

# Predicting early school achievement trajectories from the EDI and *tutti quanti*: Findings from the QLSCD

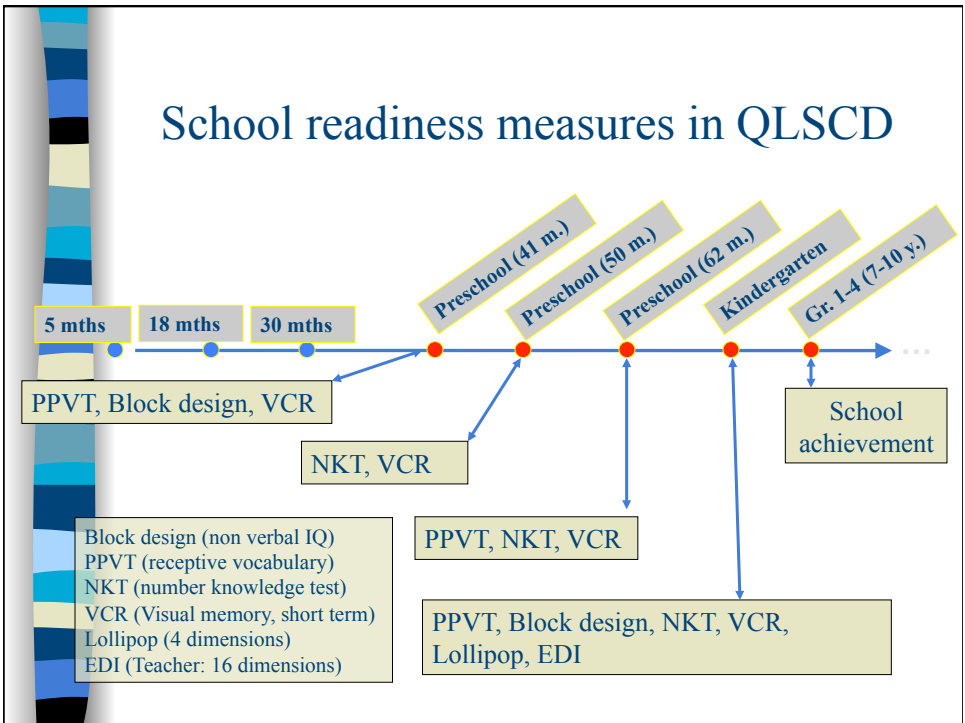
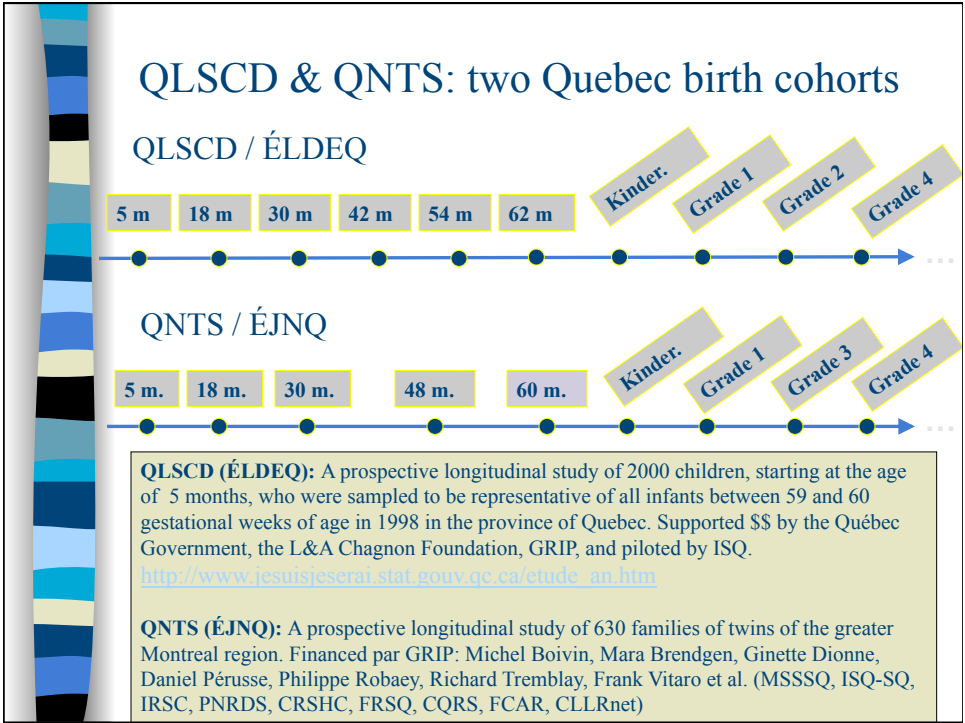
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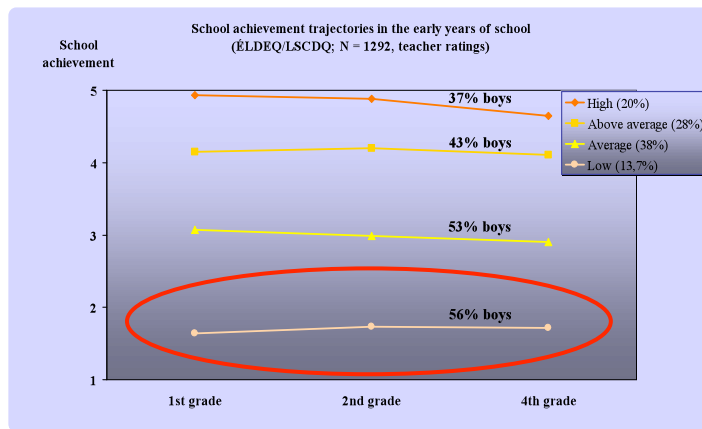
## Research questions

