Emotion Regulation, Communication, Inhibitory Control and Social Competence

Intervening Early: Progress and Opportunities in Child Service Settings

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What I will discuss

- Developmental Model of Integrated Development Across Cognition, Emotion and Behavior
- The Importance of Language and Regulation for Learning and Social Outcomes
- Intervention Trial Findings with the PATHS Curriculum on School Age and Preschool Children
The Big Picture: Public Health Outcomes

Undesired Related Outcomes

- Poor School Achievement
- Poor Mental Health
- Aggression/Violence
- Substance Use/Abuse

Underlying Shared Constraints

- Impulsive Action
- Emotion Dysregulation
- Insecure Relations

Undesired Related Outcomes
Resilience Factors that may be Targets of Preventive Interventions

- Cognitive Abilities
- Self-Control/Emotion Regulation
- Relations with peers and adults
Pre Frontal Functions

- **REGULATIVE (Self-Control)**
  INHIBIT AND MODULATE ATTENTION

- **EXECUTIVE (Problem Solving)**
  PLANNING AND GOAL-SETTING
  (Working Memory)

- **SOCIAL (Effective Action in Context)**
  INTEGRATION OF EMOTION AND REASON FOR SOCIAL DECISION-MAKING
On Impulse and Mediation

The first effect of every mediation of an impulse is to check or arrest that impulse. Reflection means postponement; it is delayed action. Through this delay the impulse is brought into connection with other impulses, habits, and experiences. Now that a due balance is kept, the result is that the original impulse is harmonized with the self, and, when expressed, it realizes not only its partial nature but that of the whole self (p.244).

John Dewey, 1894
ABCD Model
(Affective-Behavioral-Cognitive-Developmental)

Stages of Developmental Integration

1. **Infancy:** *(Birth to 18 months)*
   * Emotion = Communication
   * Arousal & Desire = Behavior

2. **Toddlerhood:** *(18 months to 36 months)*
   * Language supplements Emotion = Communication
   * Very initial development of emotional labeling
   * Arousal and Desire = Behavior

3. **Preschool Years:** *(3 to 6 years)*
   * Language develops powerful role
   * Child can recognize/label basic emotions
   * Arousal & desire > symbolic mediation > behavior
   * Development of role-taking abilities
   * Beginning of reflective social planning & problem-solving
Words provide a moment of recognition and delay in which discomfort over feeling might have a chance of being handled in ways other than denial or immediate discharge through action. Words facilitate coping-emotions that are identifiable, known to and shared by others.

Fred Pine (1985)
Self-Regulation Requires

Horizontal Neural Development

- Strong Interconnections between left and right hemispheres - Role of Language

Vertical Neural Control

- Decision-making and motor control in which the Prefrontal Areas (including ACC, Dorso-lateral Prefrontal and Orbital) that
  - regulate impulse
  - consider context
  - delay and make appropriate decisions
  - control motor response
The parent who labels feelings for the child brings them into the region of social communication—they are shared, the child is not unique and alone with them, they are capable of being understood, the power of words and the psychological achievement words facilitate can be applied to them.

John Dewey (1894)
What is Social and Emotional Learning?

The process of acquiring the competencies to:

- Recognize and manage emotions
- develop caring and concern for others
- make responsible decisions
- establish and maintain positive relationships
- handle challenging situations effectively

ALL REQUIRE SELF-REFLECTIVE FUNCTIONS

Language/Communication
Inhibition/Self Control
Problem-Solving
PATHS
Promoting Alternative Thinking Strategies
VOLUME 3

Carol A. Kusché, Ph.D.  •  Mark T. Greenberg, Ph.D.
The PATHS Curriculum

Five Central Goals

• The conscious awareness of emotional states in oneself and others
• The ability to put these feelings into words
• The ability to calm oneself down when feeling highly emotionally aroused
• The ability to plan ahead and consider the effects of your behavior on others
• Developing greater empathy/compassion for others
Essential Components for PATHS

• Skill Building for Both Students and Teachers
  – Very explicit materials
  – Specific time for skills development

• Provide Sufficient Technical Support to Teachers
  – See other teachers doing it well
  – Coaching

