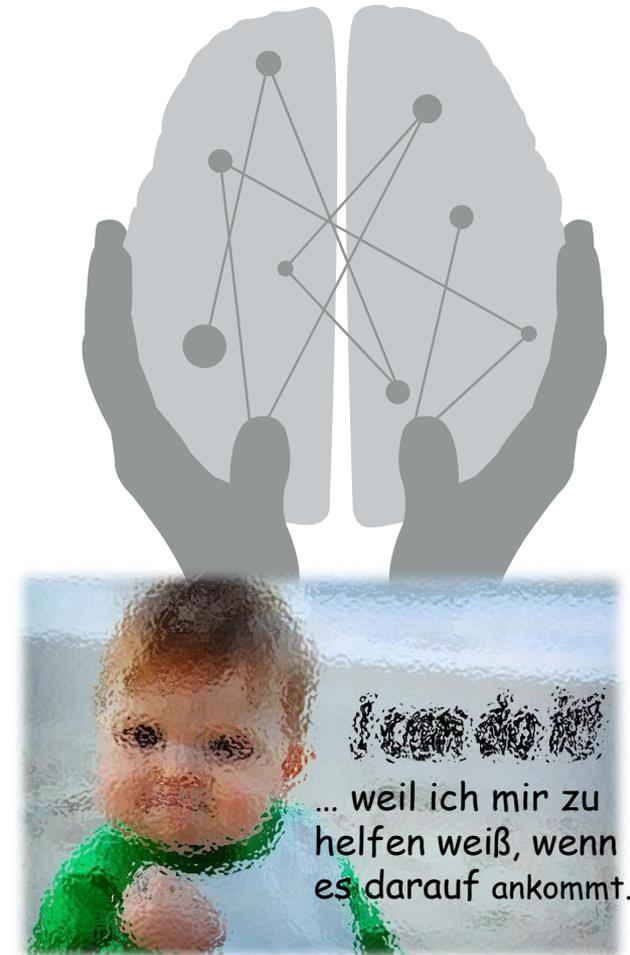


Exekutive Funktionen & Lernerfolg

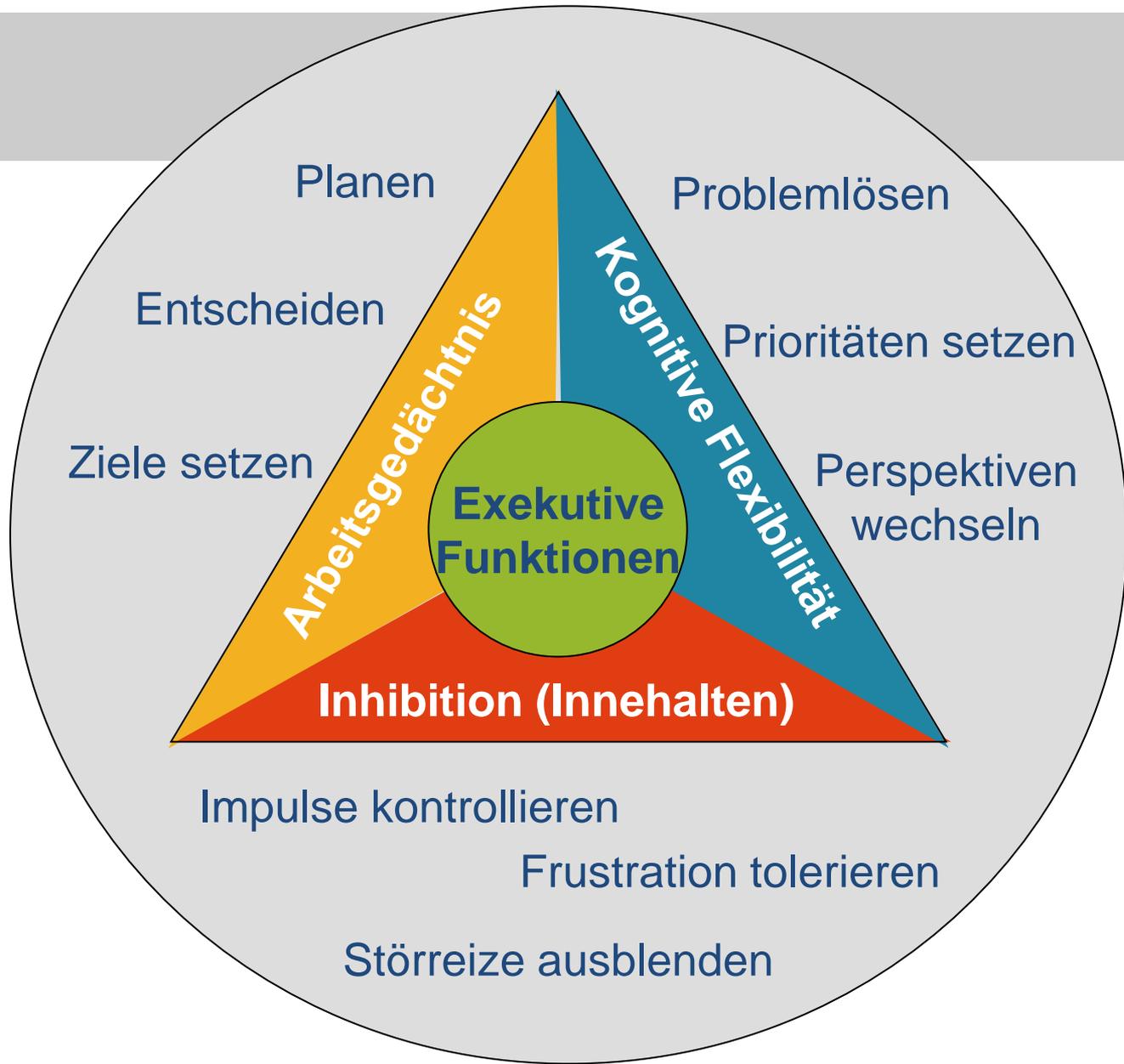
Aktuelle Befunde der Gehirn- und Psychologieforschung
& Transfer für die Ganztagschule