- Can we reliably assess early school achievement trajectories?
- How well can we predict school achievement difficulties from the late preschool period?
- Can this prediction be based on screening measures that are (1) multidimensional and (2) easily used in a population-based context?
- Can we get a significant prediction from early childhood (i.e., before 42 months) ?

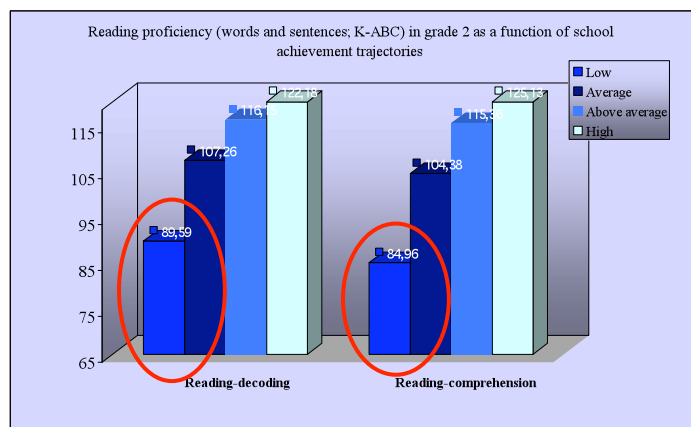




## School achievement trajectories in the early years of school

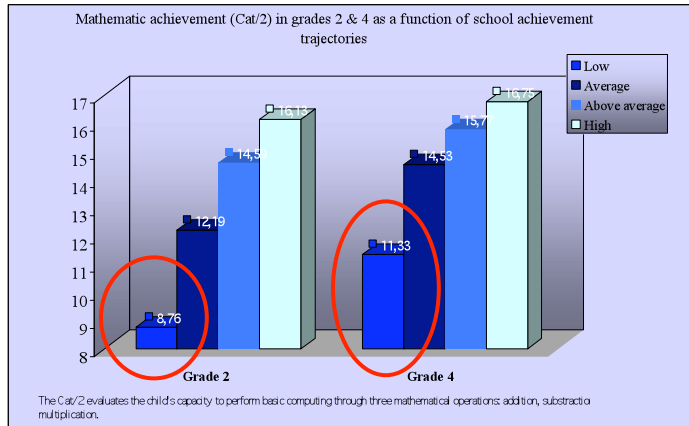


## Reading skills in Grade 2 as a function of school achievement trajectories

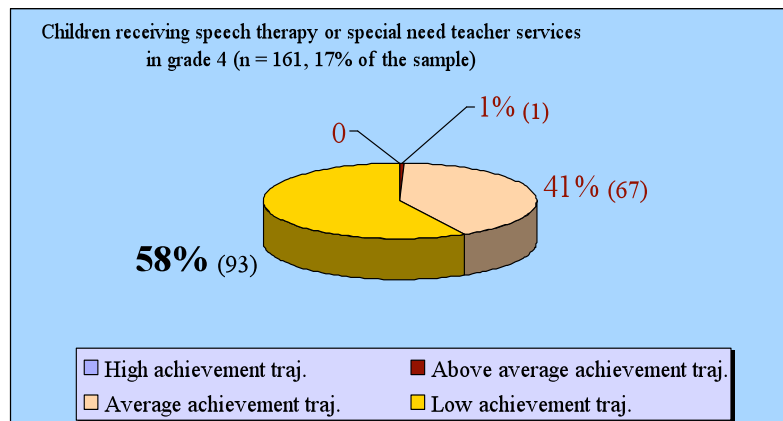


K-ABC (Kaufman & Kaufman, 1993): Part 1: The child reads aloud a series of words; Part 2: A sentence is read to the child who then acts the situation.

## Mathematic achievement as a function of school achievement trajectories



## Children receiving services as a function of school achievement trajectories



Note: A small majority of those in the low trajectory (93 of 177 for 53%) received speech therapy or special need teacher services in grade 4



## Early Development Instrument (EDI; Janus & Offord, 2001)

### Physical health and well-being

- Physical readiness for school day (e.g., school on time, not hungry nor tired).
