SOCIO-EMOTIONAL DEVELOPMENT AND LEARNING IN SCHOOL

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Montevideo – March/ 2015

Overview

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- Motivation
- Empirical Strategy
- Results
- Conclusions

Motivation

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- Multidisciplinar empirical evidence shows that
  - Non-cognitive skills are as important as cognitives in predicting success in life
  - Benefits of education work through cognitive and noncognitive channels, both significant

Motivation

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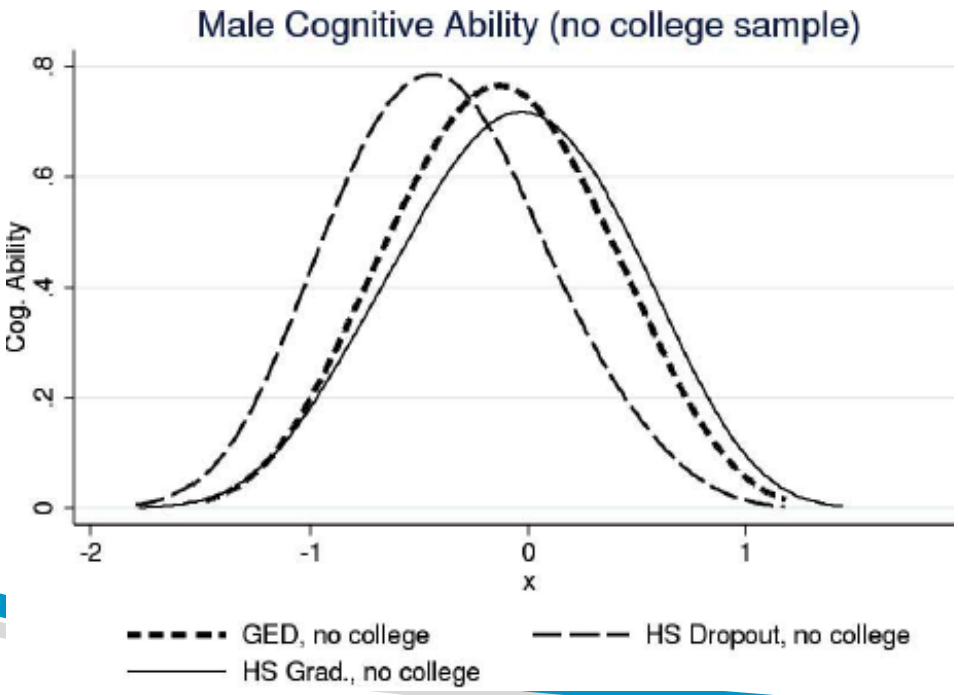
- Mischel (1989) shows that children willing to delay rewards have better future outcomes
- Heckman and co-authors show non-cognitive skills are as important as cognitive skills in predicting wages, drug envolvement and health
- John, Caspi et al (1994) shows relationship between Conscientiousness, Agreeableness and Extraversion with crime
- Brazilian context: quality of schools vs. quality of children

Motivation - GED

- GED recipients earn less than high school grads, in spite of having the same cognitive ability. Non-cognitive skills, however, are different between them.



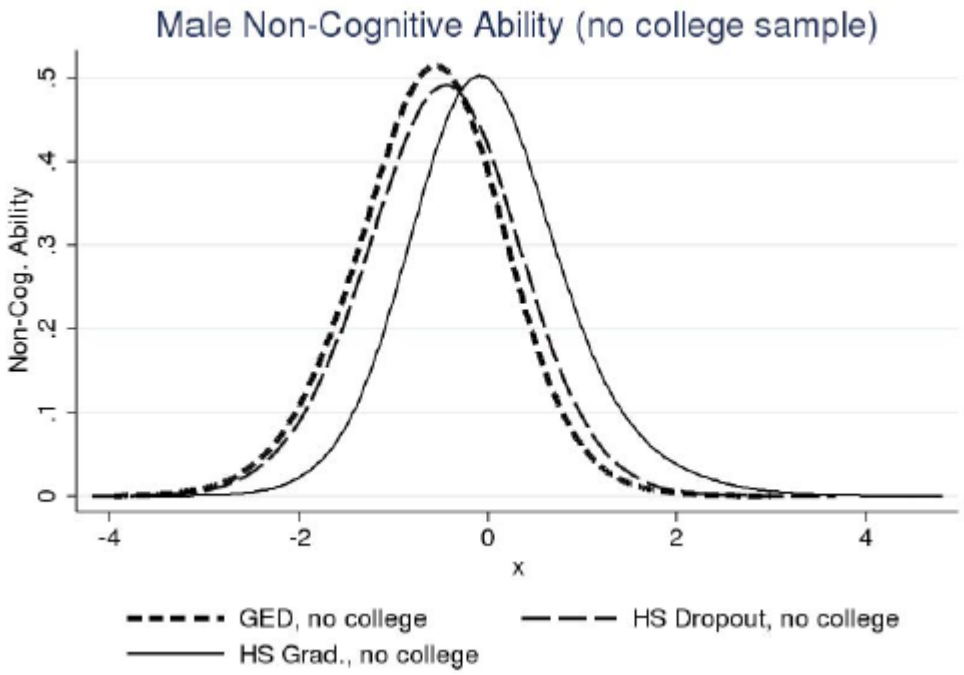
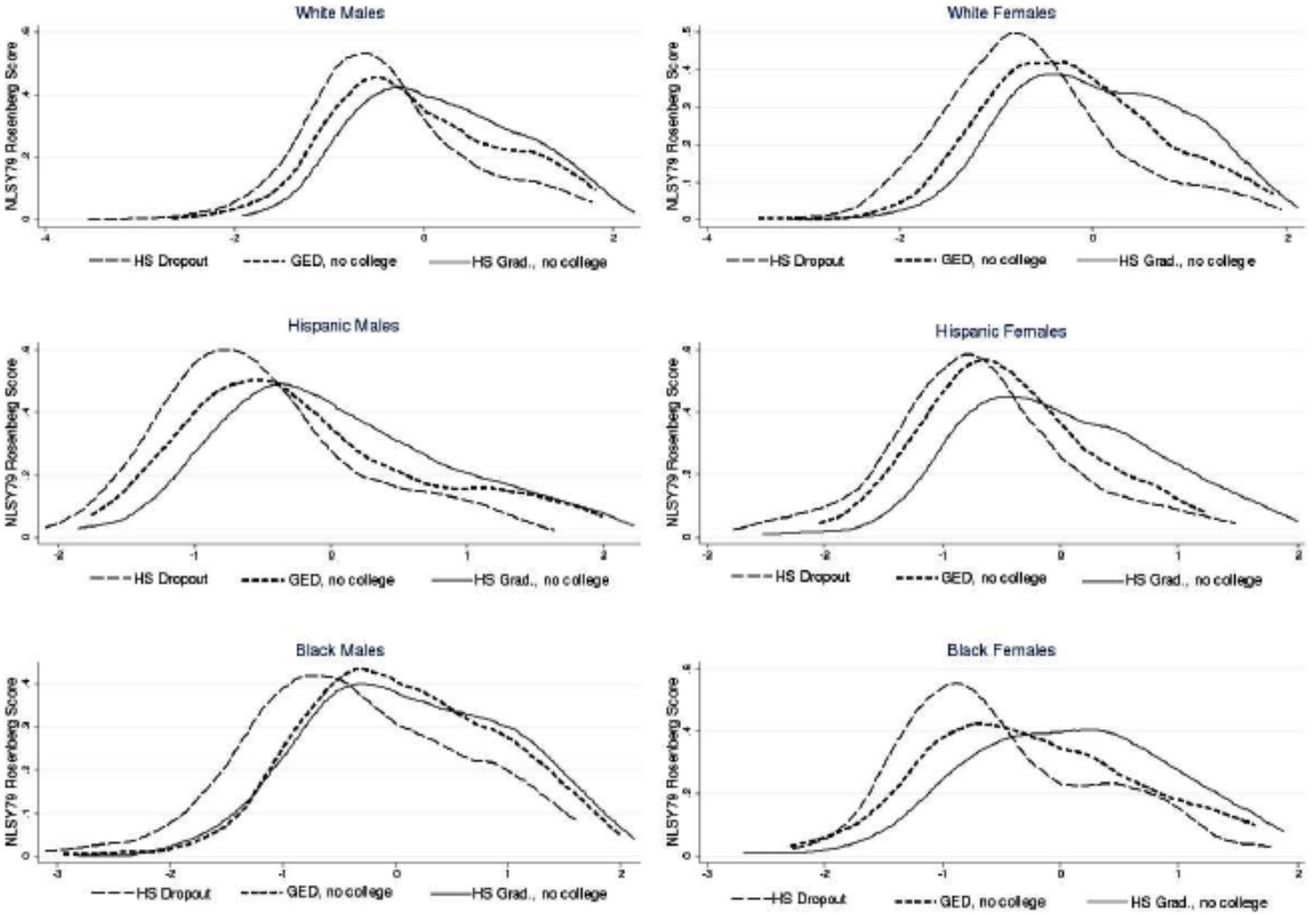


Figure 13: Estimates of Post-Schooling Rosenberg Scores Distributions by Final Education Level



Source: National Longitudinal Survey of Youth 1979. Notes: Distributions are for individuals with no completed college in 2006. Notes: The Rosenberg Self-Esteem Scale is a series of 10 questions to measure self-esteem. Post-School Rosenberg scores are those estimated for individuals at the time that they leave school, or equal their observed Rosenberg score if they were surveyed after they had completed school. The adjustment method is discussed in detail in Section D of the Web Appendix (http://jenni.uchicago.edu/GEDHandbookChapter/).

Motivation - Perry Preschool/ High Scope

- Super pre-K for vulnerable children in Ypsilanti
- High Scope curriculum, home visits, well trained teachers
- Cognitive impact was temporary, but had long term outcomes
- Most of the social return come from sources other than labor earnings
- Changes in noncognitive skills mediate most of the outcomes

Motivation - Perry Preschool (High Scope)

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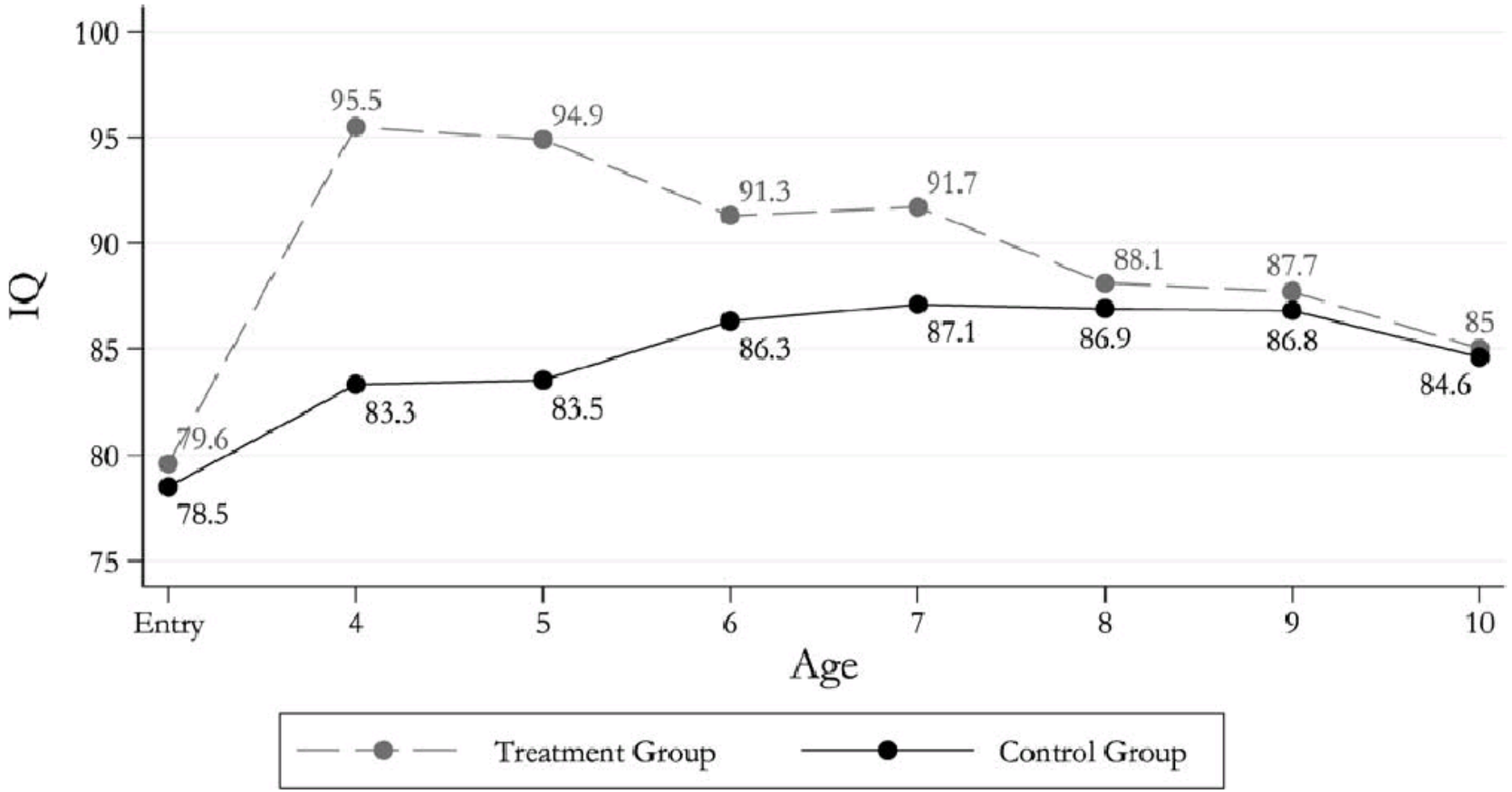

Source: Heckman (2008) Schools, skills and synapses. NBER 14064

Noncognitive impacts – Perry School

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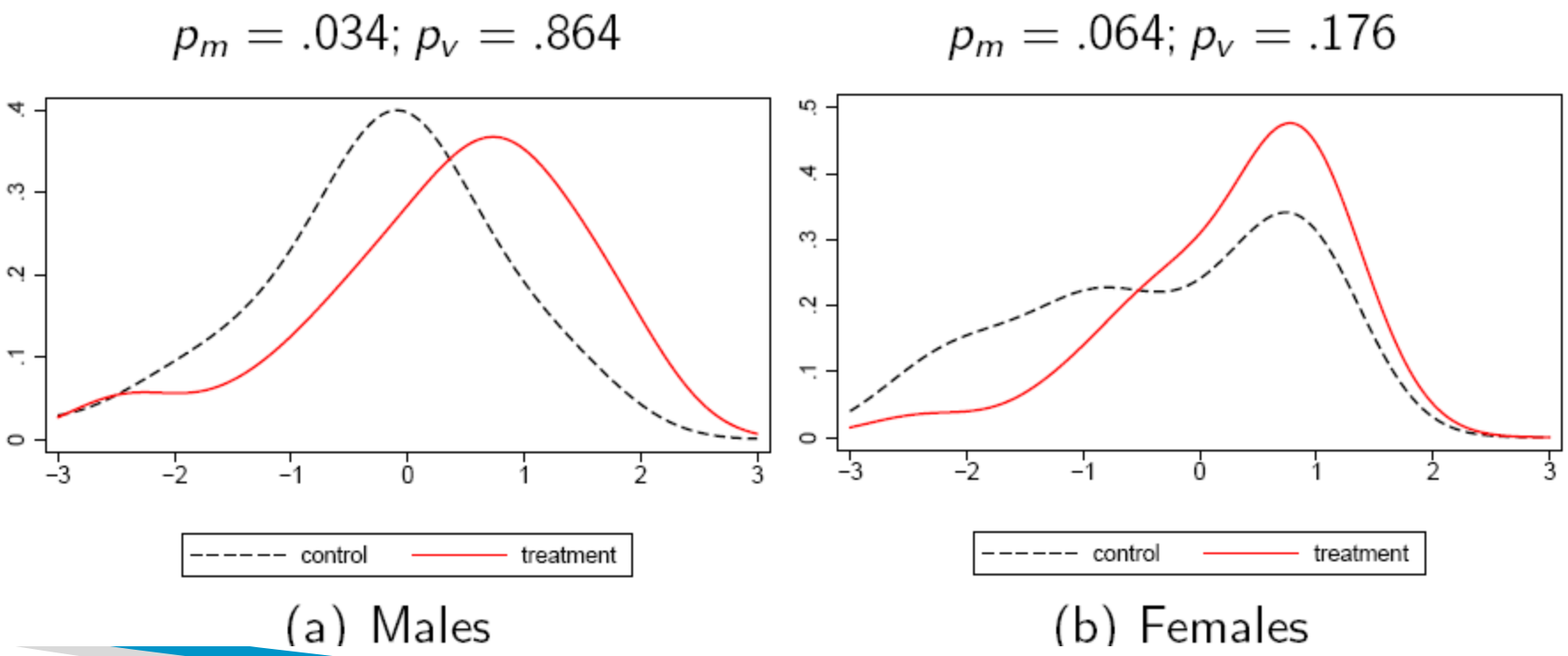
Perry School/ High Scope

