Characterizing the sources of poor academic achievement

How can cognitive and social sciences help reduce educational inequalities?

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Elora TAIEB

3rd-year PhD student in cognitive and developmental **psychology** at **LaPsyDE** (University Paris Cité, CNRS)

After a Bachelor's degree in Psychology and a Master's degree in Cognitive and Clinical Neuropsychology, Elora started a PhD under the co-supervision of Dr. Irene Altarelli and Dr. Teresa Iuculano.
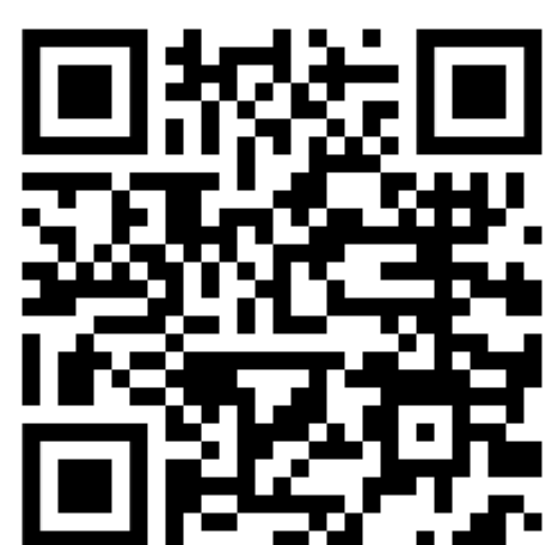
Research interests:

Poor academic achievement, educational inequalities, cognitive and socio-emotional abilities

Communications:

Conference of Young Researchers in Cognitive Sciences, Fresco, April 2022 *(poster)*

Conference Education and Inequalities, RTP Education & MITI (CNRS), May 2023 *(oral communication)*

Personal page:

Nearly one child out of six has difficulty learning reading and math, skills that are fundamental to later schooling and professional success. Many of these children come from disadvantaged socio-economic backgrounds (SES), especially in France as compared to the OECD average. Often not being diagnosed as "dyslexic" or "dyscalculic", these children do not benefit from appropriate help or remediation. Better understanding the sources of poor academic achievement in this population is thus of crucial importance and has been very little studied. In particular, SES could influence the development of different cognitive skills, but also of socio-emotional abilities. In this study, 479 children from REP/REP+ schools were recruited and assessed on reading and math performance as well as on various cognitive and socio-emotional skills. Preliminary results suggest that a subgroup of children, showing poor performance in both reading and math, tend to come from lower SES backgrounds and to present broader cognitive impairments comparatively to poor achievers in reading only, in math only and normally achieving children.

Theoretical background

Large **socio-economic gap** in academic performance in **France** comparatively to the other OECD countries: more than 20% of the variance of school achievement is explained by SES *(PISA, 2022)*.

These **educational inequalities** impact both **reading and math** achievement in children, two **essential abilities** that are predictive of future academic success and quality of life *(Duncan et al., 2007)*.

The **sources of impaired reading and math** in this population of poor achievers, often coming from **low SES**, is **poorly understood** *(Billard et al., 2008)*.

They could present the same **cognitive impairments** as the ones typically reported for dyslexic or dyscalculic children *(Billard et al., 2010)*. But they could also show more general cognitive weaknesses *(Lawson et al., 2018)*, as well **as difficulties in emotion regulation** *(Lemstra et al., 2008)*.
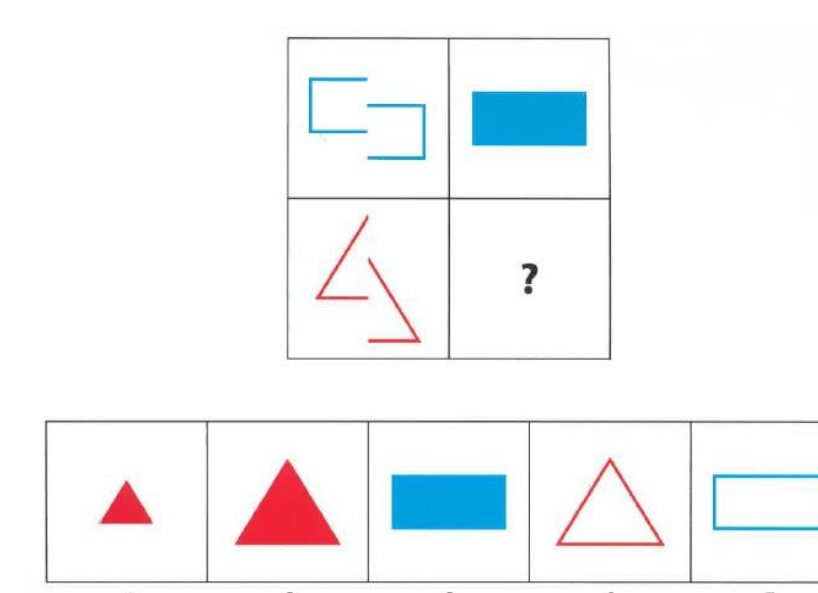
Methodology

Population

3rd-graders enrolled in **REP/REP+** schools in areas with high social diversity in Paris and its surroundings.