- Physical independence (e.g., independence, coordination)
- Gross and fine motor skills

### Social competence

- Overall social competence (e.g., cooperative, gets along with peers)
- Responsibility and respect (e.g., self-control, respect to adult and children)
- Approaches to learning (e.g., Listens attentively, works neatly and carefully)
- Readiness to explore new things (e.g., curiosity, eager to play with new toy)

### Emotional maturity

- Prosocial and helping behavior (e.g., offers help)
- Anxious and fearful behavior (e.g., unhappy, sad, worried, fearful)
- Aggressive behavior (e.g., fights, bullies, laugh at others)
- Hyperactivity and inattention (e.g., restless, fidgets, impulsive, inattentive)

### Language and cognitive development

- Basic literacy
- Interest in literacy / numeracy and memory (e.g., independence, coordination)
- Advanced literacy
- Basic numeracy

Communication skills and general knowledge (e.g., effective use of language, tells story, easily understands what is said to him)



## Lollipop test (Chew 1989)

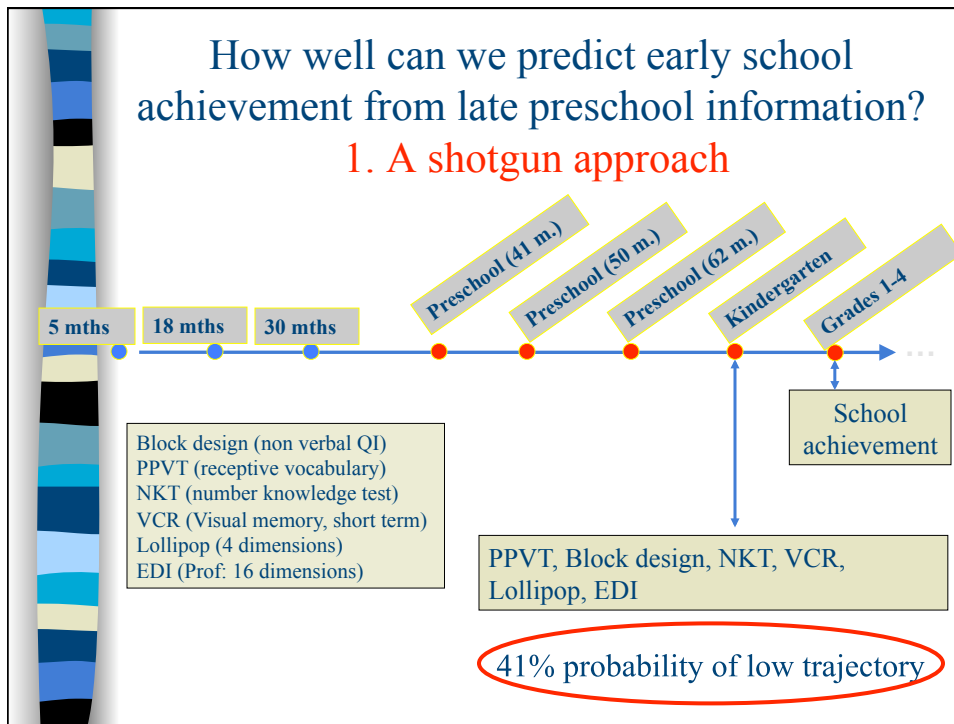
- Identification of colors and shapes
- Picture description and spatial recognition
- Identification of numbers and counting
- Identifications of letters and writing