Figure 11: Personal Behavior Factor Scores, Kernel Density



Noncognitive impacts – Perry School

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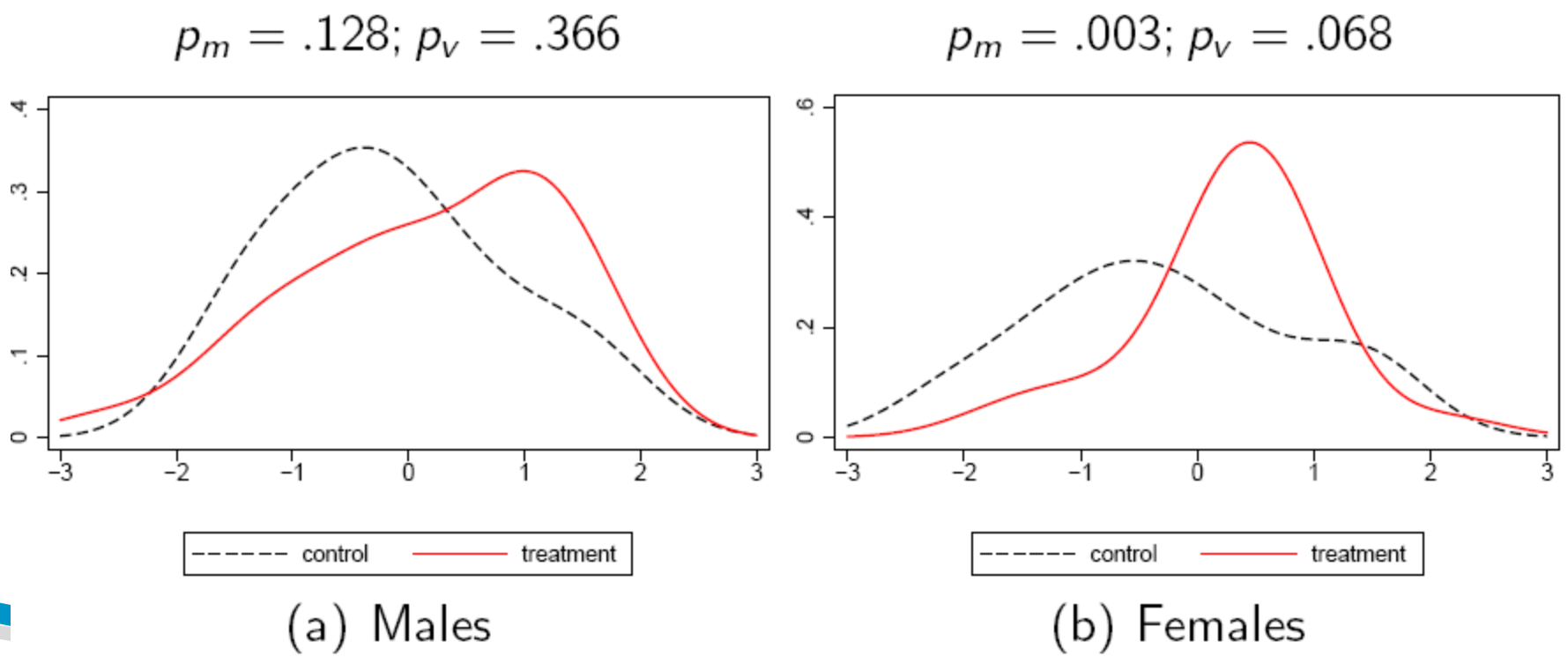
Perry School/ High Scope

Figure 12: Social Development Factor Scores, Kernel Density



Cost-benefit analysis – Perry School

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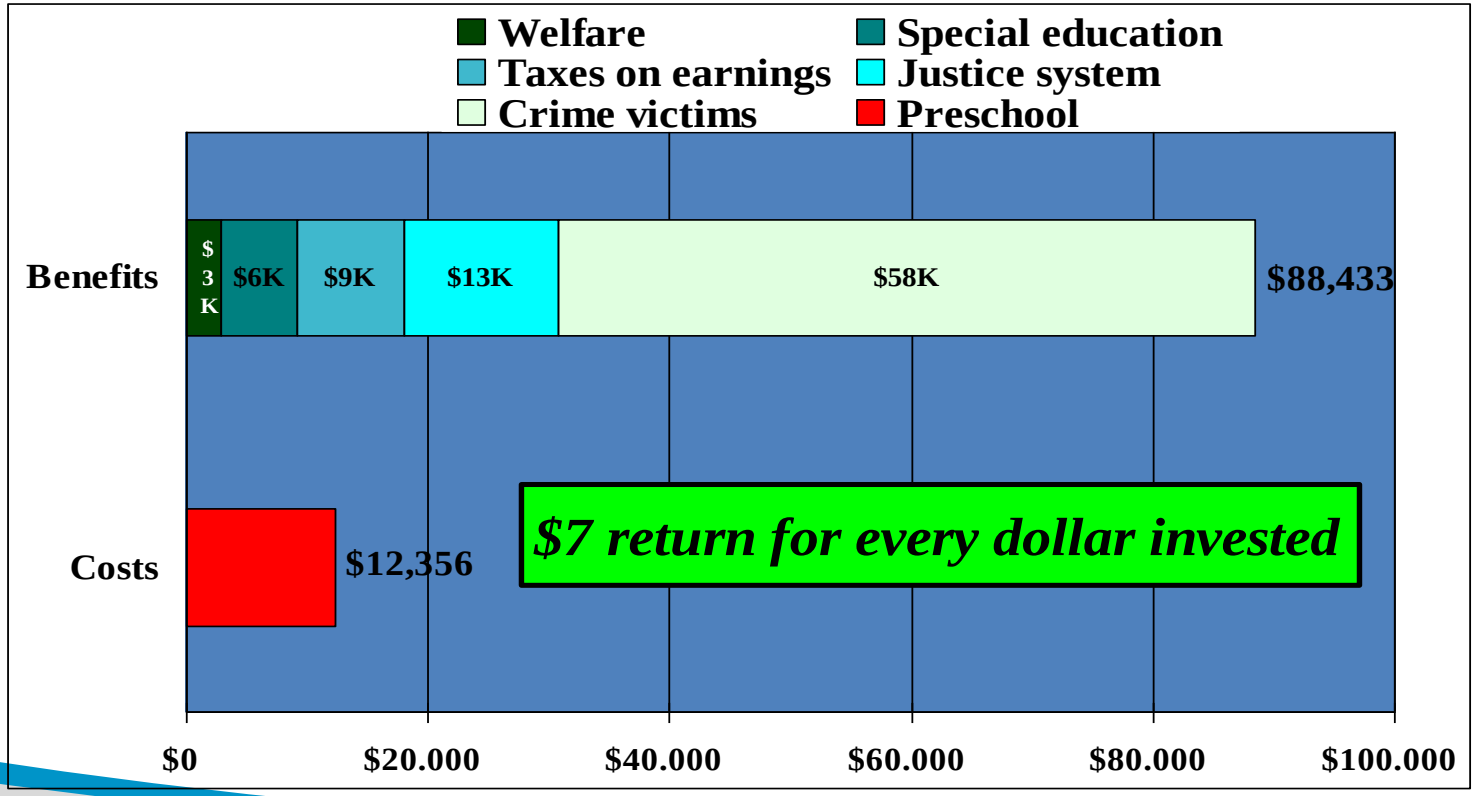
Economic return
(excludes net labor earnings of $20 k)



Mediators of the Perry School effects

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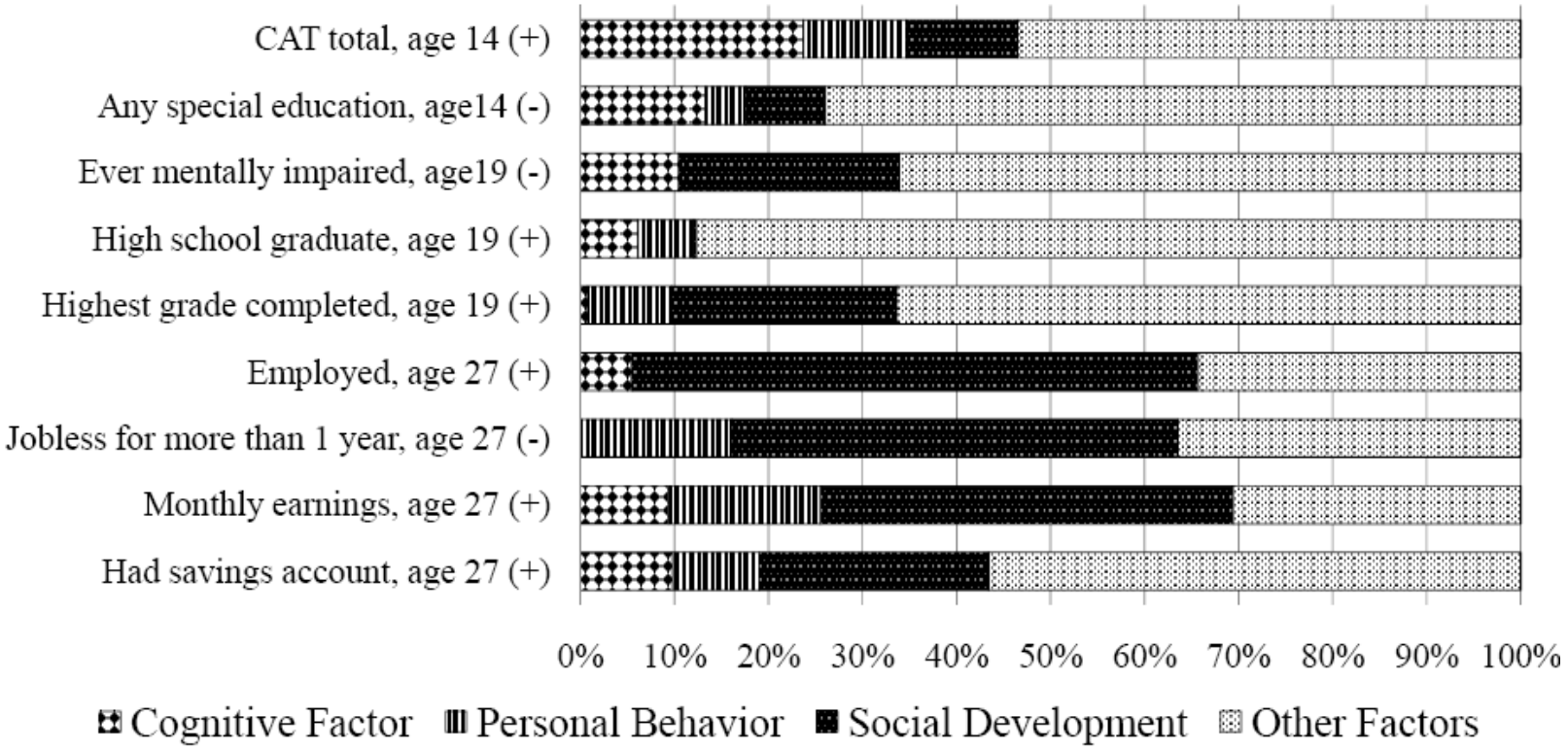
Figure 1: Decomposition of Treatment Effects, Females, Part I



- For females, both cognitive and socio-emotional channels are involved.

Reasons to measure noncognitive skills in school

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NCog → Individual Outcomes

NCog → Learning (cogs)

NCog → Externalities

How to choose an instrument

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- Predictive power: Characteristics related to wellbeing
- Feasibility: language, cost, duration
- Malleability at the school age
- School transformation capability
- Stability

SocioEmotional ans Noncognitive Nationwide Assessment (SENNA)

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- Literature survey: 123 selected, 76 analyzed
- Quantitative vs. Qualitative Validation
- Advice from the experts
- Involvement of teachers and principals

Original battery (items & subscales)

Instrument	Items	Number of subscales	Subscales /Latent Dimentions
Big Five Inventory (BFI)	44	5	Extraversion, Conscienciousness, Openess to Experiences, Agreeableness and Emotional Stability
Big Five for Children (BFC)	65	5	Extraversion, Conscienciousness, Openess to Experiences, Agreeableness and Emotional Stability
Strenghts & Difficulties Questionnaires (SDQ)	25	4	Emotional Symptoms, Conduct Problems, Hiperactivity, Peer Relationship Problems, Prosocial Behavior
Norwick-Strickland Locus of Control	21	1	Locus of Control
Self-Efficacy Questionnaire for Children	24	3	Academic Self-Efficacy, Social Self-Efficacy and Emotional Self-Efficacy
Grit Scale (Grit)	8	1	Grit
Core Self-Evaluations (Core)	12	1	Self-Esteem
Rosemberg Self-Esteem Scale	10	1	Self-Esteem
Total	209	21	16

Test-Subscale	F1	F2	F3	F4	F5
Self-Efficacy: Academic	0.83				
Grit	0.80				
BFI: Conscienciousness	0.76				
BFC: Conscienciousness	0.63				0.21
BFC: Openness/intelect	0.53	0.39			
SDQ: Hiperactivity	-0.47	0.24	0.27		
BFC: Extroversion		0.74			
BFI: Extroversion		0.72			-0.35
Self-Efficacy: Social Skills		0.65	-0.20		
BFI: Openness		0.42			
BFI: Emotinal Stability/ Neuroticism			-0.93		
BFC: Neuroticism		0.22	0.68		
Self-Efficacy: Emotional		0.40	-0.44		
SDQ: Conduct Problems		0.23	0.33	-0.33	
BFI: Agreeableness				0.80	
BFC: Agreeableness				0.71	
SDQ: Prosocial behavior				0.70	
Locus of control (Norwick-Strickland)					0.53
SDQ: Relationship problems				-0.26	0.52
Rosemberg/Core Nuclear Evaluations: Self-Esteem	0.27	0.21			-0.50
SDQ: Emotinal Symptoms			0.35		0.43
Squared sum of the loadings	3.31	2.36	2.23	2.21	1.44
Explained fraction of variance	0.16	0.11	0.11	0.11	0.07
Cumulative explained fraction of variance	0.16	0.27	0.38	0.48	0.55
Correlations					
F1					
F2	0.18				
F3	-0.24	0.09			
F4	0.48	0.30	0.30		

Senna – Psychometric properties

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Scale	Alpha 92 items	# Items		Alpha 62 Items	# Itens
F1 Conscientiousness (C)	.88	17		.83	10
F2 Extraversion (E)	.79	14		.74	11
F3 Emotional Stability (N1)	.82	14		.72	9
F4 Locus of Control (N2)	.77	15		.72	12
F5 Agreeableness (A)	.76	15		.70	12
F6 Openess (O)	.80	17		.73	8

Afterwards IRT was used to calibrate the items

Empirical Strategy

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- In 2013 Primi and Santos released the Social and Emotional (or Noncognitive) Nationwide Assessment (SENNA), built to be a large scale noncognitive assessment to be used in schools

- Measured dimensions: Big-5 plus Locus of Control

- Validation: representative sample of public high school students of the state of Rio de Janeiro (N = 22000)

- Dataset also contains a (short) socioeconomic questionnaire and the results of a standardized test of Math and Language

