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Design of a digital home intervention for children's oral narrative development based on a personalized book

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Outline

1. **What?**
2. **Why?**
3. **How?**

1. What? narrative discourse

Extended and decontextualized form of discourse in which temporally and causally-related events, are communicated to real or imagined listeners (Gillam et al., 2023)

Types	Components	Ways to measure
• Personal • Fictional	• Macro (setting, character, problem, feeling, action, ending) • Micro	• Retelling • Telling

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1. Why narrative discourse?

Mean of self-construction (Nelson, 2000)

Predicts oral comprehension (Babayiğit et al., 2021; Suggate et al., 2018) and written production (Pinto et al., 2016)

Narrative discourse

Relation with socio-cognitive understanding (Veneziano et al., 2020)

Relation with executive Functions (Moreira et al., 2023; Nelson & Kahn, 2019)

Why narrative discourse? II

Vocabulary and oral comprehension (Hall et al., 2021)

In the Chilean ECE curriculum narrative production is not a learning goal (MINEDUC, 2018)

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How? Based on knowledge gaps

Classroom interventions

- Curriculum (e.g. Story Champs ES=.21 for narrative production; and .41 for retelling).

- Few **home** interventions designed to be easy to implement→ scalable (c.f. Kirby & Spencer, 2022)

- Few addressing cognitive and emotional domains (Nelson & Khan, 2019)

Petersen et al., 2022; Gillam et al., 2023

Fine et al., 2019; Lever & Sénéchal, 2011; Zevenbergen et al., 2003

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How: Difficult   vs.   Easy to implement

- Trains expected behaviors

- Engagement not targeted
- Different materials

- Embedded expected behaviors
- Engagement facilitated
- Device that can give feedback for learner (i.e. child's performance) and implementer (i.e. parent's dosage)

Dynamic system approach

Language emerges "from nonlinear interactions between multiple cognitive, social, emotional, and contextual conditions" (Nelson & Khan, 2019)

Impacts of personalization and agency

Child's picture here

child's favorite activity selected by dyad

¡Oscarito!

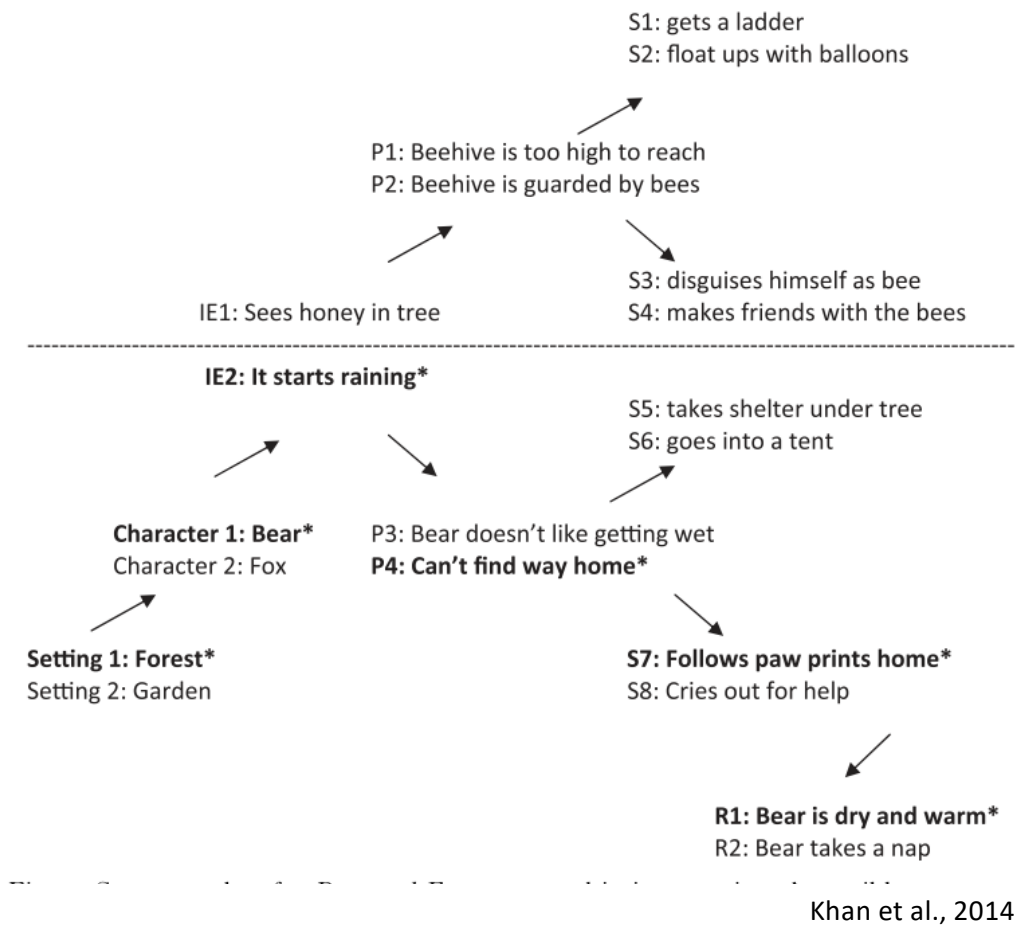Oscarito y el mundo de superhéroes que siempre imaginaban