A total score of school readiness can also be computed by summing up the 4 subtest scores.

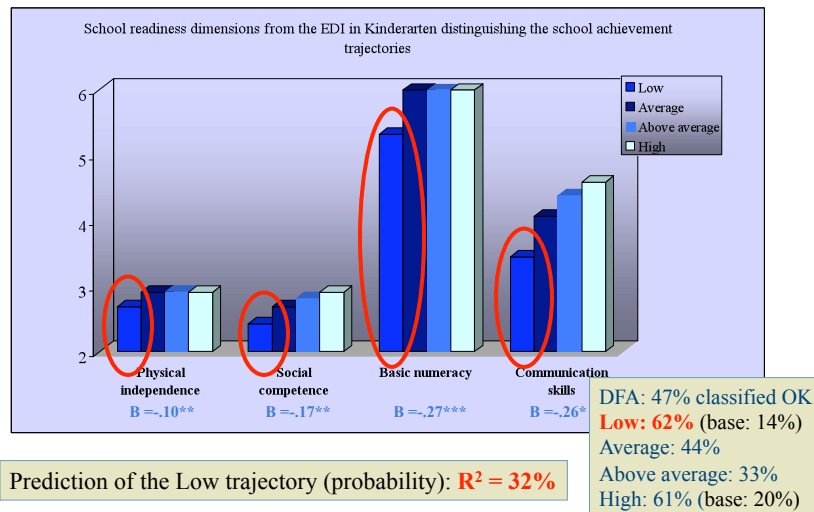


# How well can we predict early school achievement from late preschool information?

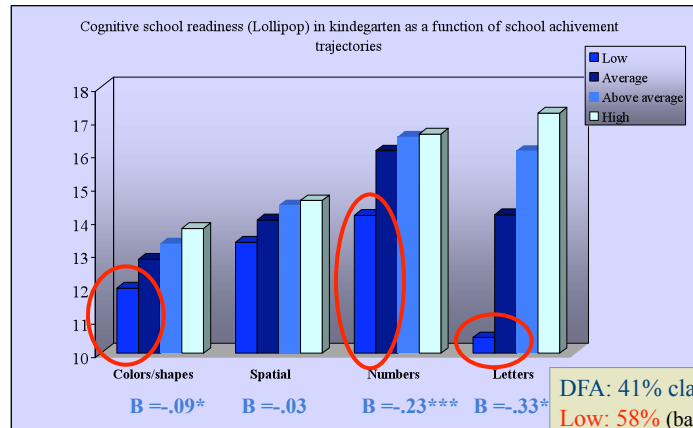
## 1. A shotgun approach



# School readiness (EDI) in Kindergarten and school achievement trajectories



## School readiness (Lollipop) in Kindergarten and school achievement trajectories



Prediction of the low trajectory (probability):  $R^2 = 28\%$

DFA: 41% classified OK  
 Low: 58% (base: 14%)  
 Average: 29%  
 Above average: 29%  
 High: 68% (base: 20%)