Variable	Source/ Description
Social and emotional traits	**Micro-data from the pilot evaluation in Rio de Janeiro**
Conscientiousness Extraversion Emotional Stability Locus of Control Agreeableness Openness to New Experiences	Factorial Analysis/TRI[49] based upon the social and emotional questionnaire (62 items for the 5th grade and 92 items for the 10th and 12th grades)

Family environment	**Micro-data from the pilot evaluation in Rio de Janeiro**
Mother's education	5 educational levels
Father's literacy	Dummy[50]
Socioeconomic Status (SES)	Linear index combining 12 characteristics of dwellings and ownership of durable goods
Number of Books	4 categories (none to more than 200)
Does the mother live at home?	Dummy
Economically disadvantaged	Dummy (first fifth of SES)
Individual characteristics	**Micro-data from the pilot evaluation in Rio de Janeiro**
Sex	Dummy
Age	Integer
Race	Dummy (1 = white, Asian)
Attitudes of parents and children	**Micro-data from the pilot evaluation in Rio de Janeiro**
Reading frequency	4 categories (never to frequently)
Parents' reading frequency	4 categories (never to frequently)
Do parents encourage the children to read	Dummy
Class characteristics	**Micro-data from the pilot evaluation in Rio de Janeiro**
Size	Number of enrolled students
Averages of social and emotional traits, individual characteristics and family environment, as well as family attitudes	
Learning performance	**SAERJINHO**
Grade in Portuguese	Standardized Grade (m = 0, v = 1)
Grade in Mathematics	Standardized Grade (m = 0, v = 1)

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Gender differences in Non-Cognitive Skills

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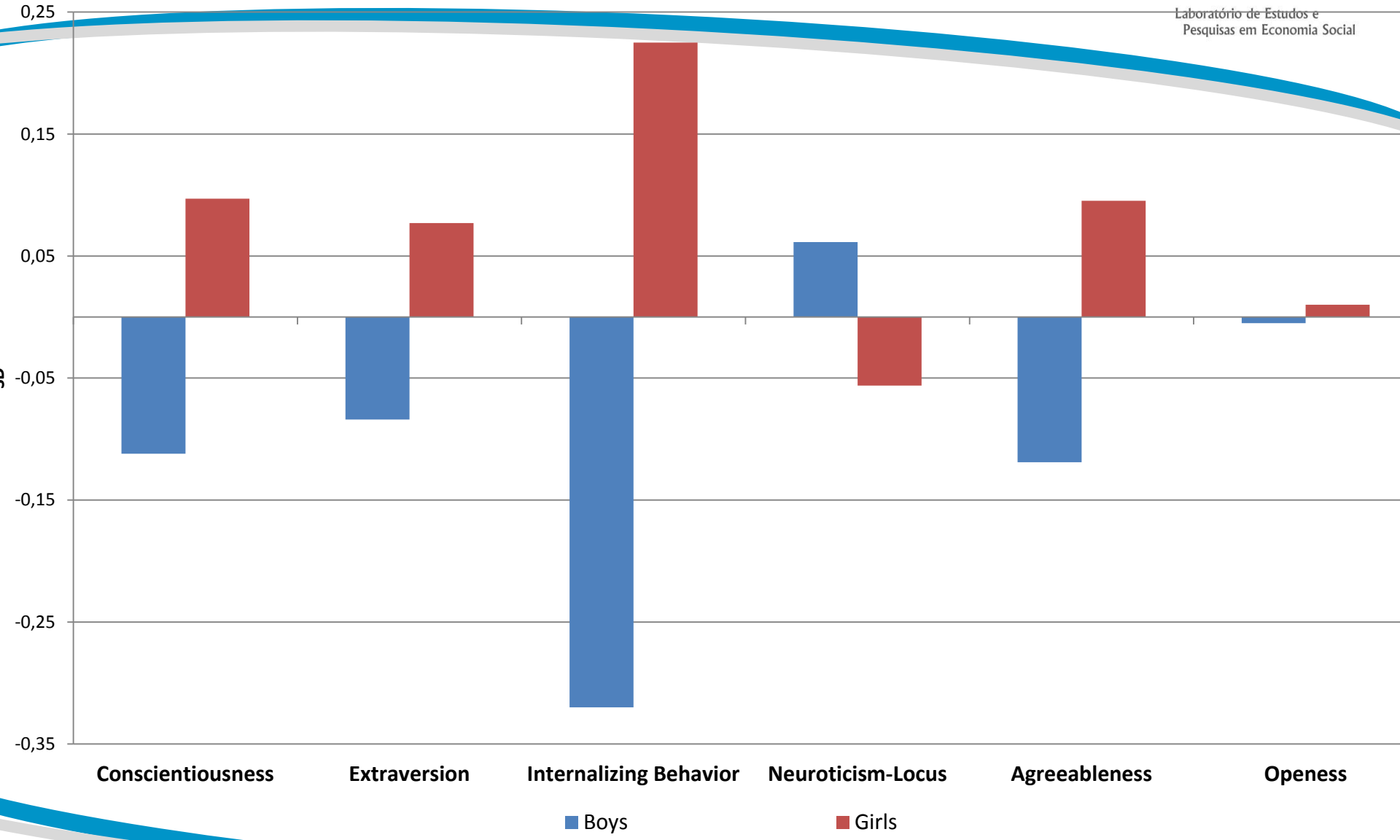
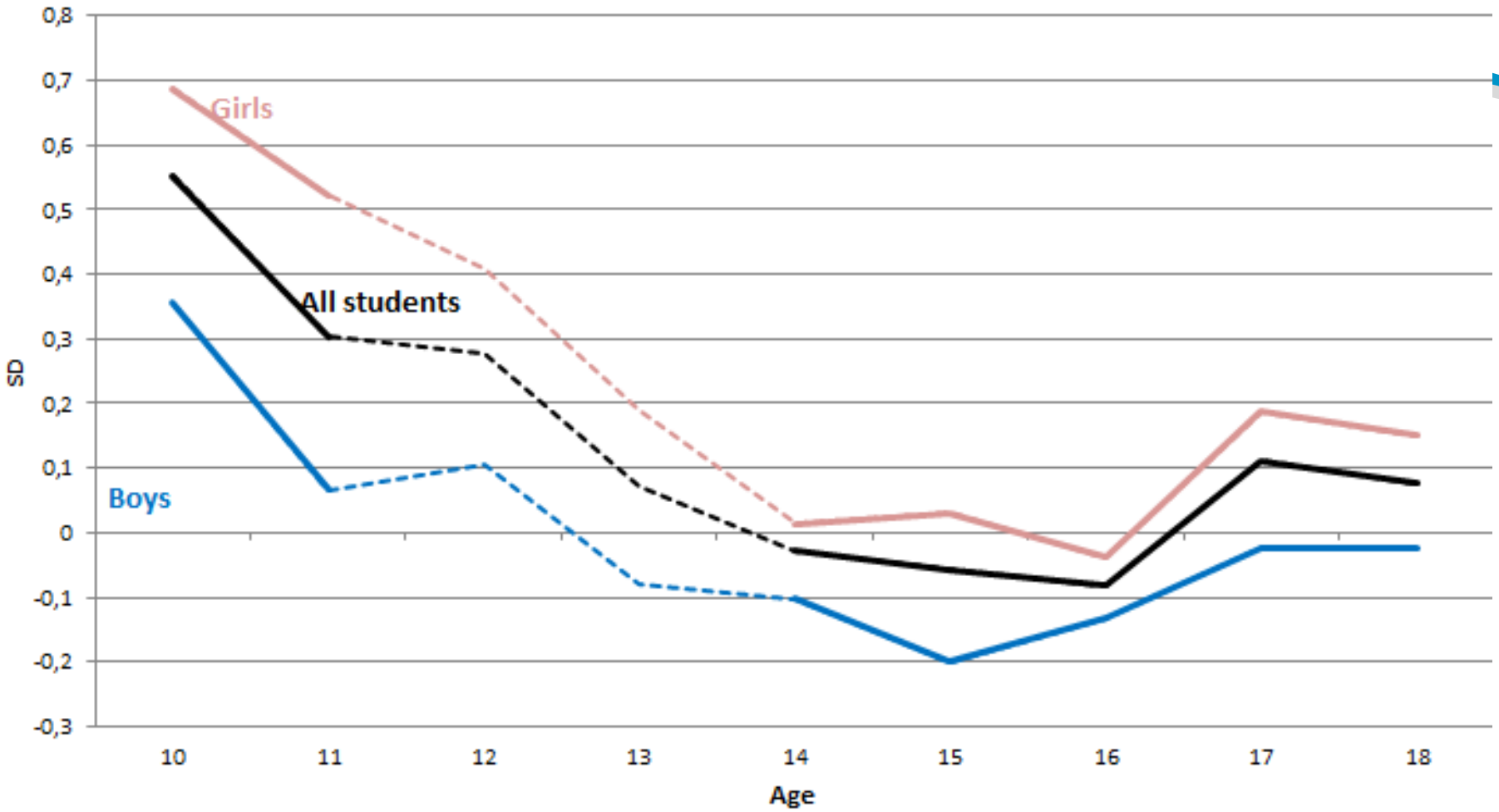


Differences in Conscientiousness by Age



Journal of Personality and Social Psychology
2011, Vol. 100, No. 2, 330–348

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0022-3514/10/$12.00 DOI: 10.1037/a0021717

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Age Differences in Personality Traits From 10 to 65: Big Five Domains and Facets in a Large Cross-Sectional Sample

