The relationship between curiosity-driven motor exploration and language development.

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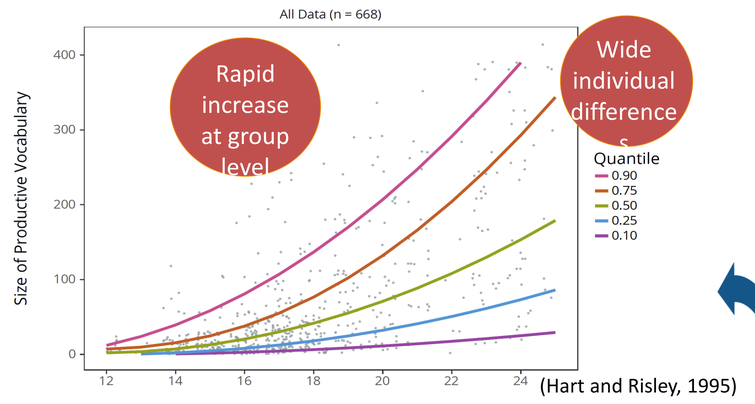
Background

In the first year of life children learn to understand and begin to produce words

BUT they learn at different rates…



At the same time their motor skills are developing

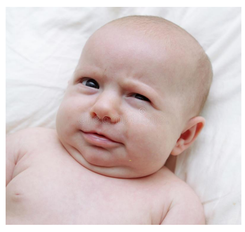
Providing new opportunities and ways to actively engage with and explore objects

Caruso (1993) describe self-initiated manual exploration as a behavioural expression of curiosity.

Karasik, Tamis-LeMonda and Adolph (2011) -11 and 13 month old spend 50% of awake time interacting with objects.

Yu and Smith (2012) identify optimal word learning situations -motor exploration of objects may provide these opportunities.

Research questions



So, we were 'curious'…

1. Are self-initiated curiosity-based motor exploration behaviours associated with concurrent vocabulary in 11 month olds?

2. Can we identify a latent variable that captures curiosity-based motor exploration behaviours in 11 month olds?

Method

Participants

45 caregiver-child dyads

Children aged 11-12 months

Data

Home video-recordings

UK-CDI

Coding

Object manipulation behaviours e.g.,

- Mouth
- Shake
- Rotate

Initiator of action e.g.,

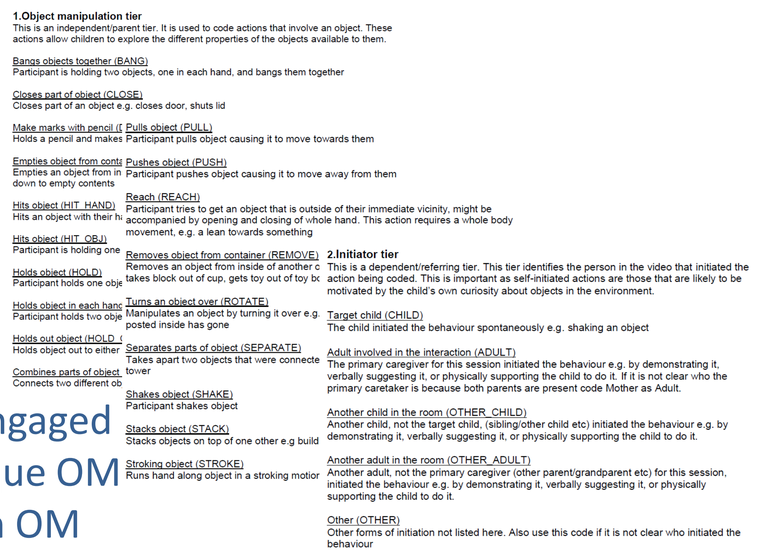
- Caregiver
- Child
- Other

Calculated variables

Duration – total time engaged

Breadth – count of unique OM

Depth – average time in OM



1.Object manipulation tier
This is an independent/parent tier. It is used to code actions that involve an object. These actions allow children to explore the different properties of the objects available to them.