## Significant predictors are ++

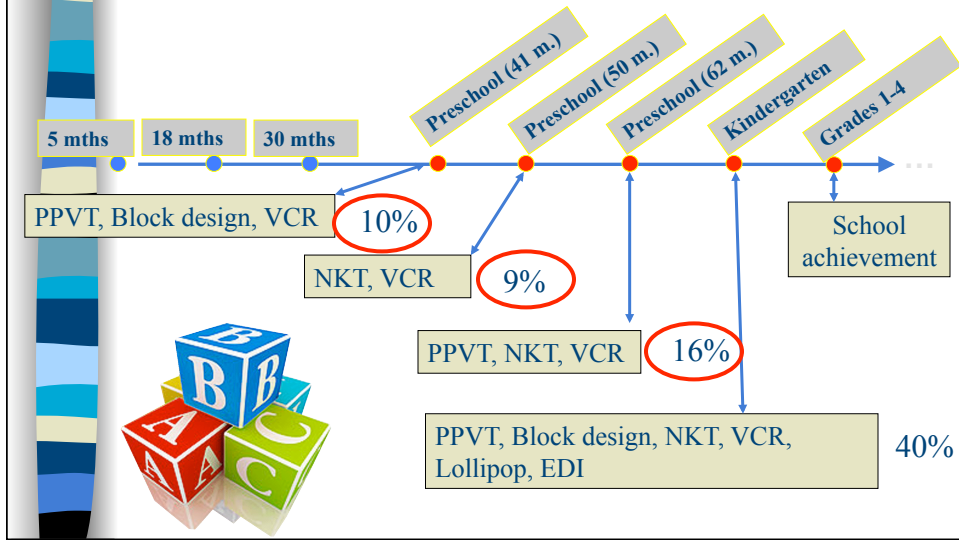
- NKT Numbers (-.17\*\*\*)
- EDI Physical independence (-.09\*\*)
- EDI Social competence (-.16\*\*\*)
- EDI Basic numeracy (-.15\*\*\*)
- EDI Communication skills (-.17\*\*\*)
- Lollipop Colors and shapes (-.07\*)
- Lollipop Numbers (-.10\*)
- Lollipop Letters (-.19\*\*\*)

... but  
**Lollipop + EDI**  
**40% of the variance**  
 (versus 41 % with the extended battery)

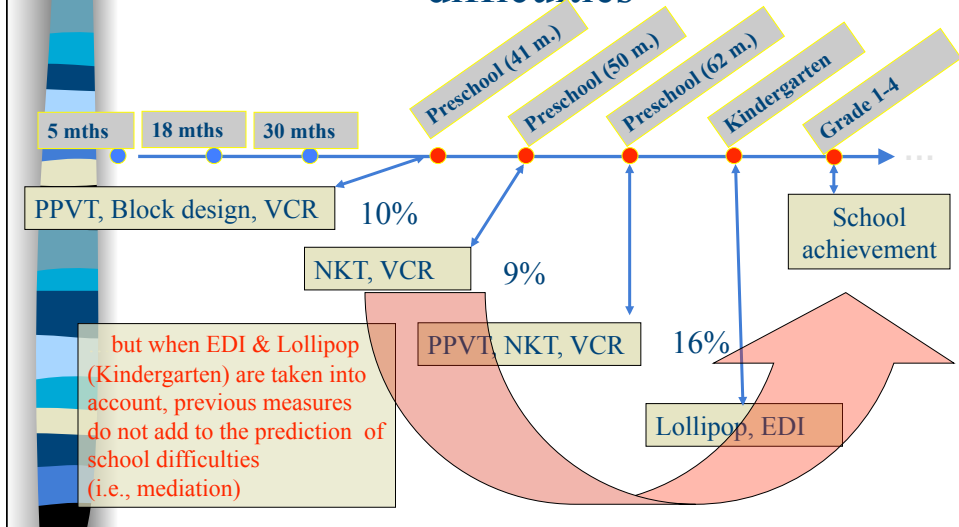
**DFA: 51% classified OK**  
 → **Low: 68%**  
 Average: 47%  
 Above average: 37%  
 High: 66%