Beata Williams

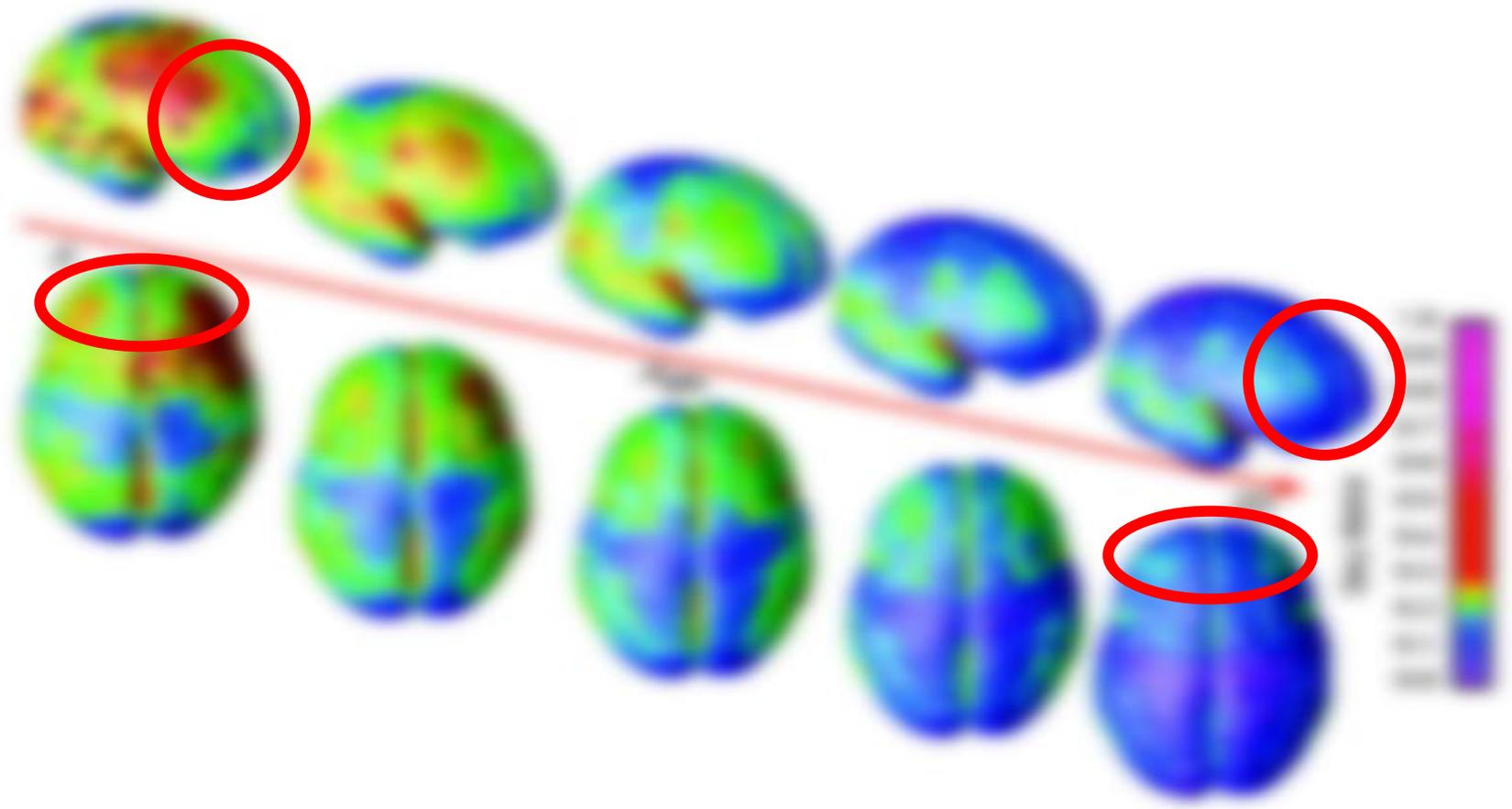


Rostock, 15 November 2014

Eine Lerngeschichte



Entwicklung exekutiver Funktionen



Gogtay et al. 2004

Der Marshmallow Test mit 4-Jährigen



<http://www.youtube.com/watch?v=Y7kjsb7iyms>



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Sprachliche Leistung

De Beni et al. 1998
Gathercole et al. 2005
Savage et al. 2006
Gathercole et al. 2004

De Beni et al. 1998
Savage et al. 2006
Riebach et al. 2007

Mathematische Leistung

Gathercole et al. 2004
Barrouillet & Lepine 2005
Bull & Scerif 2001
Swanson & Kim 2007

Bull & Scerif 2001
Marzocchi et al. 2002
Passolunghi & Siegel 2001





Was verbessert die Selbstregulation im Schulalltag? Was belegen Studien?

Tanzen

Lesen

Musizieren

Schachspielen

Rollenspiele – Theaterstücke vorführen

Aerobe Sportübungen & Ausdauertraining

Meditation, Achtsamkeitsübungen

Zweisprachigkeit

Kampfsport

mindestens 30 Min./Tag x 3 – 5 Woche!!!

Gute Lernbegleitung der Entwicklung exekutiver Funktionen in der Ganztagschule

Implikationen & Beispiele
im SALON



Stroop-Test



rot



grün



blau

grün



blau



braun



gelb



braun



rot



blau



rot



blau



rot



blau



blau

grün



blau



braun



gelb



braun



rot



blau



rot



blau



braun



Lernbegleitung nach Montessori – besonders wirksam

- Überschaubare Räume – auf das Material warten
- Aufgaben zu Ende bringen
- Meditation im Laufen
- Kinder unterrichten andere Kinder ***



PROGRAMME, die wirken

EDUCATIONFORUM

THE EARLY YEARS

Preschool Program Improves Cognitive Control

Adele Diamond,^{1*} W. Steven Barnett,² Jessica Thomas,² Sarah Munro¹

Executive functions (EFs), also called cognitive control, are critical for success in school and life. Although EF skills are rarely taught, they can be. The Tools of the Mind (Tools) curriculum improves EFs in preschoolers in regular classrooms with regular teachers at minimal expense. Core EF skills are (i) inhibitory control (resisting habits, temptations, or distractions), (ii) working memory (mentally holding and using information), and (iii) cognitive flexibility (adjusting to change) (1,2).

Significance