Bangs objects together (BANG)
Participant is holding two objects, one in each hand, and bangs them together

Closes part of object (CLOSE)
Closes part of an object e.g. closes door, shuts lid

Make marks with pencil (I
Holds a pencil and makes

Empties object from conte
Empties an object from in
down to empty contents

Hits object (HIT_HAND)
Hits an object with their h

Hits object (HIT_OBJ)
Participant is holding one

Holds object (HOLD)
Participant holds one obje

Holds object in each hanc
Participant holds two obje

Holds out object (HOLD_
Holds object out to either

Combines parts of object
Connects two different ob

Pulls object (PULL)
Participant pulls object causing it to move towards them

Pushes object (PUSH)
Participant pushes object causing it to move away from them

Reach (REACH)
Participant tries to get an object that is outside of their immediate vicinity, might be accompanied by opening and closing of whole hand. This action requires a whole body movement, e.g. a lean towards something

Removes object from container (REMOVE)
Removes an object from inside of another c
takes block out of cup, gets toy out of toy bc

Turns an object over (ROTATE)
Manipulates an object by turning it over e.g.
posted inside has gone

Separates parts of object (SEPARATE)
Takes apart two objects that were connecte
tower

Shakes object (SHAKE)
Participant shakes object

Stacks object (STACK)
Stacks objects on top of one other e.g build

Stroking object (STROKE)
Runs hand along object in a stroking motior

2.Initiator tier
This is a dependent/referring tier. This tier identifies the person in the video that initiated the action being coded. This is important as self-initiated actions are those that are likely to be motivated by the child's own curiosity about objects in the environment.

Target child (CHILD)
The child initiated the behaviour spontaneously e.g. shaking an object

Adult involved in the interaction (ADULT)
The primary caregiver for this session initiated the behaviour e.g. by demonstrating it, verbally suggesting it, or physically supporting the child to do it. If it is not clear who the primary caretaker is because both parents are present code Mother as Adult.

Another child in the room (OTHER_CHILD)
Another child, not the target child, (sibling/other child etc) initiated the behaviour e.g. by demonstrating it, verbally suggesting it, or physically supporting the child to do it.

Another adult in the room (OTHER_ADULT)
Another adult, not the primary caregiver (other parent/grandparent etc) for this session, initiated the behaviour e.g. by demonstrating it, verbally suggesting it, or physically supporting the child to do it.

Other (OTHER)
Other forms of initiation not listed here. Also use this code if it is not clear who initiated the behaviour

Language 0-5 Project (https://osf.io/kau5f/)

Participants

- 95 participants
- Recruited at 6 months
- Regularly tested for 4 years
- Final session at 54 months


Home audio recordings


Naturalistic play

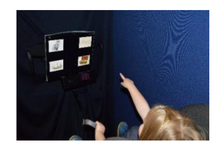

Maternal well-being and parent-child interaction


Shared reading

Tasks

- Language
- Socio-emotional
- Cognitive (e.g., ToM, EF)
- Environment
- Motor skills


Standardised assessments/ vocabulary checklists


Eye-tracking


Observation of gestures


Home video-recordings


Behavioural measures

Planned analyses

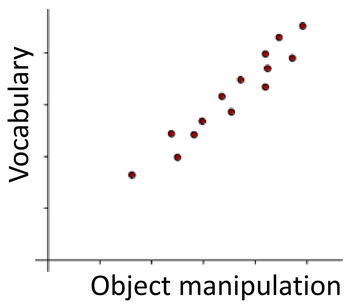
Analysis 1

Child-initiated behaviours (curiosity?)

Adult-initiated behaviours

Concurrent vocabulary

Hypothesis: curiosity-based motor exploration is positively related to concurrent vocabulary



Assumption: child-initated behaviours are curiosity-driven

Analysis 2

Exploratory factor analysis:

1. Do behaviours fall into groups?
2. Do any of these groups look like "curiosity" behaviours?
3. Can we use these factors to predict concurrent vocabulary?

All codes (33 in total)

EFA

Factor 1…

Factor *n*

Checks previous assumption

Press

Bang

Hit Object

Rotate

Separate

Open

Things they do with their arms?

Curiosity-based object manipulation

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