Christopher J. Soto
Colby College

Oliver P. John
University of California, Berkeley

Samuel D. Gosling
University of Texas at Austin

Jeff Potter
Cambridge, Massachusetts

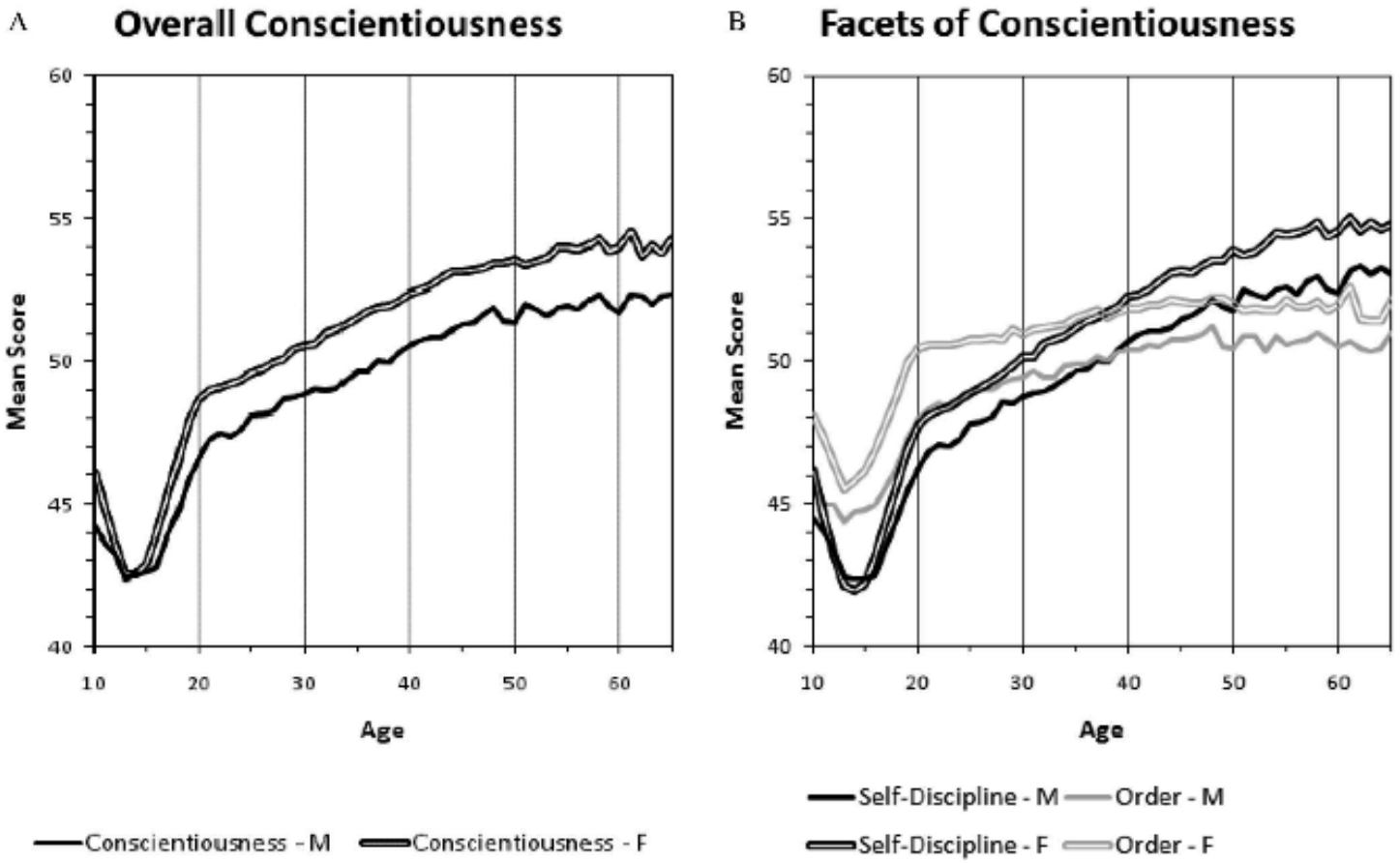
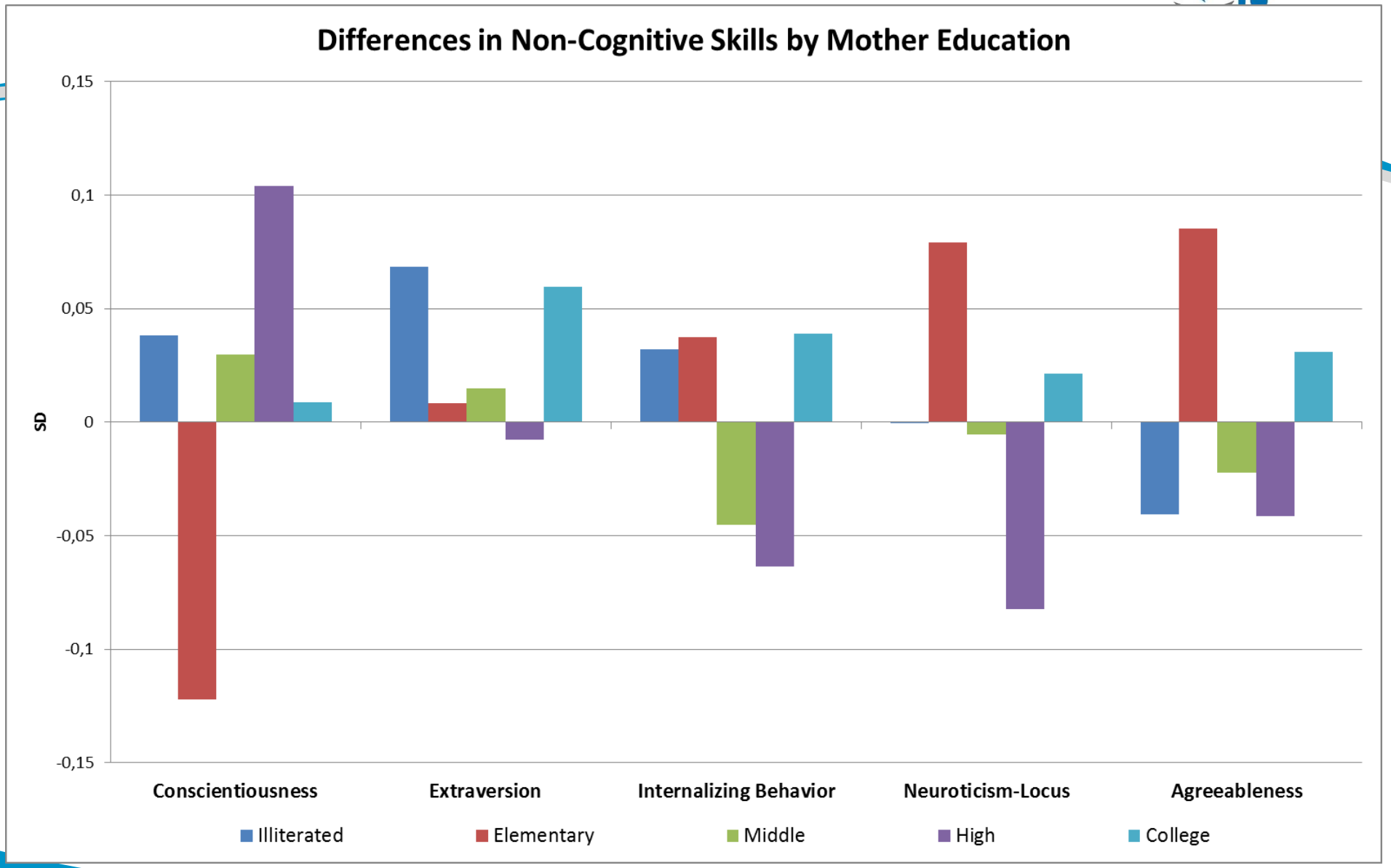
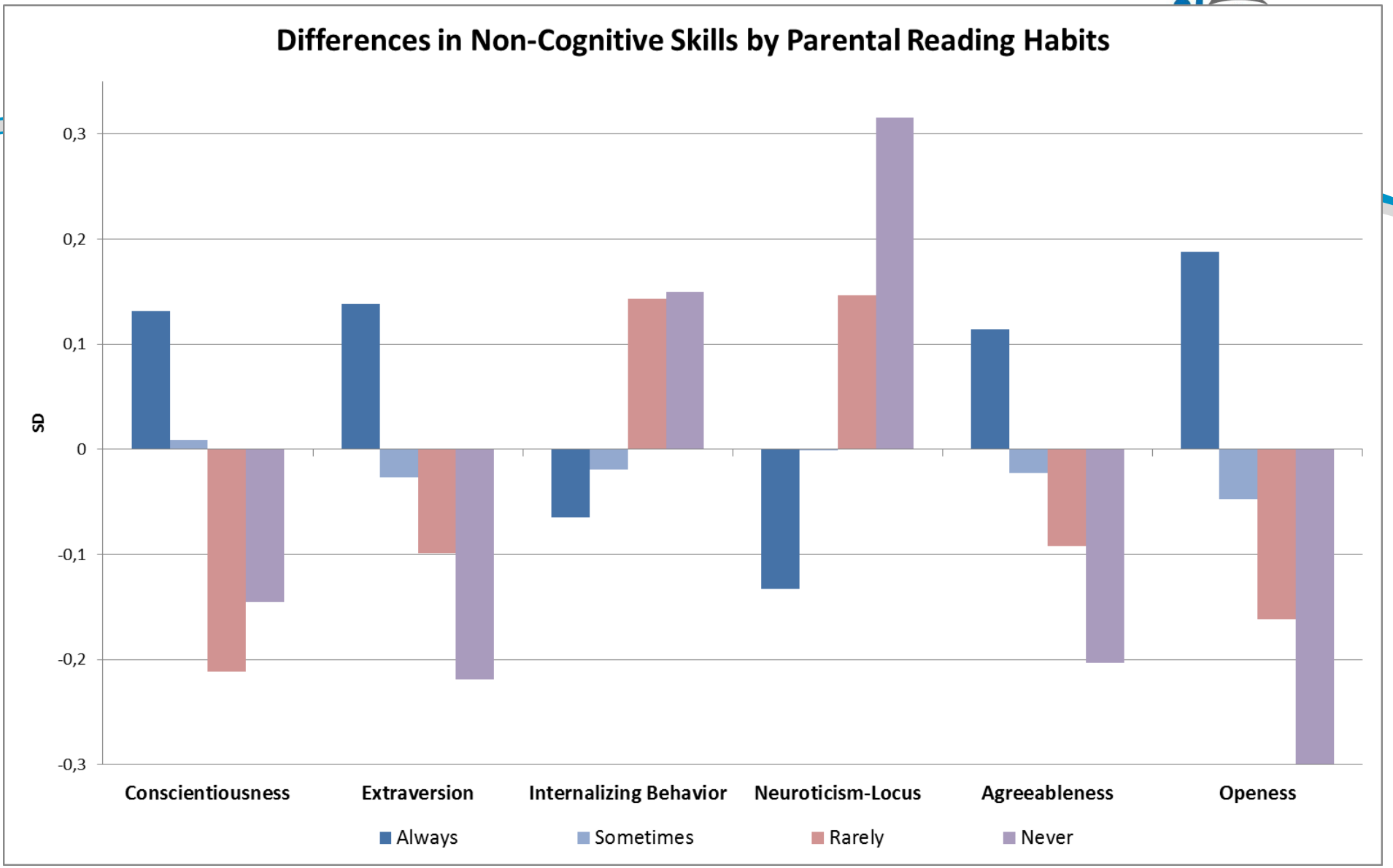
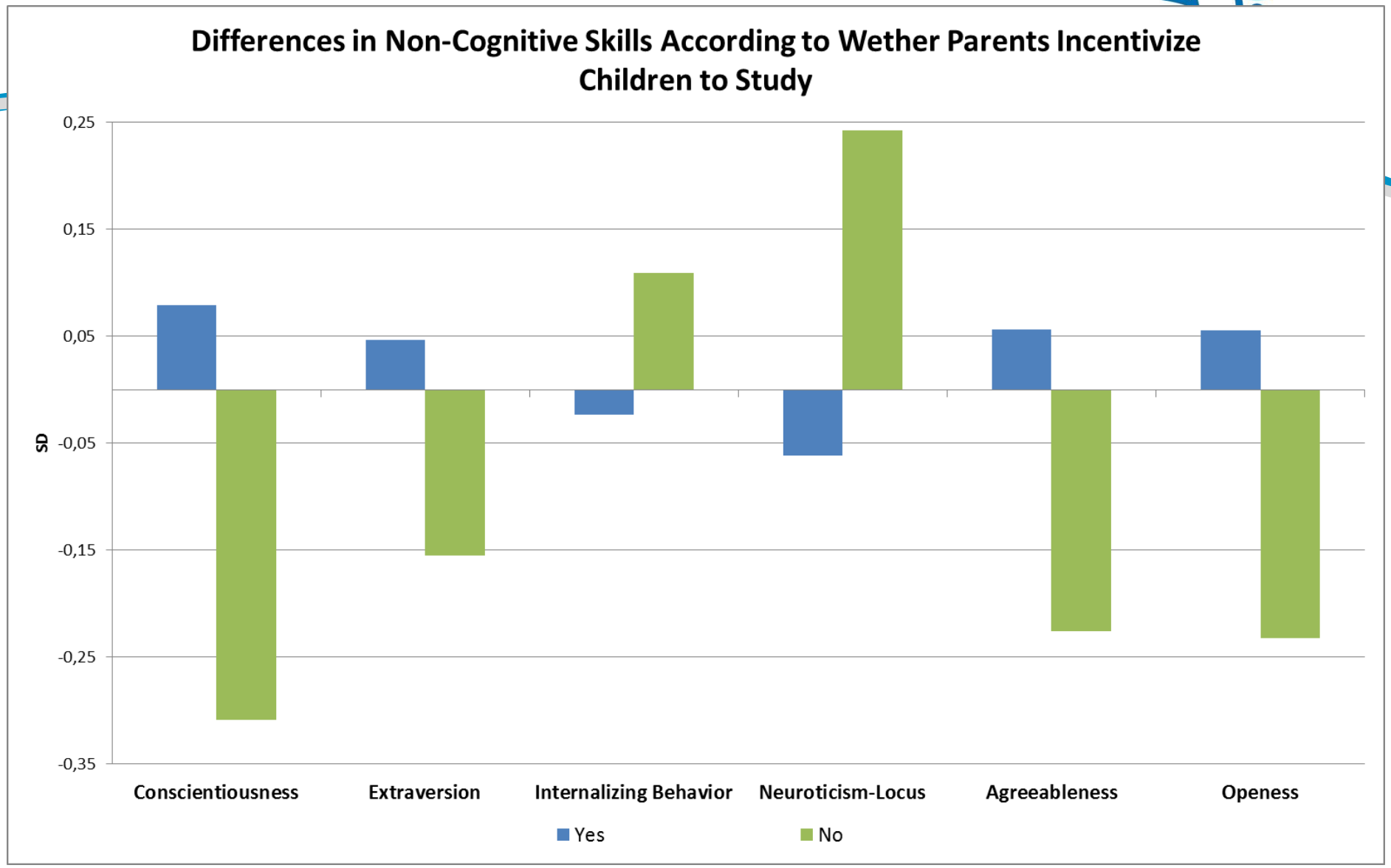
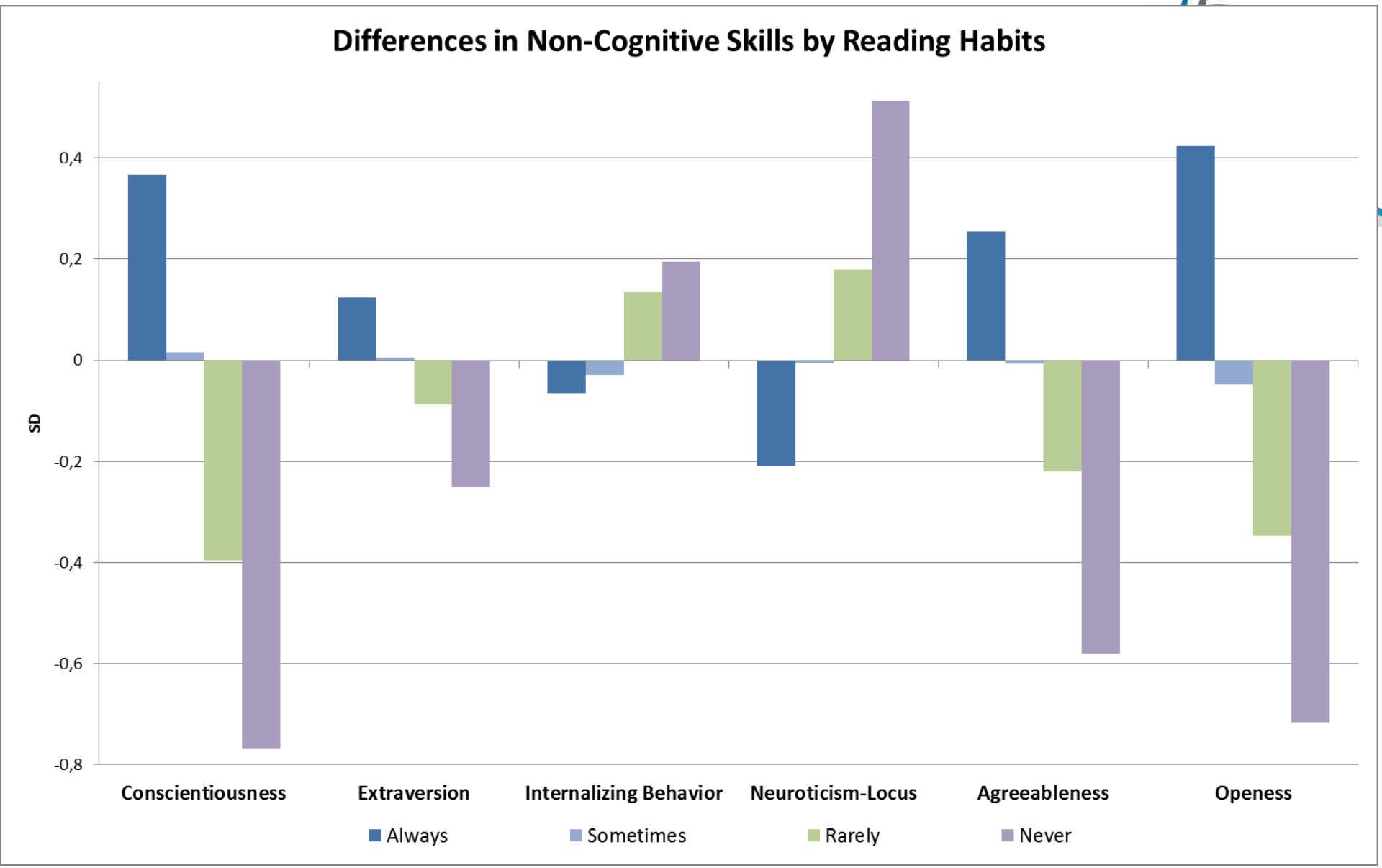


Figure 1. Means for overall Conscientiousness (A) and its facets (B), by age and gender. Single lines show the means for males, and double lines show the means for females. In Panel B, black lines show the means for Self-Discipline, and or gray lines show the means for Order.

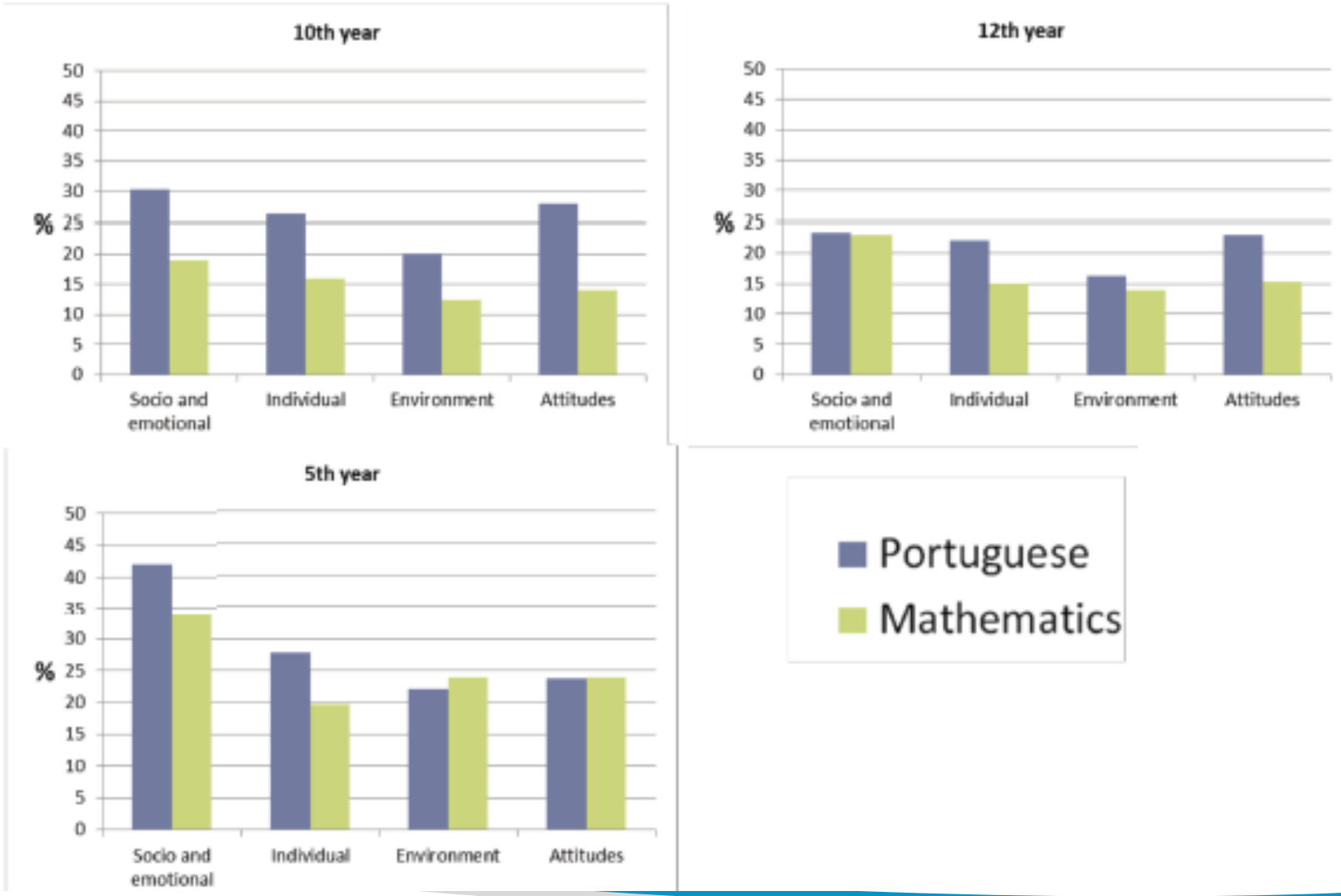

Differences in Non-Cognitive Skills by Mother Education
0,15
0,1
0,05
0
-0,05
-0,1
-0,15
SD
Conscientiousness
Extraversion
Internalizing Behavior
Neuroticism-Locus
Agreeableness
Illiterated
Elementary
Middle
High
College