EFs are more strongly associated with school readiness than are intelligence quotient (IQ) or entry-level reading or math skills (3, 4). Kindergarten teachers rank skills like self-discipline and attentional control as more critical for school readiness than content knowledge (5). EFs are important for academic achievement throughout the school years. Working memory and inhibition independently predict math and reading scores in preschool through high school [e.g., (3, 6, 7)].

Many children begin school lacking in EF skills (8). Teachers receive little instruction in how to improve EF and have preschoolers removed from class for poor self-control at alarming rates (8, 9). Previous attempts to improve children's EF have often been costly and of limited success (10–12). Poor EFs are associated with such problems as ADHD, teacher burnout, student dropout, drug use, and crime (2). Young, lower-income children

agreed to randomly assign teachers and children to these two curricula. Our study included 18 classrooms initially and added 3 more per condition the next year. Quality standards were set by the state. All classrooms received exactly the same resources and the same amounts of teacher training and support (2). Stratified random assign-



"Buddy reading." Two preschoolers engaged in Tools activity. The ear line-drawing held by one guides her attention (2).

ment of teachers and assistants minimized confounds due to teacher characteristics.

EF-training curriculum: Tools. The Tools curriculum (16) is based on Vygotsky's insights into EF and its development. Its core is 40 EF-promoting activities, including telling oneself out loud what one should do ("self-regulatory private speech") (17), dramatic play (18), and aids to facilitate memory and attention (19). Tools teachers spent ~80% of each day promoting EF through 12 arts and kindergarten contexts (2). **Need Literacy** curriculum developed on balanced literacy units. Tools didactic content, development, and implementation, see (2). Reported on 147 85 in Tools in

their second year of preschool (average age: 5.1 years in both) who received dBL or Tools for 1 or 2 years. Those who entered in year 2 had attended other preschools for a year. All came from the same neighborhood and were randomly assigned to Tools or dBL with no self-selection into either curriculum. All came from low-income families; 78% with yearly income <\$25,000 (2).