Children: more laughs, spontaneous turns, comments connecting life and story, words and word/utterances ratio

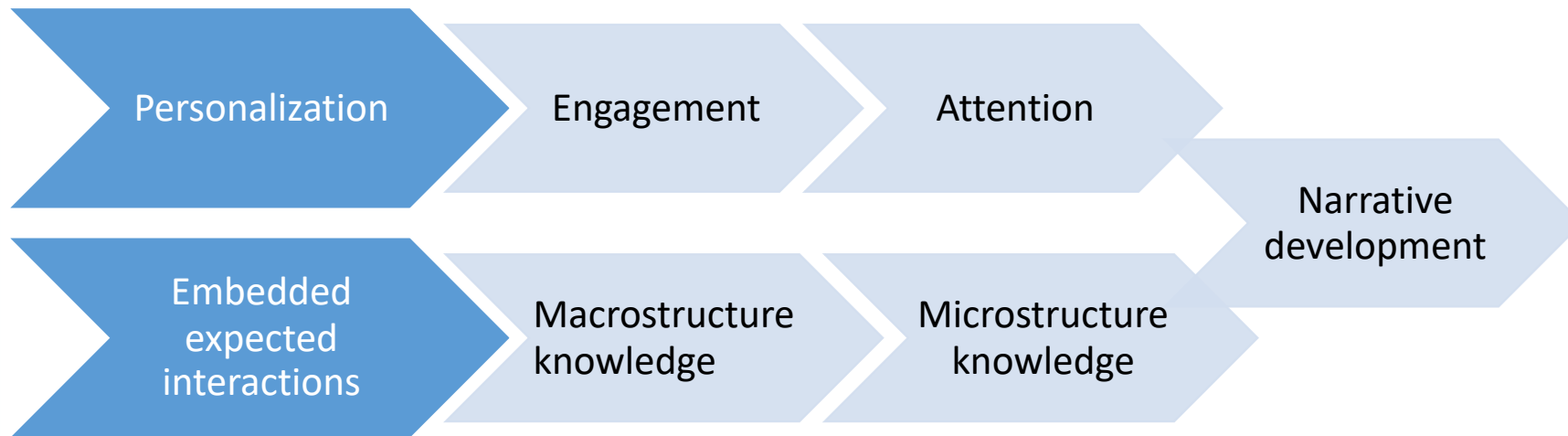**Adults**: more enjoyment, comments for child connect story with life

Mendive et al, 2023

THE IMPACT OF CHOICE ON NARRATIVE SKILLS

S1: gets a ladder
S2: float ups with balloons

P1: Beehive is too high to reach
P2: Beehive is guarded by bees

S3: disguises himself as bee
S4: makes friends with the bees

IE1: Sees honey in tree

IE2: It starts raining*

S5: takes shelter under tree
S6: goes into a tent

Character 1: Bear*
Character 2: Fox

P3: Bear doesn't like getting wet
P4: Can't find way home*

Setting 1: Forest*
Setting 2: Garden

S7: Follows paw prints home*
S8: Cries out for help

R1: Bear is dry and warm*
R2: Bear takes a nap

Khan et al., 2014

How: theory of change

How: Intervention principles I

Playfulness (child and adult)

Dialogic reading (DR)

MACROSTRUCTURE
(story-level structure)

MICROSTRUCTURE
(sentence-level structure)

ABC

Learning Sequence

(Spencer & Petersen, 2020)

(Aram et al., 2013; Lever & Sénéchal, 2011; Zevenbergen et al., 2003)
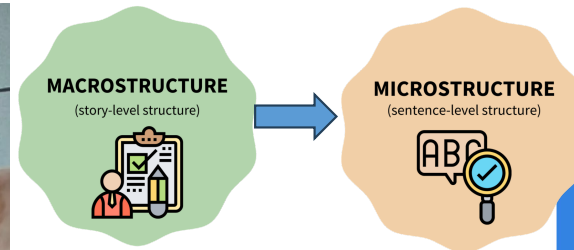
(Zosh et al., 2017)

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How: Intervention principles II

INSIDE
ADENTRO

- Digital story-related enhancements (Furenes et al. 2021)
- Minds on, engaging, meaningful, social interaction (Hirsh-Pasek, et al., 2015) multimodality

