THE DEVELOPMENT OF EXECUTIVE FUNCTIONS IN CHILEAN PRESCHOOL CHILDREN:
PROMOTING THE DEVELOPMENT OF THE BUILDING BLOCKS OF SCHOOL READINESS

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WHAT IS EXECUTIVE FUNCTION?
WHY DO WE USE THE TERM SELF-REGULATION WHEN TALKING ABOUT EXECUTIVE FUNCTIONS?

• EF is the set of cognitive processes that are integral to the emerging self-regulation of behavior and the developing social and cognitive competence in young children.
  
  • One part of the self-regulatory system (emotion, social, behavior regulation)
  
  • Self-regulation is a term that is more familiar and intuitive to teachers.

WHY DOES EF/SR MATTER?

• Executive functions affect academic achievement in preschool and elementary school (e.g., Blair & Razza, 2007; McClelland, Morrison, & Holmes, 2000; McClelland, Acock, & Morrison, 2006; McClelland et al., 2007; Howse, Lange, Farran, & Boyles, 2003; Welsh et al., 2010);
  
  • Evidence is stronger for mathematics (Bull, Johnston & Roy, 1999; Bull & Scerif, 2001; Bull, Espy & Wiebe, 2008; Ponitz, et al., 2009; Clark, Pritchard & Woodward, 2010)
EF PREDICTS MATHEMATICS ACHIEVEMENT IN CHILEAN PRESCHOOL CLASSROOMS

(Barata, 2011)

WHY DOES EF/SR MATTER? LONG-TERM EVIDENCE

- Attention persistence at age 4 predicted:
  - Math and reading achievement at age 21 and probability of completing college by age 25 (McCelland et al., 2012).
- Childhood self-control measured in the first decade of the child’s life predicted:
  - Physical health, substance dependence, personal finances, and criminal offending outcomes at age 32 (Moffitt et al., 2011)
CAN WE PROMOTE EF DEVELOPMENT?

Yes! We can use:

- Computerized training programs (Dowsett & Livesey, 1999; Klingberg, Forssberg & Westerberg, 2002; Klingberg, et al., 2005; Olesen, Westerberg, & Klingberg, 2004; Rueda et al., 2005; Thorell, et al., 2009)

- Classroom-based interventions (Bierman, Domitrovich, et al., 2006; Bierman, Nix, et al., 2008; Diamond, Barnett, Thomas, Munro, 2007; Domitrovich, Cortes, Greenberg, 2007; Lipina & Colombo, 2009; Raver, et al., 2008, 2011; Webster-Stratton, Re

- Yoga, dance, mindfulness training, exercise?

CAN WE PROMOTE EF DEVELOPMENT IN THE CONTEXT OF A CONTINUOUS QUALITY IMPROVEMENT MODEL?

LEARNING COLLABORATIVE AND CONTINUOUS QUALITY IMPROVEMENT MODEL IN UN BUEN COMIENZO
EXAMPLE PDSA VOCABULARY
GOAL: TO INTRODUCE 1 NEW VOCABULARY WORD PER DAY WITH ROTATING STRATEGIES FOR INCORPORATION OF THE NEW WORD

CONTEXT FIRST BARRIERS

- Teachers do not “see” emotional development or self-regulation associated with other school readiness skills (e.g. language).
- Strong culture around overprotection and babying of preschoolers – parents expect preschool teachers to never leave kids unattended
- Difficulty in finding a tool for target setting and/or teacher monitoring.
- Large class size (1 adult for 25 children) & heterogeneous age classrooms in rural sectors.
- Classroom team has to accomplish high number of tasks every day.
- Irregular attendance of children (Basta de Yo No Fui)
WHAT WE OBSERVE IN THE CLASSROOMS

- Difficulty remaining seated.
- Difficulty concentrating.
- Difficulty following instructions and rules.
- Loss of time at the beginning or switch to another activity.
- Interruptions during class.
- Difficulty taking turns.

1. CREATE AN ORGANIZED, STIMULATING CLASSROOM CLIMATE

- Diminish exposure to situations where executive-function skills tend to fail (Blair & Diamond, 2008).
- Increase opportunities for children to practice self-regulated learning throughout the day.
1. CREATE AN ORGANIZED STIMULATING CLASSROOM CLIMATE (LEYVA, 2013)

Instructional support – the pedagogical activities of the classroom – support the development of EF.

2. DESIGN ACTIVITIES BASED ON THE CONTINUUM OF SELF-REGULATION (VYGOTSKYAN APPROACH TO SCAFFOLDING)

Peer directed
Dirigido por sus pares

Teacher directed
Dirigido por el profesor

Self-directed / Auto-directed

[Diagram showing organizational support on EF, literacy, and mathematics with bars for U.S. and Chile]
WHY CREATE PEER-REGULATED ACTIVITIES? EVIDENCE FROM CHILE (BARATA & WEILAND, 2013, SRCD)

The benefit of having high-skilled peers for individual skill development in self-regulation

3. USE MENTAL TOOLS
### 4. THE ZONE OF PROXIMAL DEVELOPMENT

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- Centered in 5 levels of development expected for preschool and kindergarten.
- Easier to set a target for each grade level.

### A RUBRIC FOR SELF-REGULATORY DEVELOPMENT

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La mayoría de los niños prekinder

La mayoría de los niños kinder
• With examples of child regulated behavior at each level
• Independent of the strategy used

SELF-REGULATION STRATEGIES

- Integrates all principles in one strategy applied at three levels:
  Level 1:
  - use of mediators (public speech)
  - Educadora is role model and provides instructions (external regulation)
  Level 2:
  - peer regulation
  - Independent use of mediators
  Level 3:
  - private speech, no mediators
  Is integrated in a language task and demands for language production directly.
TURN AND TALK / GIRAR Y HABLAR

BUDDY READING / LECTURA COMPARTIDA
SCAFFOLDED WRITING / ESCRITURA COMPARTIDA

CLASSROOM LEADER / JEFE DE SALA
WHAT HAVE WE FOUND SO FAR

- Educate teachers about the components of EF so they can “see” them in the classroom.
- Focus on the self-regulation continuum: do not stop just because you can control the classroom (long-term goal setting)
- Self-regulation happens fast and kids get bored.
- Classrooms start, develop and end at different levels.
- Adding CQI to UBC improved the program and led to positive impacts on language and literacy outcomes; no test of self-regulation outcomes yet

REFERENCES


Thank you!
Gracias!
Obrigada!

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