After year 1, so convinced were educators in one school that Tools children were doing substantially better than dBL children that they halted the experiment in their school, reducing our sample of dBL children.

Measures of EF. Outcome measures (the Dots task and a Flanker task) were quite different from what any child had done before. These measures are appropriate for ages 4 through adults, assess all three EF components, and require prefrontal cortex (20–21). They were administered in May and June of year 2.

In all conditions of the Dots task (20), a red heart or flower appeared on the right or left. In the congruent condition, one rule applied ("press on the same side as the heart"). Dots-Incongruent also required remembering a rule ("press on the side opposite the flower") plus it required inhibition of the tendency to respond on the side where the stimulus appeared. In Dots-Mixed, incongruent and congruent trials were intermixed (taxing all three core EFs). Children were given a lot of time to respond [over five times as long as preschoolers usually take (20)].

The central stimulus for our Flanker task was a circle or triangle. Memory demands were minimized by a triangle atop the right-hand key and at the bottom right of the screen, with similar aids for the left-hand circle response. The image to focus on was the small shape in the center; the distractor (or flanker) to be ignored was the larger shape surrounding it. Congruent (e.g., ○ inside ○) and incongruent (e.g., △ inside ○) trials were intermixed. Next came "Reverse" Flanker, where children had to focus on the outside shape, inhibiting attention to the inside, plus flexibly switching

Tools of the mind (Leong, Bodrova)

PATHS (Greenberg et.al.)

Chicago School Readiness Project (Raver et.al.)

Circle Time Games (Mominney, McClelland)



REFLEXION

Was kann ich schon?

**Wie habe ich es
geschafft?**

**Was hat mir dabei
geholfen?**

**Was brauche ich
noch, um den
nächsten Schritt zu
gehen?**

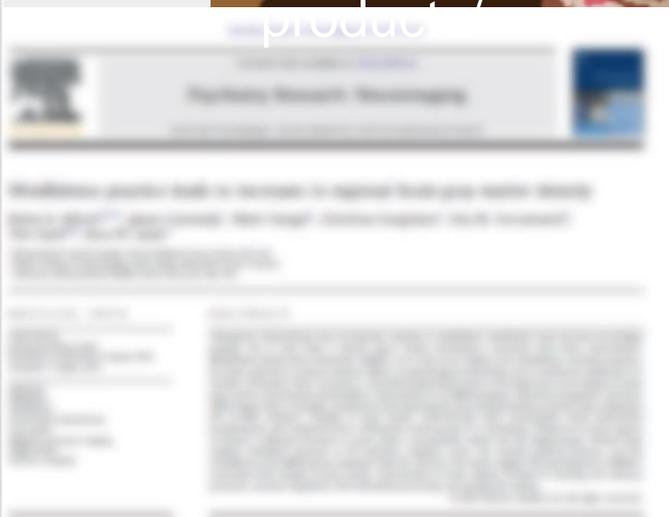
**Wie gehe ich mit
Hindernissen um?**

Diamand 2012,
Gollwitzer & Sheeran 2006,
Espinet et.al. 2011)

MindUp



<http://thehawnfoundation.org/mindup/mindup-product/>



Körpergefühle & eigene Gedanken wahrnehmen & benennen - von Anfang an üben

Welche Empfindungen habe ich in meinem Körper?

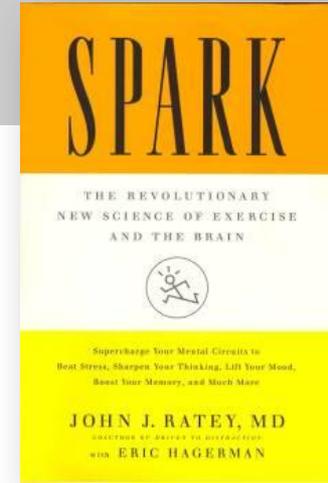
Welche Emotionen gehen mir durch den Kopf?

Welche Gedanken?

In die Erkenntnis begleiten:

Gedanken und Gefühle sind lediglich geistige Fähigkeit und nicht die absolute Wahrheit, sie kommen und gehen. Wir haben Angst vs. Wir sind Angst ...

John Ratey
Harvard Medical School



<http://www.johnratey.com/newsite/index.html>



Danke

beata.williams@znl-ulm.de
www.znl-ulm.de



Exekutive Funktionen –
Basis für erfolgreiches Lernen



Förderung exekutiver Funktionen

Wehrfritz
fördern • bilden • erleben



Buchempfehlungen

Sich schnell orientieren und
Ideen sammeln



Wissenschaftliche Zusammenhänge,
Beispiele, Argumente