Differences in Non-Cognitive Skills by Parental Reading Habits
SD
0,3
0,2
0,1
0
-0,1
-0,2
-0,3
Conscientiousness
Extraversion
Internalizing Behavior
Neuroticism-Locus
Agreeableness
Openess
Always
Sometimes
Rarely
Never


Differences in Non-Cognitive Skills According to Wether Parents Incentivize Children to Study
0,25
0,15
0,05
-0,05
-0,15
-0,25
-0,35
SD
Conscientiousness
Extraversion
Internalizing Behavior
Neuroticism-Locus
Agreeableness
Openess
Yes
No


Differences in Non-Cognitive Skills by Reading Habits
SD
0,4
0,2
0
-0,2
-0,4
-0,6
-0,8
Conscientiousness
Extraversion
Internalizing Behavior
Neuroticism-Locus
Agreeableness
Openess
Always
Sometimes
Rarely
Never

GRAPH 4: PROPORTION OF PERFORMANCE IN PORTUGUESE AND MATHEMATICS ASSOCIATED WITH THE DIFFERENCES IN THE LEVELS OF INDIVIDUAL AND FAMILY CHARACTERISTICS



Methodology

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- *School fixed effects*

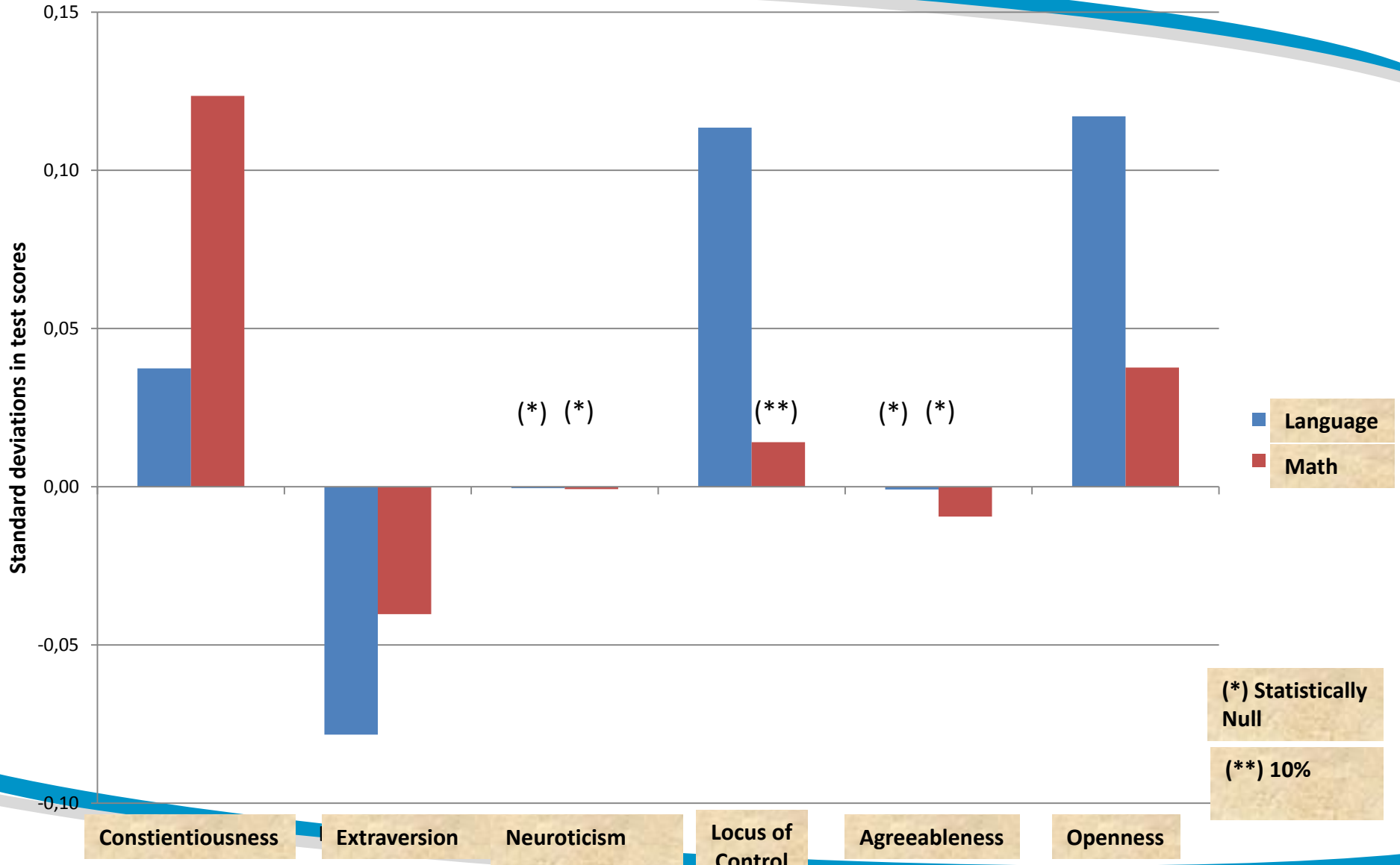
$$Y_{igs} = \beta_0 + \beta_1' Const_{igs} + \beta_2' X_{igs} + \beta_3 SES_{igs} + \beta_2' Hab_{igs} + \vartheta_s + \varepsilon_{igs}$$

  - Controls assortative matching but not reverse causality

- *Hierarquical model*

$$Y_{igs} = \beta_{0s} + \beta_{1s}' Const_{igs} + \beta_2' X_{igs} + \beta_3 SES_{igs} + \beta_2' Hab_{igs} + \varepsilon_{igs}\ \beta_{0s} = \alpha_{00} + \alpha_{01} Size_s + \alpha_{02} Library_s + \alpha_{03} Computer_s + u_{os}$$
$$\beta_{1s} = \alpha_{10} + \alpha_{11} Size_s + \alpha_{12} Library_s + \alpha_{13} Computer_s + u_{1s}$$

Impact of taking a student from the 25th to the 75th percentile of the skill distribution



Impact of taking a student from the 25th to the 75th percentile of the Language distribution, per grade

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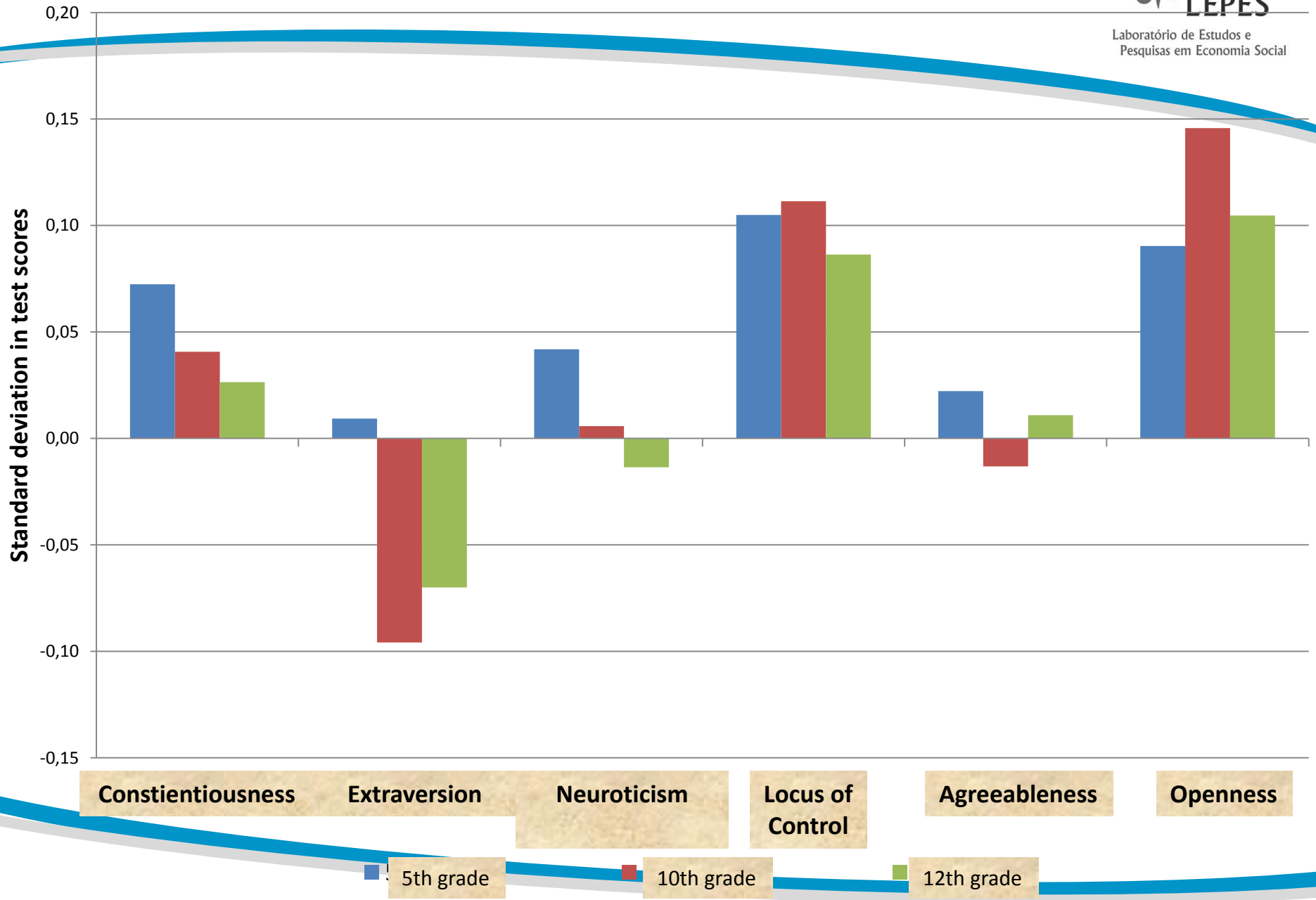

Impact of taking a student from the 25th to the 75th percentile of the Mathematics distribution, per grade

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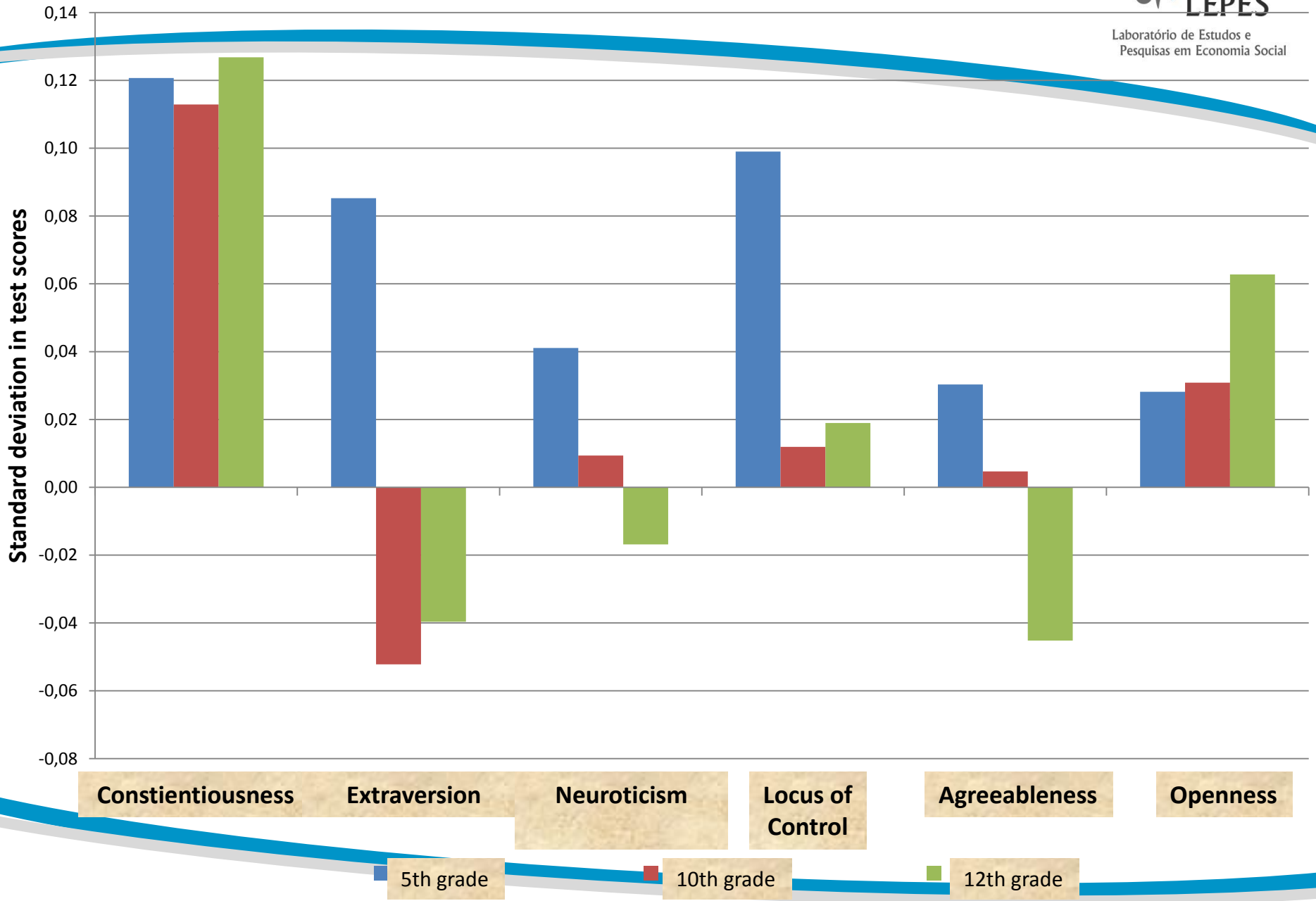

Table 2: Average impact (multilevel model)

	Language		Math	
	Short Model	Long Model	Short Model	Long Model
Conscientiousness	-0.060	-0.080	0.158**	0.162**
Extraversion	-0.078***	-0.070***	-0.040***	-0.037***
Neuroticism	0.008	0.006	0.004	0.002
Locus of Control	-0.186***	-0.173***	-0.062	-0.059
Agreeableness	0.004	0.005	-0.001	-0.001
Openness to New Experiences	0.106*	0.091	0.092	0.088
Conscientiousness*Size	0.000*	0.000*	-0.000	-0.000
Conscientiousness*Library	-0.008	-0.005	-0.016	-0.016
Conscientiousness*Computer	0.090	0.092	-0.041	-0.043
Locus*Size	-0.000	-0.000	0.000	0.000
Locus*Library	0.048	0.049	0.038	0.041
Locus*Computer	0.061	0.044	-0.004	-0.015
Openness*Size	-0.000	-0.000	-0.000	-0.000
Openness*Library	0.018	0.013	0.016	0.017
Openness*Computer	0.010	0.006	-0.062	-0.066
Size	-0.000***	-0.000***	-0.000***	-0.000***
Library	0.163*	0.156*	0.220*	0.226**
Computer	-0.108	-0.102	0.197	0.206
Number of Observations	20170	19987	20170	19987

Conclusions

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- The instrument seems to measure similar constructs as other Big-5 assessments
- Conscientiousness, Openness and the Locus of Control are the Social-Emotional attributes related to educational performance. Extraversion seems to have negative effect
- Different disciplines are associated to different non-cognitive traits (Math – C; Language – O, Lc)
- Conscientiousness have incremental impact in Language if classroom is big

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Impact evaluation of SEL programs

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Child Development, January/February 2011, Volume 82, Number 1, Pages 474–501

The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions

Joseph A. Durlak
Loyola University Chicago

Roger P. Weissberg
Collaborative for Academic, Social, and Emotional Learning (CASEL), University of Illinois at Chicago

