

Using **Context** to Enhance Executive Functioning Throughout the Academic Day

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I've read some books
so you don't have to...



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Introductions



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Why this...why now?



Sunrise in Yellowstone

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Review

Survey: Let's find out a bit about today's guests

Identify: A "problem of practice" you'd like to solve

It is...a good idea to activate prior knowledge, both in subject content and cognitive and metacognitive skills prior to engaging in a task, for example through providing specific questions on the topic to be studied (Tarchi, 2015).

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The Process: Every lesson...

- Review
- Preview
- New Info
- Apply
- Review

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The Process: Every lesson...

- Review
- Preview
- New Info
- Apply
- Review

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Preview

- Executive Functions
- Response to Intervention
- Content area EF demands
- **Blending these**

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Every lesson...

- Review
- Preview
- New Info
- Apply
- Review

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New Info

- **Executive Functions**
- Response to Intervention
- Content area EF demands
- Blending them with RtI

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Executive Functions

Executive functioning is an umbrella term for the mental processes that serve a supervisory role in thinking and behavior. It incorporates a number of neurologically based operations that work together to direct and coordinate our efforts to achieve a goal.



Cooper-Kahn, Joyce; Foster, Margaret. *Boosting Executive Skills in the Classroom*. Wiley, Kindle Edition.

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Executive Functions

- Planning/Organizing
- Task Monitoring
- Shifting
- Initiating
- Self-Monitoring
- Inhibition
- Emotional Control
- Working Memory

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Executive Skill	Definition
Planning and Organization	9 The ability to impose order on thoughts, tasks, play, and storage spaces
Task Monitoring	9 The ability to monitor one's own performance and to measure it against a standard of what is needed for any given task
Shifting	9 The ability to "change gears," to move freely from one situation to another, and to think flexibly in order to respond appropriately to a new or unexpected situation
Inhibition	8 The ability to begin a task or activity and to independently generate ideas, responses, or problem-solving strategies
Self-Monitoring	6 The ability to observe one's own behavior and to determine whether it conforms to explicit behavioral expectations and unwritten social rules
Inhibition	1 The ability to "put on the brakes" or to stop behaviors at the appropriate time
Emotional Control	3 The ability to reflect on one's own feelings and then to use that understanding to guide one's emotional responses
Working Memory	0 Memory in the service of an action; a dynamic process that involves receiving new information and reviewing, holding, and manipulating stored information in our minds for the purpose of completing a cognitive task, 7 ± 2 bits of information

*Barkley, R. A., "ADHD, Self-Regulation and Executive Functioning: Implications for Management and Life Course Outcomes," presentation, Rockville, MD, September 23, 2011.
Cooper-Kahn, Joseph, "Focus, Manager: Boosting Executive Skills in the Classroom," Wiley, Kindle Edition.

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Working Memory

7 bits of information ± 2

C A T Cat

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Working Memory is made more efficient by...

Prior Understandings (Reviews)

Routines and Scripts

Meaningful work

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Questions?



Yellowstone River

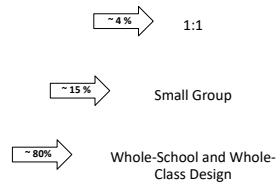
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New Info

- Executive Functions
- **Response to Intervention**
- Content area EF demands
- Blending them

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Response to Intervention



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Questions?



Big Sur

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New Info

- Executive Functions
- Response to Intervention
- **Content area EF demands**
- Blending them

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Addressing Context in Reading

- Review
- Preview
- New Info
 - Knowledge
- Apply
 - Forms and Methods
- Review



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Forms and Methods

- | | |
|-----------------------------|--------------------------------|
| Text Structure: Fiction | Executive Functions |
| Main character | <i>Planning and Organizing</i> |
| Conflict | Shifting |
| Resolution | Working memory |
| Change in character | Task monitoring |
| Text Structure: Non-fiction | |
| Title | |
| Subtitles | |
| Diagrams | |
| Questions | |

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Recommendations

- | | | |
|-----------------------------|--------------------------------|----------------------------------------|
| Text Structure: Fiction | Executive Functions | Recommendations |
| Main character | <i>Planning and Organizing</i> | <i>Explicit model</i> |
| Conflict | Shifting | High interest, positive atmosphere |
| Resolution | Working memory | Explicit modelling and repetition |
| Change in character | Task monitoring | Proximity and check-ins |
| Text Structure: Non-fiction | | |
| Title | <i>Initiating (especially</i> | <i>Read the first chapter together</i> |
| Subtitles | <i>novice and discouraged</i> | |
| Diagrams | <i>readers)</i> | |
| Questions | | |

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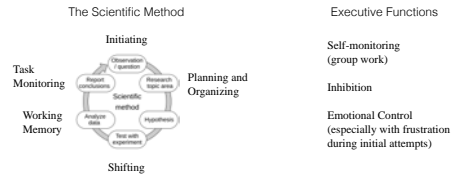
Addressing Context in Science