• Generalization: Create Opportunities to Use these Skills Throughout the Day

• Provide Students Feedback and Recognition for Performance

• Integrate into other Academic Subjects

• Involve Parents
Problem-Solving Outline

When you notice upset feelings:

1. **STOP** and think.
2. Identify the **PROBLEM**. (collect lots of information)
3. Identify the **FEELINGS**. (your own and other peoples’)
4. Decide on a **GOAL**.
5. Think of lots of **SOLUTIONS**.
6. Think about what **MIGHT** happen next.
7. Choose the **BEST** solution. (evaluate all the alternatives)
8. Make a **PLAN**. (think about possible obstacles)
9. **TRY** your plan.
10. **SEE** what happens. (evaluate the outcome)
11. **TRY** another plan or solution if your first one doesn't work.
Learning to Calm Down

The Turtle Story and the 3 Steps for Calming Down
3 Steps for Calming Down

Tell Yourself to STOP

Take One Long, Deep Breath

Say the Problem and How You Feel
Control Signals

Take a long, deep breath. Say the problem and how you feel.

What could I do? Would it work?

Try your best idea. How did it work?
EXAMPLE FEELING FACES

curious or interested
kind
excited

ashamed
frustrated
mad or angry
Study Designs

There have been seven randomized clinical trials with preschool and elementary school-aged children.

Some are quite large (over 6000 children) and others are small (100 children).

Populations include:
- Typically Developing Children
- Children with Learning and Behavioral Disorders
- Children who are Deaf/Hard of Hearing
- Both Urban and Rural Populations - Multiple Ethnicities

Three RCTS done completely independent of myself:
- Netherlands - Oborio DeCastro (Univ. of Utrecht)
- Switzerland - Manuel EisNer (Cambridge Univ.)
- US - Deb Johnson and Hugh Crean (U. of Rochester)
Research Question #1

Can we promote greater social-emotional competence (SEC)?

**Grades 1-4**

1. Improvements in teacher ratings of frustration tolerance
2. PATHS Classrooms show improvements in peer rated prosociality

**Preschool EC**

1. Improvements in teacher ratings of SEC
2. Improvements in parent ratings of SEC
Can we reduce problem behaviors and symptoms of psychopathology?

Grades 2-5

1. Improvements in teacher ratings of externalizing and internalizing problems (CBCL - Achenbach)
2. PATHS Classrooms show improvements in peer rated aggression and hyperactive-disruptive behavior
3. Children report lower rates of depressive symptoms
PATHS Universal Intervention
End of First Grade (1 Year of Intervention)

Children who receive PATHS rate their classmates as significantly less aggressive than do children in randomized comparison classes.

Fast Track Study - 378 Classrooms - 6715 children
CPPRG, 1999 - Journal of Consulting and Clinical Psychology
PATHS Universal Intervention
1 Year of Intervention
Child Depression Inventory

Students Receiving PATHS in Grade 2 and 3 significantly decline in self-report of symptoms of depression and sadness

Kam, Greenberg & Kusche 2004
Research Question #3

- Does the Intervention alter Executive Function?
  - Stroop - (Inhibition)
  - Verbal Fluency (Working Memory)

- Do changes in Executive Function mediates the relation between intervention and decreased aggression or internalizing problems?
Stroop Test - Part 1

RED  GREEN  BLUE  YELLOW  PINK
ORANGE  BLUE  GREEN  BLUE  WHITE
GREEN  YELLOW  ORANGE  BLUE  WHITE
BROWN  RED  BLUE  YELLOW  GREEN
PINK  YELLOW  GREEN  BLUE  RED
### Stroop Test - Part 2 - Inhibitory Control

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Hypothesized PATHS Mediational Model

Pretest \[ \alpha \] Inhibitory Control \[ \gamma \] Externalizing Internalizing Behaviors

9-mo post \[ \beta \]

1-yr follow-up

PATHS

Riggs, et al. (in press)
Participants

- 318 regular education students in the Seattle School District.
- Random assignment of four schools
- Mean age = 8 years (2\textsuperscript{nd} and 3\textsuperscript{rd} grade students).
- 55% White, 33% African-American, & 12% Asian-American, Native American, or “Other.”
Test of PATHS Mediational Model Externalizing

Pretest

9-mo post

1-yr follow-up

PATHS

Inhibitory Control

Externalizing Behavior

.15**

-.17***

-.14**

ns

** = p < .01; *** = p < .001

Sobel Test for Indirect Effects z = 2.06, p < .05
Test of PATHS Mediational Model

Internalizing

PATHS

Inhibitory Control

9-mo post

.15**

-.14**

n.s.