Allison B. Dymnicki and Rebecca D. Taylor
University of Illinois at Chicago

Kriston B. Schellinger
Loyola University Chicago

PROOF

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Nº	Nome do Programa	Nº	Nome do Programa	Nº	Nome do Programa
1	Al's Caring Pals	25	Michigan Model for Health	48	The 4Rs
2	Al's Pals	26	MindUP	49	The CARE program
3	Apple's Friend	27	Nurturing Early Learners	50	The Giraffe Heroes Program
4	Building Assets, Reducing Risks	28	Open Circle	51	The Great Body Shop
5	Caring School Community (CSC) program	29	Overcoming Obstacles	52	The Incredible Years Series
6	Competent Kids, Caring Communities	30	PAS na Escola	53	The Inner Explorer
8	Connecting With Others	31	PATHS	54	The Inner Resilience Program (IRP)
9	Creating a Peaceful School Learning Environment	32	Peace Works	55	The Resilience Consultation Program (RCP)
10	Creating engaged classrooms	33	Positive Action	56	The RULER approach
11	Developing Nurturing Skills	34	Productive Conflict Resolution Program	57	The Toolbox Project
12	Edutopia	35	Project CHARLIE	58	The Stop & Think Social Skills Program for Schools
13	Ensino Social	36	Project Happiness	59	The Wise Skills program
14	Get Real	37	Resolving Conflict, Creatively Program	60	Tobin Children's School
15	Head Start	38	Responsive Classroom	61	Too good
16	Here, Now and Down the Road...road/#sthash.CsxxvtfT.dpuf	39	Roots of Empathy program	62	Tools of the mind
17	HighScope	40	School-Wide Positive Behavioural Support	63	Tribes Learning Communities
18	I can Solve Program	41	Second Step	64	Westwood Children's School
19	Infusing Social, Emotional & Civic Learning into Your Curriculum Program	42	Six Seconds	65	Wings for Kids
20	Institute for Social and Emotional Learning	43	Social and emotional aspects of learning (SEAL)	66	Zippy's friend
21	Keeping it Real Curriculum	44	Social Decision Making/ Problem Solving Program	67	Zippy's friend - Children with Special Needs
22	Kids Matter	45	Social-Emotional Learning in Schools	68	The Collaborative Counseling Program (CCP)
23	Learning for Life	46	Steps to Respect	69	Engaging Schools
24	Lion-Quest	47	Strong Kids	70	Acorndreams

The Evidence

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- **Meta-analysis based on 213 evaluations involving 270 k children. 100 are RCTs (47%)**
- **More frequent in Elementary School, followed by middle school and high school (13%)**
- **114 (53%) occur in the school, implemented by regular personnel**
- **Focus is on the inpact on: (i) sociemotional competences, (ii) attitudes, (iii) behaviors, (iv) conducts, (v) mental health (anxiety, depression, etc.), (vi) academic performance.**
- **35 studies evaluate the impact on academic performance, involving 135k children**

The Evidence

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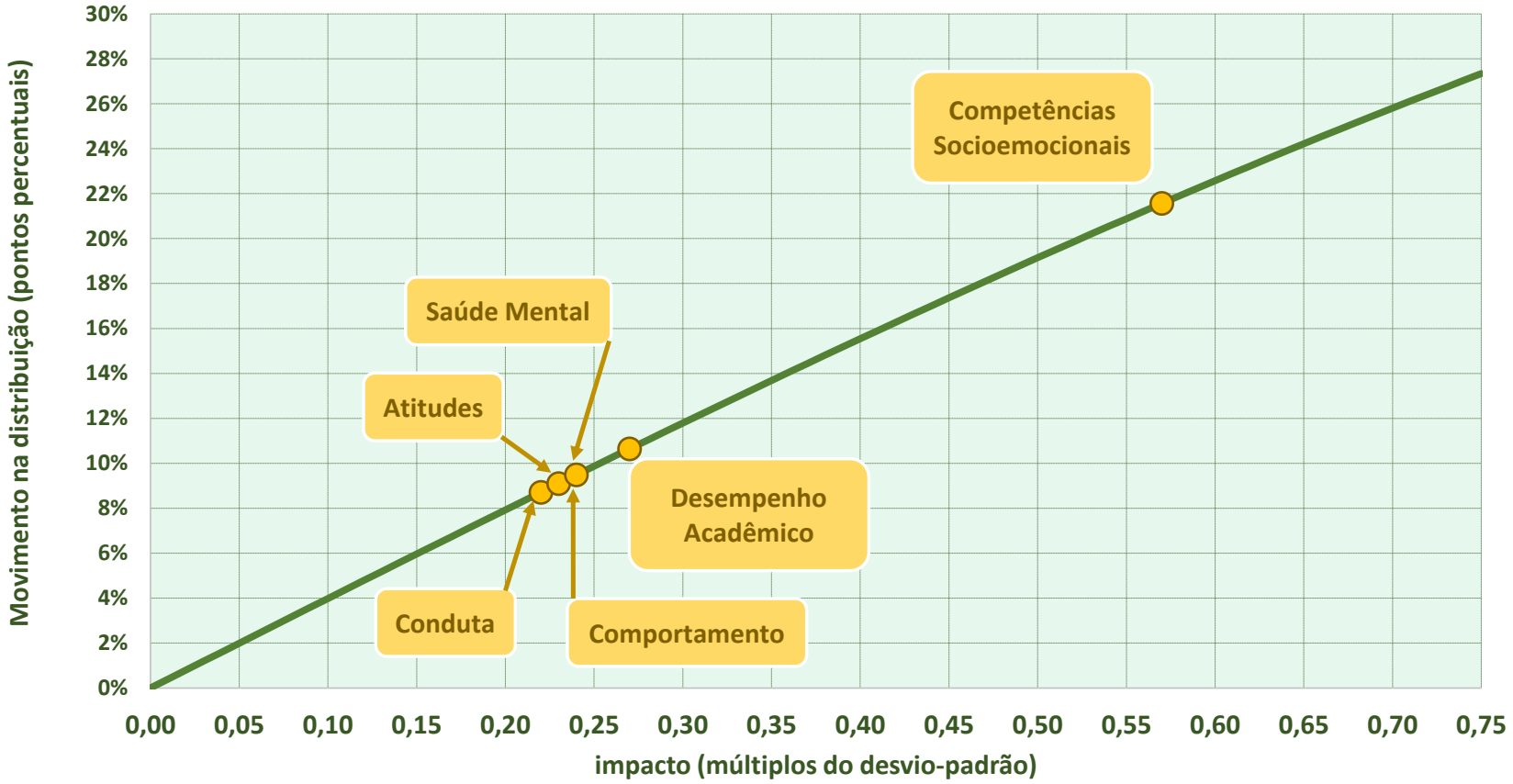
Impacto de programas universais voltados ao desenvolvimento de habilidades socioemocionais



The Evidence

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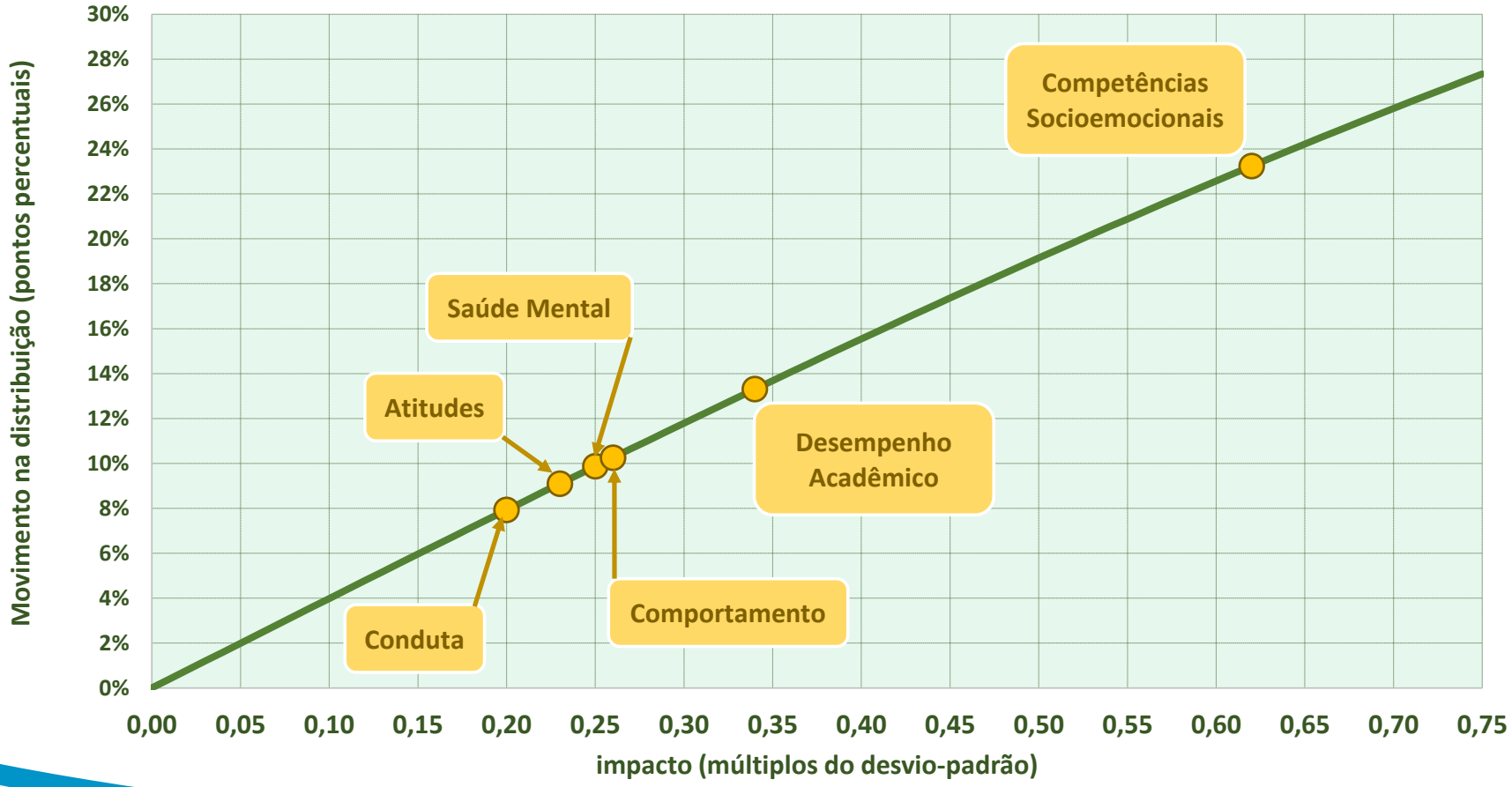
Impacto de programas universais, na escola aministrado pelo professor, voltados ao desenvolvimento de habilidades socioemocionais



The Evidence

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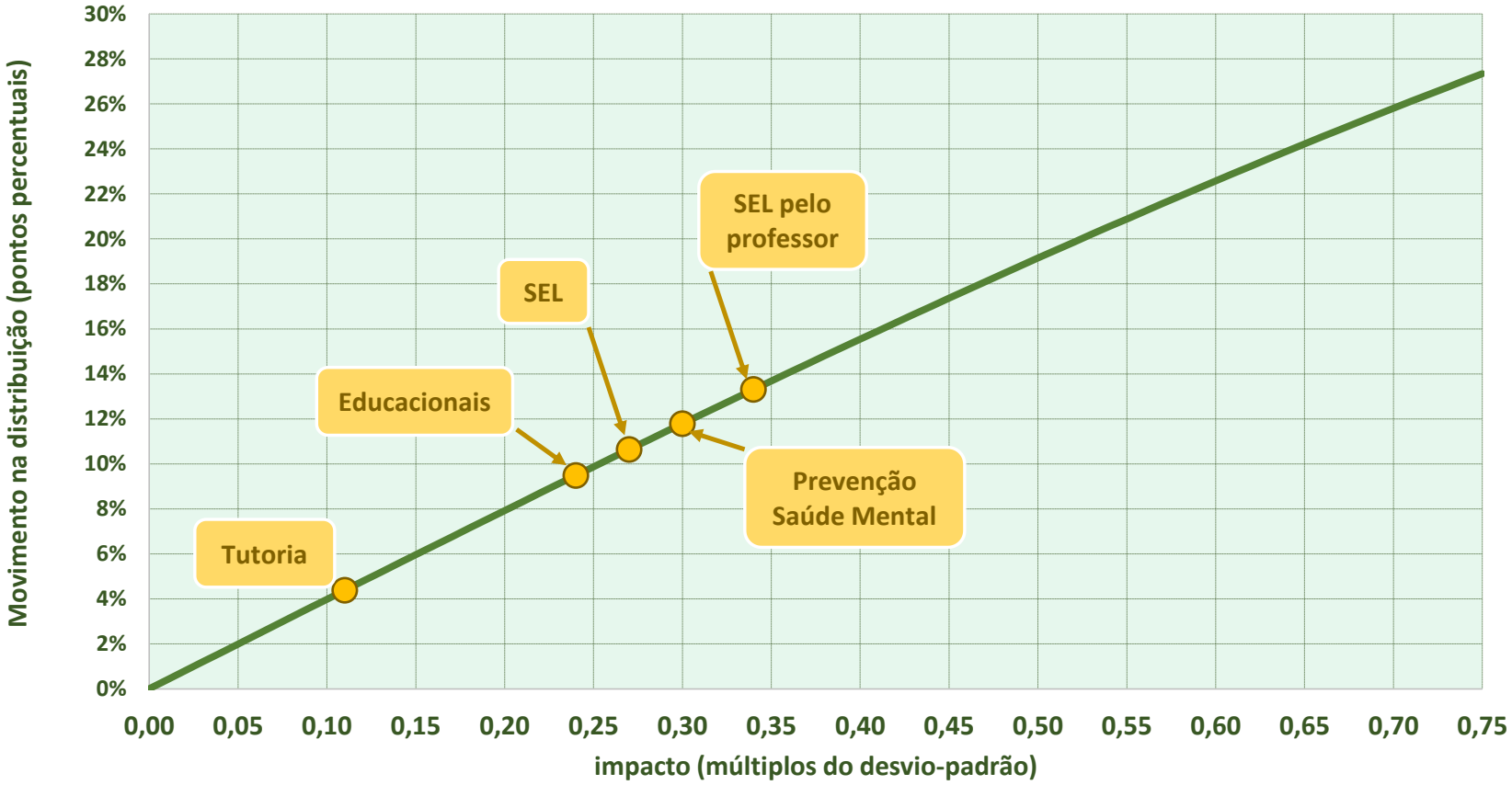
Impacto de distintos tipos de programas sobre o aprendizado