- Review
- Preview
- New Info
 - Knowledge
- Apply
 - Forms and Methods
- Review



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Forms and Methods



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Forms and Methods

The Lab Report

Executive Functions

- Planning and Organizing
- Shifting
- Working memory
- Task monitoring

Title

Abstract

Introduction

Methods and Materials

Results

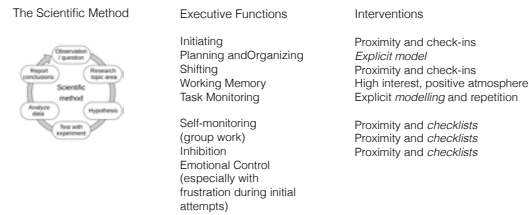
Discussion

Conclusion

References

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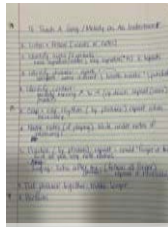
Forms and Methods



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Music: Identify your process...

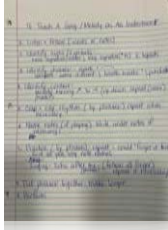
- Listen
- Identify signs
- Identify phrases
- Identify contour
- Clap and say
- Name notes
- Practice
- Put phrases together
- Perform



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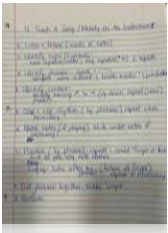
Embed in meaning-filled protocol...

- Review
- Preview
- New Info
- Apply
- Review



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Assess and plan for challenge areas for each class' abilities...



Executive Functions	Interventions
Planning and Organizing	Explicit model
Shifting	Proximity and check-ins
Working memory	High interest, positive atmosphere Explicit modelling and repetition
Task monitoring	Proximity and checklists
Self-monitoring	Proximity and checklists
Inhibition	Proximity and check-ins
Emotional Control	Proximity and check-ins

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Questions?



Yellowstone River

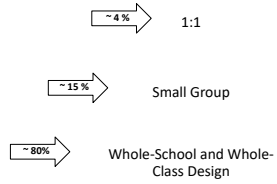
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New Info

- Executive Functions
- Response to Intervention
- Content area EF demands
- **Blending them with RtI**

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Response to Intervention



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Review: New Information

- Executive Functions
- Response to Intervention
- Content area EF demands
- Blending them: Rtl

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Review: The Process

- Review
- Preview
- New info
- Apply
- Review

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Application

Consider: The problem you'd like to solve..

Have you discovered a solution?

Have you discovered a new more generative question?

Is there a resource or a process you could tap to help?

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Defining a Dream

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...from Dream to Action Plan

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Questions

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Great Fountain Geyser

Using **Context** to Enhance Executive Functioning Throughout the Academic Day

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- Content areas
- Time management in context
- Social skills in context
- Navigating apps and platforms
- Sensory challenges in context
- Transitions in context

Review

First I thought...

Now I think...

There is...evidence that teachers own metacognitive knowledge is related to that of their pupils (e.g. Soodla et al, 2017)

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References

- Cooper-Kahn, J., & Foster, M. (2013). *Boosting executive skills in the classroom: A practical guide for educators*. John Wiley & Sons.
- Dehn, M. J. (2008). *Working memory and academic learning: Assessment and intervention*. John Wiley & Sons Inc.
- McTighe, Jay; Willis, Judy. *Upgrade Your Teaching* (p. 97). ASCD. Kindle Edition.
- Niebaum, J. C., & Munakata, Y. (2022). Why Doesn't Executive Function Training Improve Academic Achievement? Rethinking Individual Differences, Relevance, and Engagement from a Contextual Framework. *Journal of Cognition and Development, 24*(2), 241-259. <https://doi.org/10.1080/15248372.2022.2160723>
- Nouwens, S., Groen, M. A., Kleemans, T., & Verhoeven, L. (2020). How executive functions contribute to reading comprehension. *British Journal of Educational Psychology, 91*(1), 169-192. <https://doi.org/10.1111/bjep.12355>

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References

- Zelazo, P. D., & Carlson, S. M. (2020). The Neurodevelopment of Executive Function Skills: Implications for Academic Achievement Gaps. *Psychology and Neuroscience, 13*(3), 273-298. <https://doi.org/10.1037/psn0000208>
- Zelazo, P. D., & Carlson, S. M. (2023). Reconciling the Context-Dependency and Domain-Generality of Executive Function Skills from a Developmental Systems Perspective. *Journal of Cognition and Development, 24*(2), 205-222. <https://doi.org/10.1080/15248372.2022.2156315>
- Dai, Y., Li, H., Li, Y., Sun, J., Huang, F., Si, L., & Zhu, X. (2021). Preview, attend and review: Schema-aware curriculum learning for multi-domain dialog state tracking. *arXiv preprint arXiv:2106.00291*.
- Wilson, D., Perkins, D., Bonnet, D., Miani, C., and Unger, C. *Learning at Work*. Cambridge, MA: Project Zero, 2005; and the WIDE World online professional development course *Leading for Understanding 1 Action Project Guide*.

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