## Cognitive school readiness at 41-62 months predict school achievement difficulties



## Cognitive school readiness at 41-62 months predict school achievement difficulties

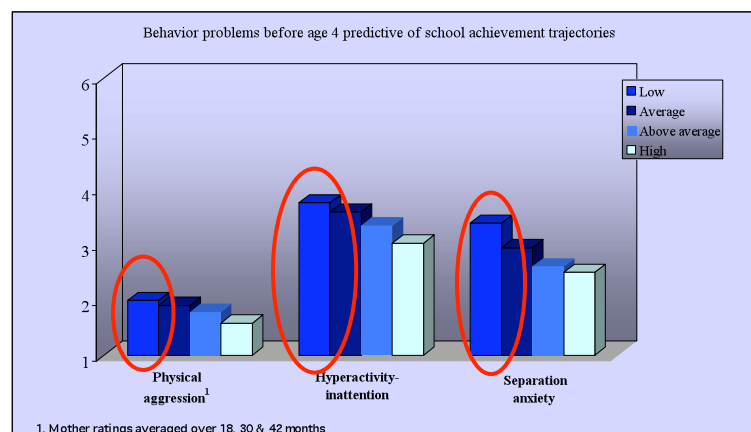


## Research questions

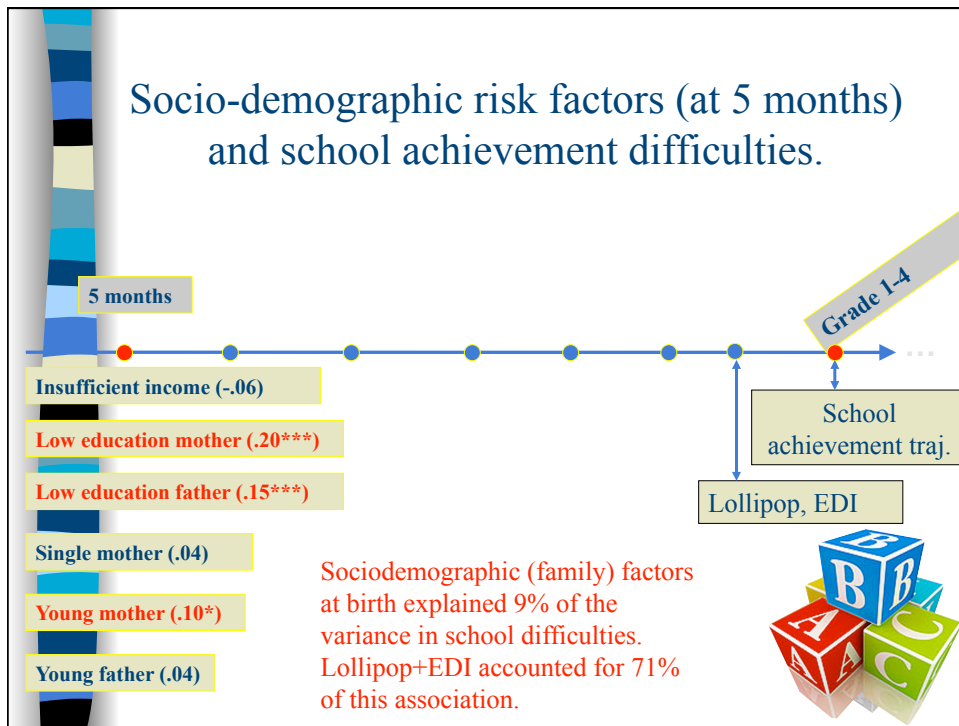
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## Behaviour problems already present at 18-42 months (QLSCD)



...but when the EDI-Lollipop are taken into account, BP do not add to the prediction of school difficulties (i.e., mediation).



### Take-home messages

- School achievement trajectories (SAT) are established early.
- School difficulties can be accurately predicted from multidimensional child-level school readiness indicators (SRI), e.g., EDI, at the end of the preschool period.
- Early risk factors of school difficulties can be identified.
- SRI mediates the contribution of these early risk factors.



## Implications for the early screening of SR

- EDI & Lollipop are valid tools for predicting early school difficulties
  - to identify at risk children at risk for further evaluation & possible intervention.
  - but need to move beyond (1) early school achievement (2) and scholastic dimensions
- The two assessment tools could be streamlined, some aspects expanded, e.g., literacy.
- EDI & Lollipop are for late-preschool.
  - towards a VEDI (Very Early Development Instrument).
  - towards a longitudinal approach to monitoring ECD



Thank you!

For more information on  
early school readiness  
(promotion and programs):

<http://www.skc-eed.ca/conferences/ready-for-school-ready-for-life.html>