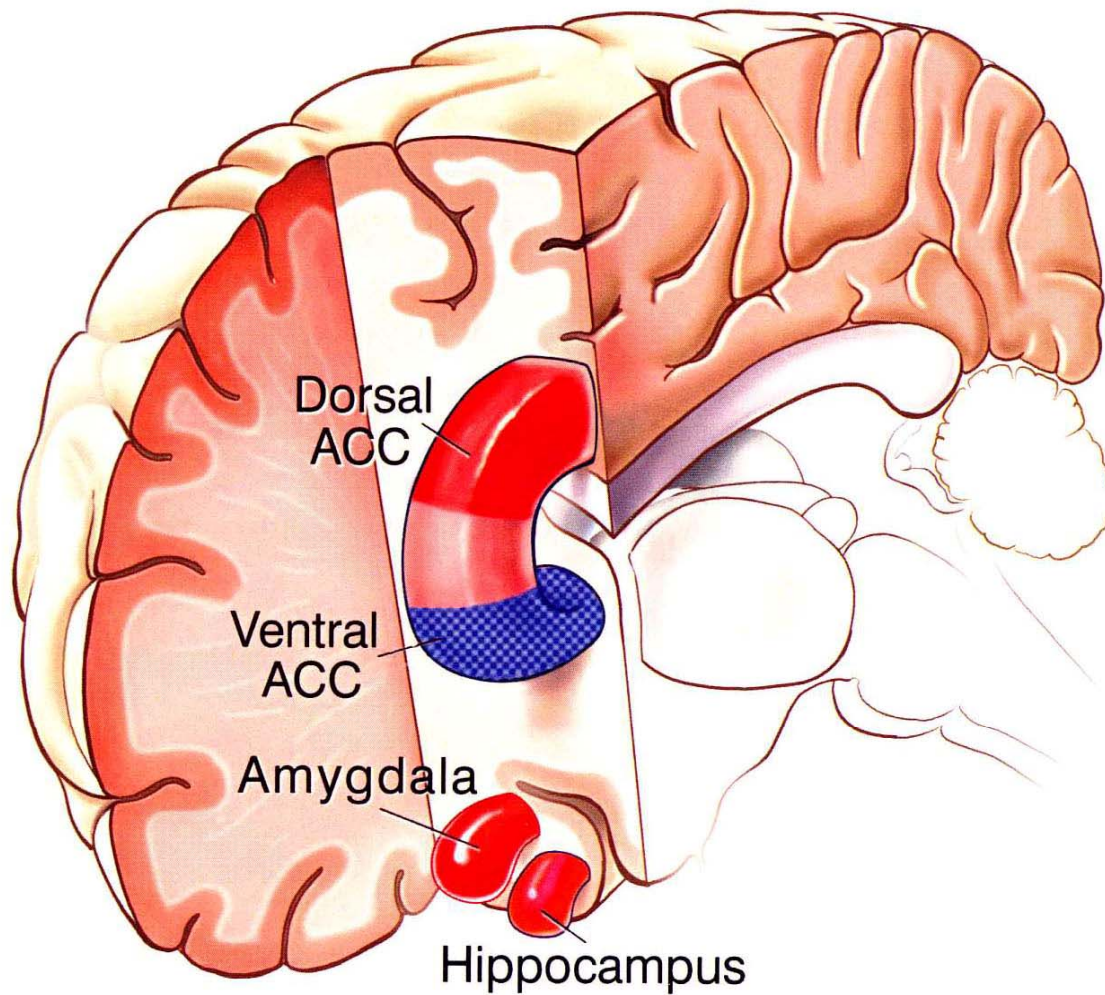
30 months: EC \leftrightarrow Spatial Conflict (Gerardi-Caulton, 2000)

7 year olds: EC \leftrightarrow Stroop (Gonzales et al., 2001)

16 year olds: EC \leftrightarrow ANT Conflict, Stroop (Ellis, 2002)

13 to 16 year olds: EC \leftrightarrow Larger Volume Dorsal ACC (Whittle et al., 2006)

13 to 16 year olds: EC \leftrightarrow Negatively related to resting BOLD signal ventral ACC (Whittle, 2007)



(b) Effortful Control

SOLID COLOR = STRUCTURAL
HATCHED COLOR = RESTING BOLD SIGNAL
RED = POSITIVE CORRELATED WITH EC
BLUE = NEGATIVELY CORRELATED WITH EC

Attention Training

Is it possible to enhance attention through training?

Would that training modify functioning of the brain systems related to attention?

Rueda, M. R., Rothbart, M. K., McCandliss, Bruce D., Saccomanno, L., and Posner, M. I. (2005). Training, maturation, and genetic influences on the development of executive attention. *Proceedings of the National Academy of Sciences*, 102, 14931-14936.

		IQ K-BIT	Vocab Subtest	Matrices Subtest
EXPERIMENTAL GROUP 5 DAYS TRAINING	PRE	111.3	115.3	104.8
	POST	117.4	117.0	113.8
	DIFF	+6.1	+1.7	+9.1
CONTROL GROUP 5 DAYS CONTROLLING VIDEOS	PRE	115.4	116.3	111.4
	POST	115.8	123.1	104.9
	DIFF	+0.4	+6.8	-6.4

EDUCATING THE HUMAN BRAIN



MICHAEL I. POSNER & MARY K. ROTHBART

Work in Progress

- Studying the relation of temperament to specific genes and to gene-parenting interactions
- Studying the developmental origins of Executive Attention in infancy and relating their development to gene function
- Further development of Short and Very Short Forms of the Temperament Questionnaires