Child's picture here

Book Personalization

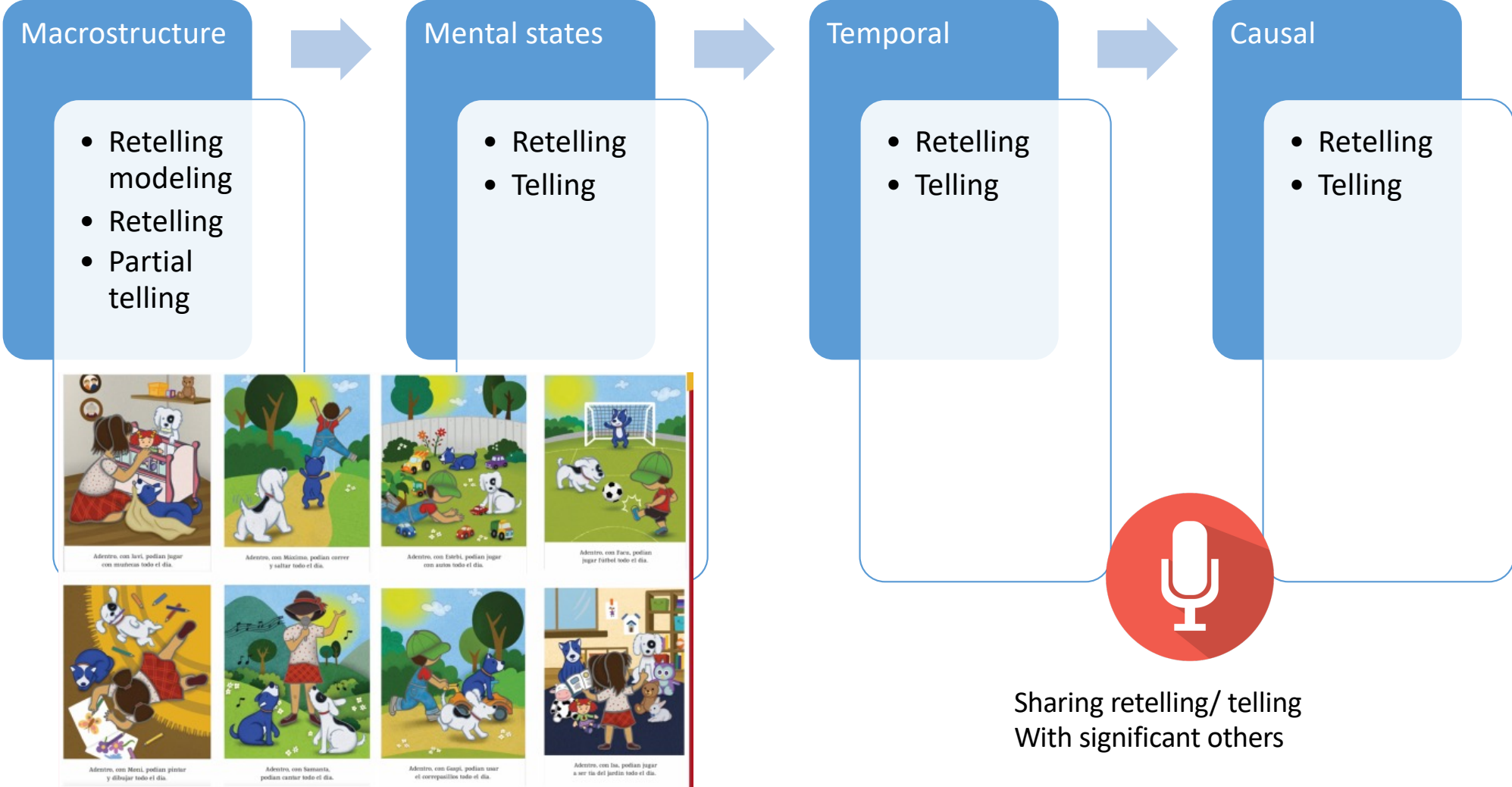(Kucirkova., 2014)

FEED BACK

Feedback and reinforcement of child speech

(Eng et al., 2019)

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How/ Enhancements by session target (#4 per story)

Macrostructure		Mental states		Temporal		Causal
• Retelling modeling • Retelling • Partial telling	→	• Retelling • Telling	→	• Retelling • Telling	→	• Retelling • Telling

Sharing retelling/ telling
With significant others

How/ Enhancements for skills within sessions

During shared reading

Oral comprehension:

- Questions, comments linked with macro/microstructure or mental states

After reading

Talk and examples about session target

Retelling

Telling

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How/ Personalized feedback and reinforcement

Choose who is going to join us now

click images

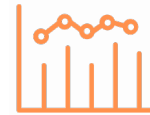Choose how to cellebrate…

Sound and animated image

Studies

Study 1. User experience

Study 2. Feasibility and acceptability

Study 3. Preliminary efficacy

Study 4. Efficacy

Gitlin et al., 2016.

References

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Suggestions, questions
WELCOMED

Thanks!

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