The Evidence

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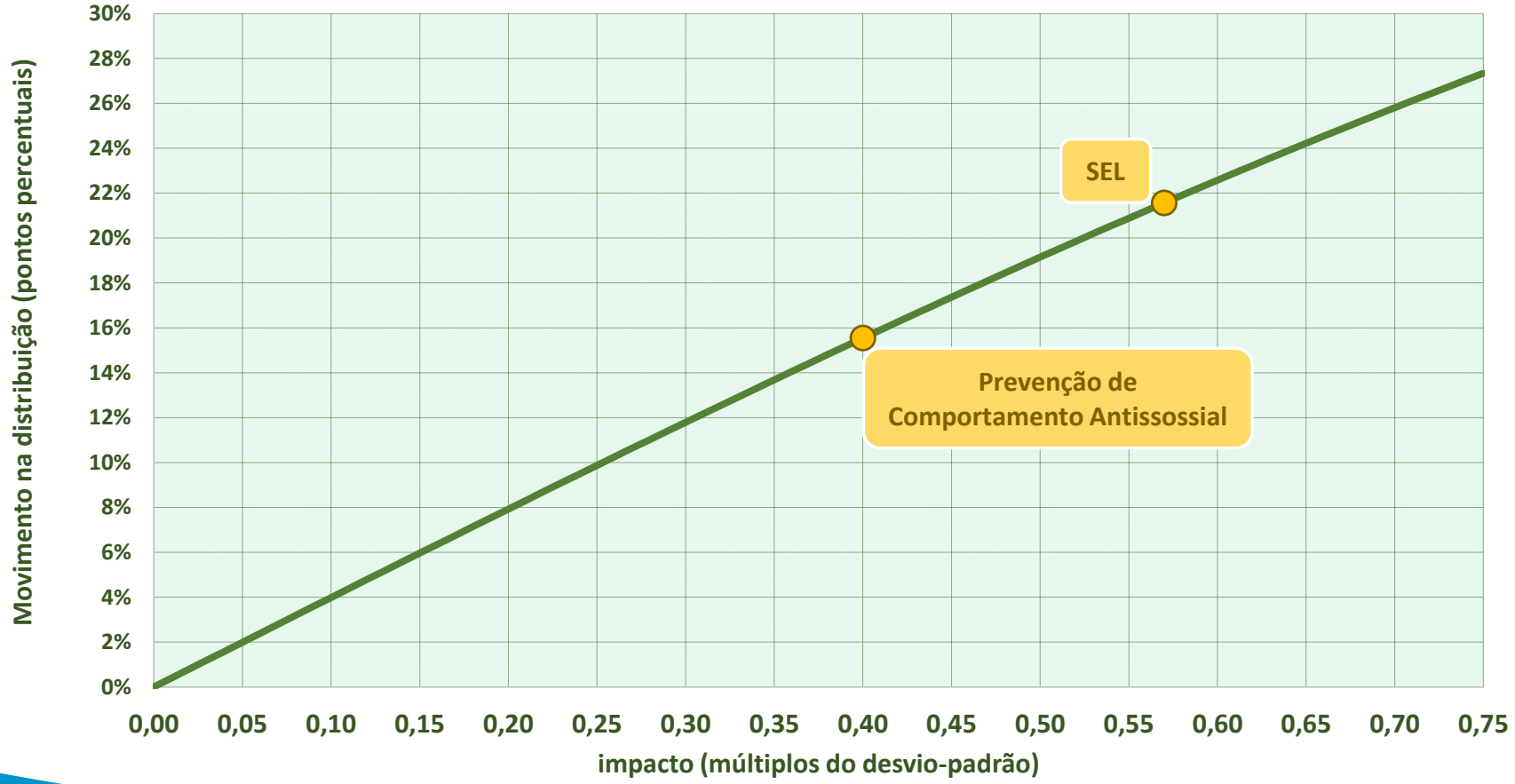
Impacto de distintos tipos de programas sobre as competências socioemocionais



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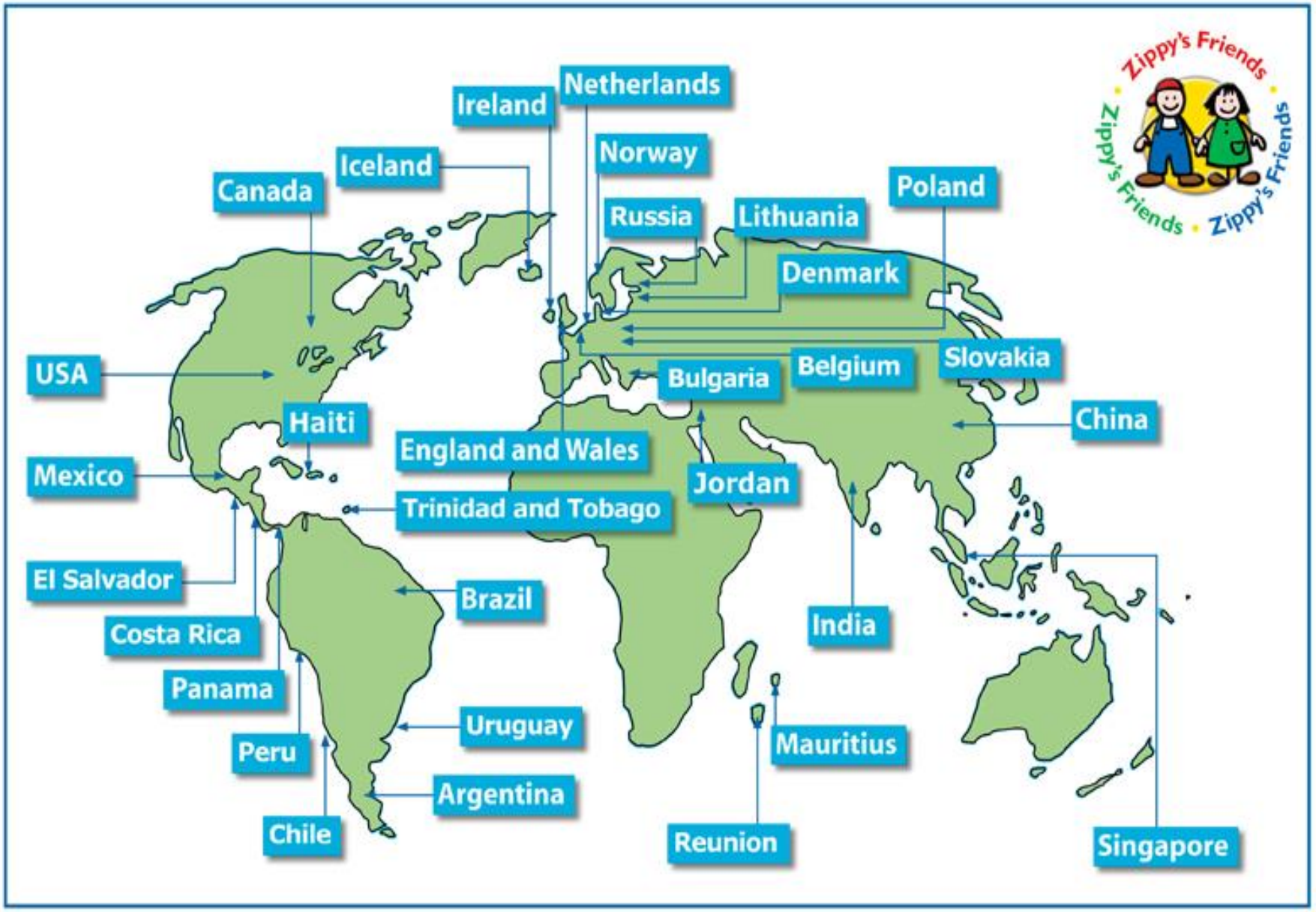
Zippy's Friends

Amigos do Zippy



The Jovem de Futuro Project

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- Target is high school students (1st to 3rd grades).

- Objective: Increasing test scores and reducing dropout rates, through the introductin of best practices of school management.

  Main school deliverables: (i) 25 point increase in nationally standardized test scores (.5 sd); (ii) 50% reduction in the proportion of students classified as low achievers; e (iii) 40% reduction in dropout rates.

- **Plan**: Management plus accountability; outcome-driven decisions.

  The school identifies needs and weaknesses in each dimension of the school life, sets up the goals, and chooses the best methodologies to achieve them.

The Project

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- The Unibanco Institute offers training in school management to teachers and principals, as well as classes in new pedagogies (including social and emotional learning). It also offers supporting materials, coaching and R$100 per enrolled student, to be spent in infrastructure, teacher formation and support for the students.

- The schedule of the strategic plan is closely monitored, which allows the supervisors to correct it if necessary. If the school does not perform well, it may be excluded from the program.

Psychometric Analysis

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- 7 psychological assessments were used in the 5 piloted cities (BH,PA,VP,SP,RJ) :
  - Rosemberg Selfesteem Scale (all)
  - Barrat Impulsivity Scale (all)
  - Simon Schwartzman Questionnaire (Lócus?) (all)
  - Social Anxiety (FONE) (all)
  - Big Five Inventory (OCEAN) (SP, VP, RJ)
  - TelAviv Locus of Control (SP, VP, RJ)
  - Rotter-4/ NLSY Locus of Control (SP, VP, RJ)

Psychometric Analysis

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- Challenges:
  - Improving the quality of the original constructs
  - Obtaining new constructs from the empirical analysis of the instruments

Psychometric Analysis

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- 2 independent analists (Carlos Nunes & Nelson Hauck)

- Difficulties:
  - Sample size: rotation of instruments in VP, SP, RJ (N ≈ 150)
  - Atrito diferenciado entre controles e tratados (sugere viés de subestimação)

Analysis 1 - Carlos

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- Exploratory Factor Analysis (EFA) of the BFIgenerated a 7-factor model:
  - Neuroticism;
  - Extraversion;
  - Agreeableness;
  - Conscienciousness – Organization;
  - Energy/responsability (E/C);
  - Openness;
  - Conscienciousness – grit

- Aquiescence correction

Analysis 1 - Carlos

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- Individual analysis of the remaining instruments generated 9 factors:
  - Positive selfesteem;
  - Negative selfesteem;
  - Internal Locus of Control;
  - External Locus of Control;
  - Fear of Negative Evaluation;
  - Impulsiveness;
  - Control of Impulsiveness;
  - Simon – external;
  - Simon – internal

Grupamento de construtos - Carlos

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Construtos	Fator 1	Fator 2	Fator 3	Fator 4	Fator 5
Determinação (BFI-C)	-				
Comprometimento (BFI-C)	+				
Amabilidade (BFI)	+				
Abertura (BFI)	+				
Ponderação (Barrat)	+				
Neuroticismo (BFI)		+			
Impulsividade (Barrat)		+			
Autoestima Negativa (Rosemberg)			+		
Lócus Externo (Rotter)			+		
Extroversão (BFI)				-	
C-E (BFI)				-	
Ansiedade Social (FONE)				+	
Autoestima Positiva					+
Simon-Externo					+
Simon-Interno					+

Analysis 2 - Nelson

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- EFA of the BFI produced a 5-factor model:
  - Neuroticism;
  - Extraversion;
  - Openness;
  - Conscienciousness – Organization;
  - E/C – Energy/responsability

Analysis 2 - Nelson

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- Joint EFA of the remaining instruments produced a 4-factor model:
  - *Positive Emotionality;*
  - *Negative Emotionality* ;
  - *Constraint*
  - Social Anxiety.

Grupamento de construtos - Nelson

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Construtos	Fator 1	Fator 2	Fator 3	Fator 4	Fator 5
Conscienciosidade (BFI)	+				
Parte de abertura (BFI)	+				
Rotter		+			
Neuroticismo (BFI)			+		
Impulsividade (Barrat)			+		
Extroversão (BFI)				-	
Ansiedade Social (FONE)				+	
Autoestima (Rosemberg)					+
Simon					+

Balance of tha Randomization

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- Treatment-control differences in the baseline (1st grade)
- Treatment-control differences in the follow-up (3rd grade)
- Baseline differences between controls and treatmens found in the follow-up

Balance – Baseline

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Diferença entre tratados e controles no *baseline*

	Característica	Média Tratados (t)	Média Controle (c)	Diferença (t-c)
Vale do Paraíba - SP	Língua Portuguesa	241,302	235,189	6,113
	Matemática	247,031	240,831	6,200
	Sexo	0,494	0,514	-0,020
Belo Horizonte - MG	Língua Portuguesa	225,655	228,049	-2,394
	Matemática	226,400	222,097	4,303
	Sexo	0,458	0,492	-0,034*
Porto Alegre - RS	Língua Portuguesa	214,217	213,194	1,024
	Matemática	239,431	236,836	2,594
	Sexo	0,475	0,446	0,030
Rio de Janeiro - RJ	Língua Portuguesa	213,929	218,650	-4,722
	Matemática	224,235	225,944	-1,709
	Sexo	0,474	0,461	0,014
São Paulo - SP	Língua Portuguesa	225,127	222,922	2,205
	Matemática	227,887	226,765	1,122
	Sexo	0,489	0,508	-0,019

Fonte: Elaboração prórpia a partir dos dados do Projeto Jovem de Futuro

Balance – attrition among the treated

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Diferença entre tratados em t_3 (fim) e t_0 (início)

	Característica	Média Amostra	Média Não Amostra	Diferença
Vale do Paraíba - SP	Língua Portuguesa	247,949	234,618	13,331*
	Matemática	252,320	240,324	11,996*
	Sexo	0,490	0,516	-0,026
Belo Horizonte - MG	Língua Portuguesa	236,658	223,618	13,041*
	Matemática	233,698	225,007	8,69*
	Sexo	0,404	0,469	-0,065*
Porto Alegre - RS	Língua Portuguesa	222,924	208,690	14,234*
	Matemática	246,518	234,715	11,803*
	Sexo	0,420	0,499	-0,079*
Rio de Janeiro - RJ	Língua Portuguesa	216,581	214,839	1,742
	Matemática	227,160	223,965	3,195
	Sexo	0,417	0,460	-0,044
São Paulo - SP	Língua Portuguesa	229,318	221,438	7,88*
	Matemática	233,284	225,133	8,15*
	Sexo	0,509	0,501	0,008

Fonte: Elaboração prórpia a partir dos dados do Projeto Jovem de Futuro

Balance – attrition among controls

Diferença entre controles em t3 (fim) e t0 (início)

	Característica	Média Amostra	Média Não Amostra	Diferença
Vale do Paraíba - SP	Língua Portuguesa	243,581	225,062	18,519*
	Matemática	249,478	230,400	19,078*
	Sexo	0,512	0,527	-0,014
Belo Horizonte - MG	Língua Portuguesa	237,832	213,741	24,091*
	Matemática	232,152	206,443	25,709*
	Sexo	0,447	0,564	-0,117*
Porto Alegre - RS	Língua Portuguesa	220,015	206,794	13,221*
	Matemática	242,502	230,838	11,664*
	Sexo	0,409	0,479	-0,07*
Rio de Janeiro - RJ	Língua Portuguesa	226,435	211,470	14,966*
	Matemática	235,277	220,582	14,695*
	Sexo	0,503	0,441	0,062
São Paulo - SP	Língua Portuguesa	231,117	215,768	15,348*
	Matemática	235,07	219,337	15,733*
	Sexo	0,468	0,568	-0,101*

Fonte: Elaboração prórpia a partir dos dados do Projeto Jovem de Futuro

Differential attrition

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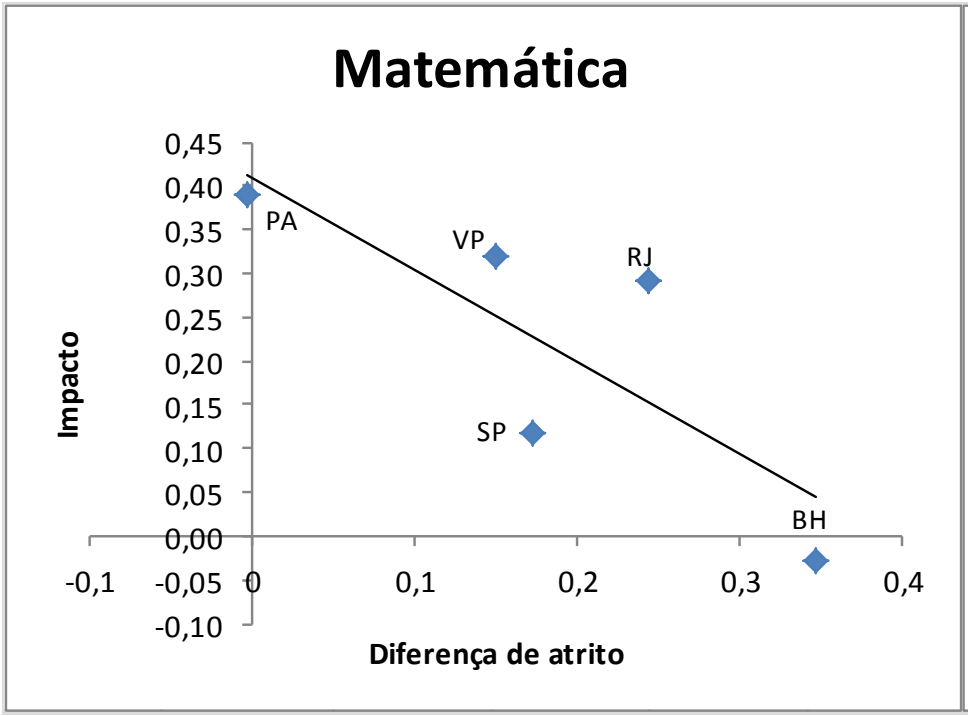
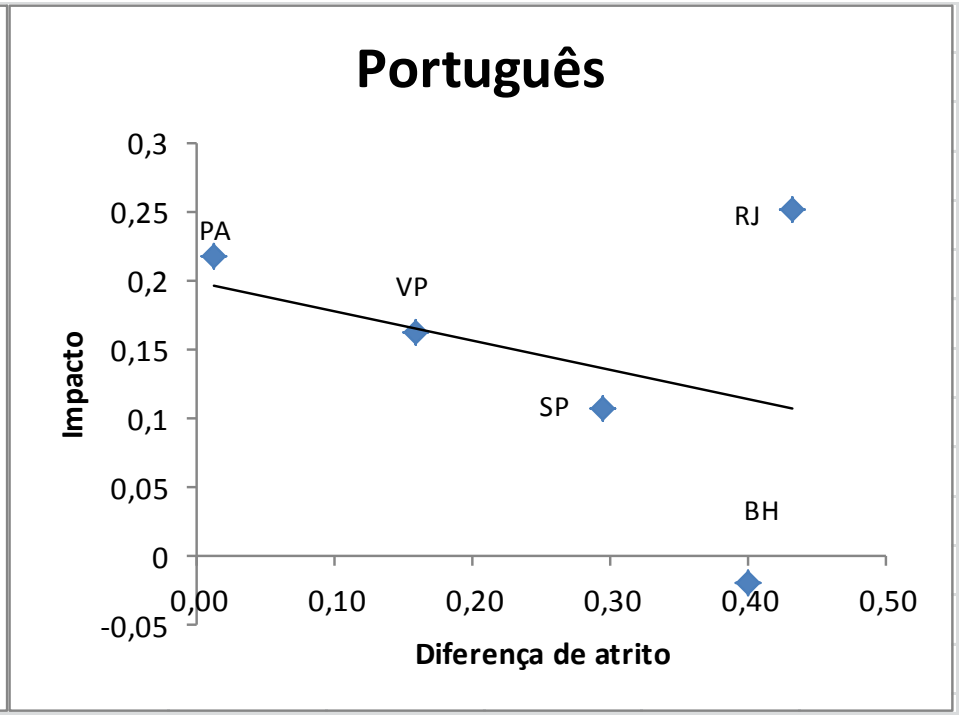
Diferença entre t_3 (fim) e t_0 (início)