1-yr follow-up

-.15**

Internalizing Behavior

Pretest

Sobel Test for Indirect Effects $z = 2.07$, $p < .05$

** = $p < .01$
Preschool PATHS: Promoting Social and Emotional Competence in Young Children

Celene E. Domitrovich, Rebecca Cortes, & Mark T. Greenberg
Penn State Prevention Research Center
Overview of PATHS Unit Lessons

- Creating a Positive Classroom Climate
- Basic Feelings I
- Basic Feelings II
- The Turtle Technique: Teaching Children Self Control
- Sharing, Caring & Friendship
- Basic Problem Solving
- Intermediate Feelings
- Ending & Transitions
Curriculum Overview – Unit 4

Doing Turtle:
Self Control, Anger Management and Signaling Distress

- Twiggle Learns to Do Turtle
- Turtle Technique Review
- Appropriate Turtles
- Calm or Relaxed
Teaching Self-Control with the Turtle Technique

Do Turtle!

1. STOP.
2. Take a deep breath.
3. Say the problem and how you feel.
4. The problem is... and I feel...
Promoting Academic and Social-emotional School Readiness: The Head Start REDI Program

K. Bierman, C. Domitrovich, R. Nix, S. Gest, J. Welsh, M. Greenberg, C. Blair, K. Nelson, S. Gill

The Pennsylvania State University

Funded by NICHD grants HD046064 & HD43763
REDI Logic Model

**Intervention Targets**
- Teaching Strategies
  - Rich, sensitive, expansive teacher-child communication
  - Positive guidance, emotion coaching, & social support

**Proximal Outcomes**
- Readiness for Transition into School

**Distal Outcomes**
- Adjustment and Academic Success

**Child Competencies**
- Oral language & emergent literacy skills
- Social-emotional competencies

**INTERVENTION (Curriculum & Teacher Mentoring)**

**Parent Involvement & Support of Child**
Intervention Components:

Social-Emotional Competencies

PATHS Curriculum

- Prosocial Skills
- Emotional Competence
- Self Control
- Social Problem Solving

Language/Literacy Skills

Interactive Reading
Sound Games
Print Center

- Vocabulary
- Syntax
- Phonological Sensitivity
- Print Awareness

Major Emphasis on Hands-On, Proactive Teacher Coaching
Emotional Understanding and Social Problem-Solving Skills

Comparison
Intervention

P<.01
P<.04
P<.03
P<.06
Teacher Ratings of Social Competence, Aggression, Learning Engagement

Comparison Intervention

P<.10  P<.05

SocCom  Agress  Engage
Parent Ratings of Attention Problems, Communication, Reading Involvement

P<.06
P<.02
P<.07
Direct Effects on Executive Functions

- Dimension Change Card Sort (WM, Inhib Control, Set Shifting) - Intervention Effect \( p = 0.06 \)
- Peg-Tapping (Inhibitory Control) - no effect
- Backward Digits (Working Memory) - no effect
- Observed Sustained Task Orientation - \( p < 0.02 \)

Moderation of Outcomes by EF Skills

- Students with Lower Initial EF Skills showed the most gains in Intervention on Social-Emotional Outcomes
- Students with Higher Initial EF Skills showed the most gains on Literacy Outcomes

Mediational Effects on Executive Functions

- Task Orientation mediates effects on Literacy Outcomes and Teacher Ratings of Social Competence
- DCCS marginally mediates Literacy Outcomes, but not social outcomes
Closing Thoughts

- Universal prevention programs with:
  - strong theoretical models
  - well-trained teachers
  - appropriate dosage (density of lessons and generalization)

  can substantially:
  - Improve emotion regulation
  - reduce the rate of mental health problems
  - promote positive, healthy development
  - improve cognitive performance

- Improving the “Underlying Shared Constraints” can significantly reduce the public health burden of poor outcomes for children
Thanks

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