Wuqub' Kak'ix and his sons: How do we study children's development?

The cognitive science behind the adventures of
Jun Ajpu' & Xb'alamke'

Part 2.2

siayean@hotmail.com
alexsocop@gmail.com

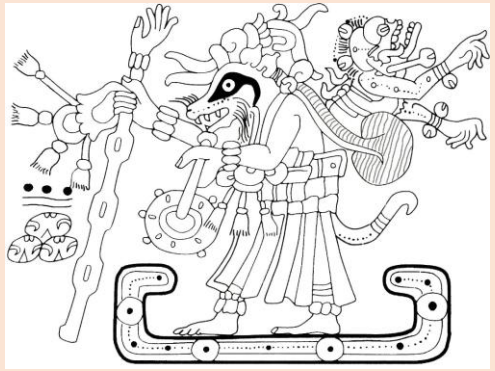
Sia Ming Yean & Alex Socop

Outline

1. A story from the *Popol Wuj*
2. Developmental psychology
3. Discussion time
4. Challenge yourself!

(1) *Popol Wuj*

The proud and vain Wuqub’ Kak’ix, Sipakna, and Kabraqan



Like father, like son

1. Wuqub’ Kak’ix: “I am the sun and light of humans.”
2. His first son, Sipakna: “I am the maker of earth.”
3. His second son, Kabraqan: “I bring down the sky and mountains.”
4. It is not good to make such false claims.
5. They were destined to be defeated by Jun Ajpu’ and Xb’alamke’.

Imitation of Facial Gestures

- Children are fast learners
- But how do we measure what they know and what they don’t?
- How do we know whether they are learning what we are telling/teaching them?

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(2) Cognitive Science

Developmental psychology: Linguistic research paradigms

Typical linguistic tasks

For older children or adults:

- Direct measures: tests (e.g., LexTALE-Esp)
- Indirect measures: questionnaires (e.g., LEAP-Q)

Problem: Young infants don’t talk!

Solution:

- Ask the caregivers (back to questionnaires: CDI)
- Test children directly… (can you guess how?)

Preferential looking paradigm

Eye-tracking

- Target looking: Total gaze at one object divided by total gaze at all objects

$$\frac{\text{Object A}}{\text{Objects A + B}}$$

- Interpretation: If the presentation of *sound A* (e.g., “shoe”) leads to a longer look at *object A* (e.g., a shoe) than *object B* (e.g., a chair), we assume that infants associated *object A* with *sound A.*

Remember the brain?

- fNIRS: Functional near-infrared spectroscopy
- Non-invasive
  - Probes are secured on a cap and worn on the head
  - Emit and detect light that passes through the scalp
- Quite robust against movements

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(3) Discussion time

To what extent can findings from WEIRD populations be generalised?

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alexsocop@gmail.com

We are all different!

- What we know about a group people may not be applicable to another group.
  - Chavajay & Rogoff (1999): attention
  - Shneidman & Goldin-Meadow (2012): IDS

- How can you contribute to science?

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(4) Are you up for the challenge?

Science needs you!

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alexsocop@gmail.com

The challenge:

- How will you help to increase children's participation in cognitive science?
- Would you want to collect some data and have an extra session on data processing, analysis, and interpretation?

That’s the end of the workshop!

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Thank you for your participation!

Please feel free to email one of us if you have any questions

:)

siayean@hotmail.com
alexsocop@gmail.com