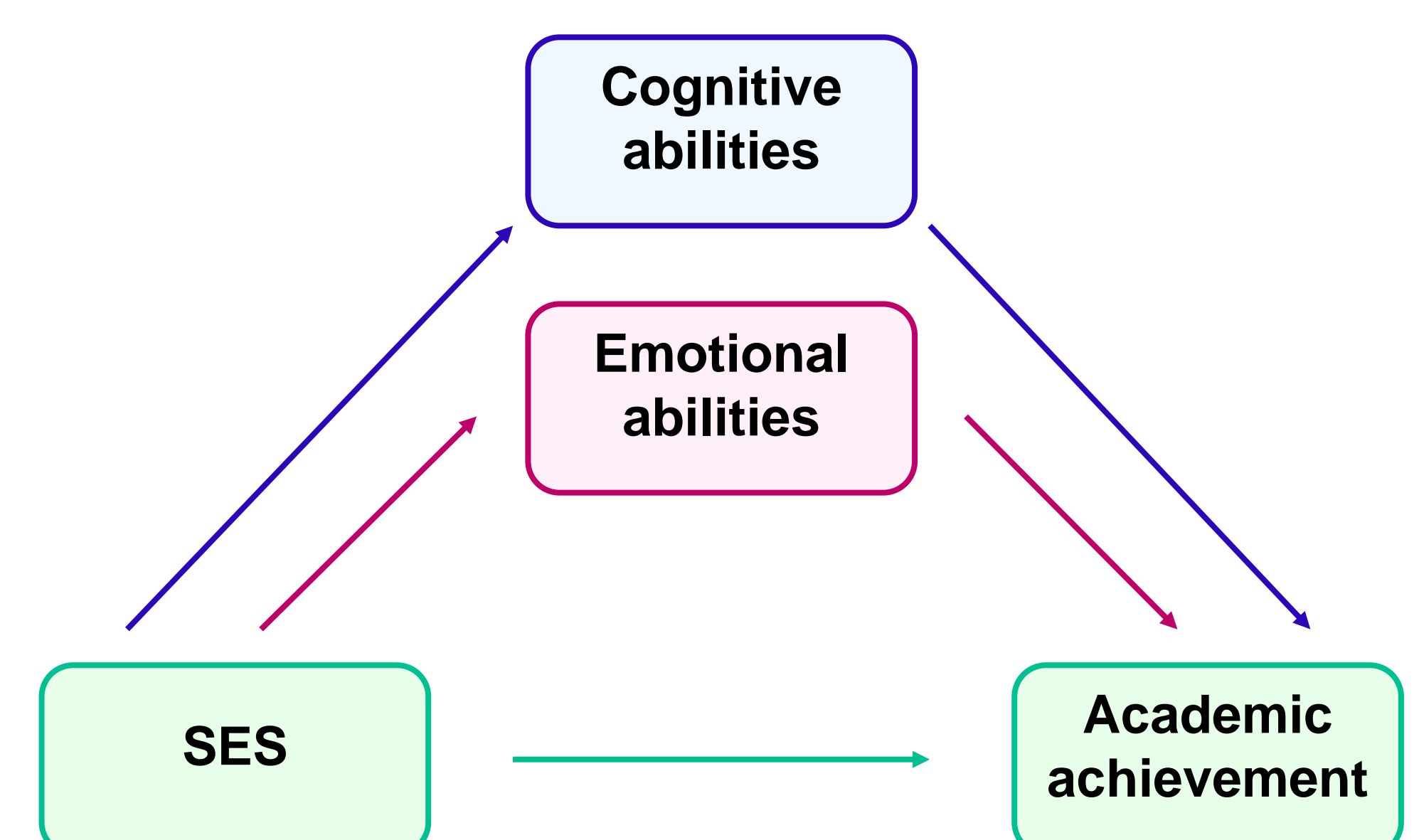**N = 479** (246 females, mean age = 8.6 years)

Research questions

How do **socio-economic, cognitive and emotional factors** contribute to reading and math performances?

What are the **cognitive and emotional profiles** of poor achievers coming from **low SES** backgrounds?

Experimental design

Quantitative methods

Large battery of academic, cognitive and socio-emotional **standardized assessments** administered individually to each child during four 30-min sessions.

Parental questionnaire collecting information on SES (education and occupation of both parents).

Source: Powerpoint, Elora Taieb, Pinterest

Preliminary results

Comparatively to poor achievers in reading only or in math only and to normally achieving children, **poor achievers in both reading and math domains**:

- tend to come from **lower SES** backgrounds.
- present **broader impairments** in various **cognitive** skills.

Implications for public policies

Characterization of the **sources of poor academic achievement** in children from **low SES** backgrounds.

Identification of **promising remediation targets** in this population in order to develop and evaluate **personalized interventions** and to inform **educational policies**.