	Característica	Diferença Tratados	Diferença Controles
Vale do Paraíba - SP	Língua Portuguesa	13,331*	18,519*
	Matemática	11,996*	19,078*
	Sexo	-0,026	-0,014
Belo Horizonte - MG	Língua Portuguesa	13,041*	24,091*
	Matemática	8,69*	25,709*
	Sexo	-0,065*	-0,117*
Porto Alegre - RS	Língua Portuguesa	14,234*	13,221*
	Matemática	11,803*	11,664*
	Sexo	-0,079*	-0,07*
Rio de Janeiro - RJ	Língua Portuguesa	1,742	14,966*
	Matemática	3,195	14,695*
	Sexo	-0,044	0,062
São Paulo - SP	Língua Portuguesa	7,88*	15,348*
	Matemática	8,15*	15,733*
	Sexo	0,008	-0,101*

Fonte: Elaboração prórpia a partir dos dados do Projeto Jovem de Futuro

Contamination due to differential attrition





(Partial) correction of differential attrition

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- ATE = $E[Y^T - Y^C] = E[Y^T] - E[Y^C]$

$$= \int_{X^T} E[Y^T|x]dFx^T - \int_{X^C} E[Y^C|x]dFx^C$$

- Estimate $E[Y^T|x]$, $E[Y^C|x]$, by regressing, in the survivor sample, Y^T vs X_0^T in the "T = 1" subsample and Y^C vs X_0^C in the "T=0" subsample.

- Extrapolate, for the whole baseline sample, $E\left[\hat{Y}^T|x\right], E\left[\hat{Y}^C|x\right]$

- Estimate $\hat{E}[Y^T] = \int_{X^T} E\left[\hat{Y}^T|x\right]dF_0x^T; \quad \hat{E}[Y^C] = \int_{X^C} E\left[\hat{Y}^C|x\right]dF_0x^C$

JF Math, Language and Socioemotional Impact (re-weighted)

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Impacto do Jovem de Futuro nas notas de Português e Matemática

		Total	São Paulo -	Rio de Janeiro -	Porto Alegre -	Belo Horizont	Vale do Paraíba -
Matemática	*Sem reponderação*	12,84***	5,84***	19,28***	14,57***	0,98	15,40***
	Com reponderação[1]	14,76***	7,29*	21,19***	17,63***	1,16	16,82***
	Crescimento[1]	**14,95%**	**24,83%**	**9,91%**	**21,00%**	**17,38%**	**9,22%**
	Com reponderação[2]	15,00***	6,62	15,50	21,92***	4,18**	16,74***
	Crescimento[2]	**16,82%**	**13,29%**	**-19,63%**	**50,45%**	**324,80%**	**8,70%**
Português	*Sem reponderação*	15,43***	8,43***	23,80***	19,00***	2,30	15,07***
	Com reponderação[1]	17,09***	9,51**	24,87***	22,53***	3,22**	15,65***
	Crescimento [1]	**10,76%**	**12,81%**	**4,50%**	**18,58%**	**39,82%**	**3,85%**
	Com reponderação[2]	17,00***	9,98*	21,67*	24,04***	5,44***	15,08***
	Crescimento [2]	**10,17%**	**18,39%**	**-8,95%**	**26,53%**	**136,21%**	**0,07%**

Nota: * p<0,10; ** p<0,05; *** p<0,01.

[1] Cálculo feito considerando todas as Ufs juntas

[2] Cálculo feito considerando cada UF separadamente

JF Math, Language and Socioemotional Impact (re-weighted)

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Impacto do Jovem de Futuro nas características não cognitivas - Outros Construtos

		Construtos	Sem reponderação	Com reponderação[1]	Com reponderação[2]
Autoestima	*Original*	Rosenberg	0,03	0,02	0,18
	Carlos	Autoestima Neg.	-0,03	0,02	0,11
		Autoestima Pos.	-0,04	0,02	0,26
	Nelson	Emoc. Negativas	0,02	0,06*	0,02
Impulsividade	*Original*	Barrat	-0,01	-0,03	1,12***
	Carlos	B. Impulsividade	-0,06	-0,10	1,19***
		B. Ponderação	0,03	0,02	0,58*
	Nelson	Controle	-0,07	-0,06	1,26***
Aversão a Críticas/ Ansiedade	*Original*	FONE	0,08*	0,07	0,02
	Carlos	FONE	0,08*	0,07	0,02
	Nelson	Ansiedade Soc.	0,08*	0,07	0,02
Lócus de Controle	*Original*	Rotter	0,00	-0,21	0,08
		Tel Aviv	-0,09	0,10	1,15*
		Teste de Simon	0,05	-0,01	3,79***
	Carlos	Tel Aviv Ext	-0,09	0,07	0,33
		Tel Aviv Int	-0,01	-0,05	-0,79
		Simon Ext.	0,02	-0,04	4,20***
		Simon Int	-0,13	-0,08	0,04
	Nelson	Emoc. Positivas	-0,04	-0,03	-0,10

Nota: * p<0,10; ** p<0,05; *** p<0,01.

[1] Cálculo feito considerando todas as Ufs juntas

[2] Cálculo feito considerando cada UF separadamente

Impacto do Jovem de Futuro nas características não cognitivas - BFI

		Original	Carlos	Nelson
BFI Agree.	*Sem reponderação*	-0,10	-0,05	
	Com Reponderação [1]	-0,01	0,18	
	Com Reponderação [2]	0,14	-0,59	
BFI Cons.	*Sem reponderação*	-0,01	-0,06	-0,04
	Com Reponderação [1]	-0,07	-0,20	-0,17
	Com Reponderação [2]	-1,25	-0,71	-0,66
BFI Cons. (Det)	*Sem reponderação*		-0,12	
	Com Reponderação [1]		-0,21	
	Com Reponderação [2]		-4,73	
BFI Cons. (Comp.)	*Sem reponderação*		-0,13	-0,08
	Com Reponderação [1]		-0,31	-0,14
	Com Reponderação [2]		-4,44	-0,20
BFI Ext.	*Sem reponderação*	-0,07	-0,01	-0,01
	Com Reponderação [1]	-0,15	-0,19	-0,19
	Com Reponderação [2]	-2,11	-1,36	-1,36
BFI Neuro.	*Sem reponderação*	-0,19	-0,12	-0,12
	Com Reponderação [1]	-0,07	0,15	0,15
	Com Reponderação [2]	0,29	-1,84	-1,84
BFI Open.	*Sem reponderação*	-0,07	-0,06	-0,08
	Com Reponderação [1]	-0,27	-0,38	-0,35
	Com Reponderação [2]	-1,73	-0,35	0,31
BFI Cons. (Energ.)	*Sem reponderação*			-0,10
	Com Reponderação [1]			-0,09
	Com Reponderação [2]			0,46
BFI E/C	*Sem reponderação*		-0,11	
	Com Reponderação [1]		-0,11	
	Com Reponderação [2]		0,22	

Parallelism

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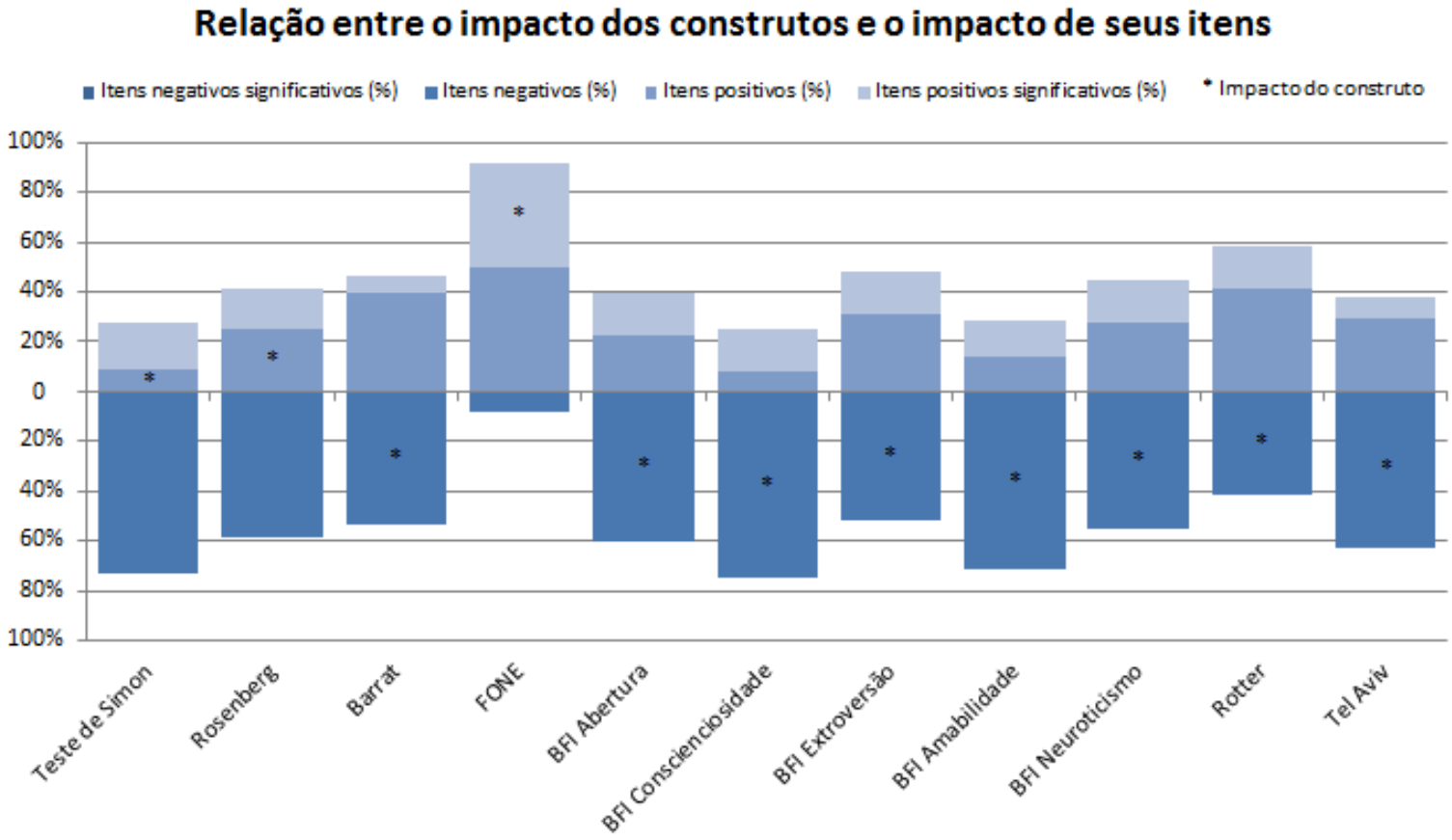

Parallelism

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- Impact evaluation of latent variables may have subtle differences. Outcomes are estimated, not directly observed

- If psychometric theory is correct, θ is estimated by the average of behaviors. Each behavior individually is supposed to be na unbiased measurement of θ. Average reduces variance.

- But if this is true, and the intervention has impact on θ, then we should also observe a parallel change in the behaviors influenced by θ.

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Thanks!

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Tamanho da amostra por construto avaliado

	São Paulo - SP	Vale do Paraíba - SP	Rio de Janeiro - RJ	Belo Horizonte - MG	Porto Alegre - RS
Nº pares	17	20	12	4	22
CONSTRUTOS DO CARLOS:					
Autoestima Neg.	217	305	108	2107	1424
Autoestima Pos.	217	305	108	2107	1428
BFI Neuro.	203	295	93		
BFI Ext.	203	294	93		
BFI Agree.	202	295	95		
BFI Cons.	203	293	92		
BFI E/C	203	294	92		
BFI Open.	203	295	93		
BFI Cons. (Det)	200	293	94		
BFI Cons. (Comp.)	203	295	95		
Rotter Ext	210	315	115		
Rotter Int	210	315	115		
FONE	213	319	90	2099	1420
Barrat Imp	213	320	93	2103	1420
Barrat Pon.	213	319	93	2103	1423
Simon Ext.	228	304	105	2109	1426
Simon Int	226	301	105	2109	1428
Conscienciosidade	215	300	100		
Neuroticismo	425	615	187	2080	1416
Locus Externo	426	617	222	2086	1419
Extroversão	418	606	182	2019	1357
Locus Interno	413	569	204	2083	1420

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Tamanho da amostra por construto avaliado

	São Paulo - SP	Vale do Paraíba - SP	Rio de Janeiro - RJ	Belo Horizonte - MG	Porto Alegre - RS
Nº pares	17	20	12	4	22
CONSTRUTOS DO NELSON:					
BFI Neuro.	203	295	93		
BFI Ext.	203	294	93		
BFI Cons.	203	293	92		
BFI Cons. (Energ.)	203	294	92		
BFI Open.	203	295	93		
BFI Cons. (Comp.)	203	294	92		
Positive Emot	445	609	213	2109	1429
Negative Emot.	430	624	201	2107	1429
Social Anx.	213	319	90	2099	1420
Constraint	213	320	93	2103	1420
Conscienciosidade	210	295	99		
Locus Externo	210	315	115		
Neuroticismo	428	620	190	2102	1420
Extroversão	414	598	183	2032	
Afetos Positivos	445	608	212	2109	1429

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Tamanho da amostra por construto avaliado

	São Paulo - SP	Vale do Paraíba - SP	Rio de Janeiro - RJ	Belo Horizonte - MG	Porto Alegre - RS
Nº pares	17	20	12	4	22
CONSTRUTOS ORIGINAIS:				-	-
Tel Aviv	210	315	115		
Rotter	206	291	109		
BFI Neuro.	215	300	98		
BFI Agree.	215	301	100		
BFI Ext.	215	300	97		
BFI Cons.	215	301	99		
BFI Open.	215	300	97		
FONE	213	319	90	2099	1420
Barrat	213	320	93	2103	1424
Rosenberg	217	305	108	2107	1428
Teste de Simon	228	304	105	2109	1429

Impacto do JF em Características Socioemocionais

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Impacto do Jovem de Futuro em Características Socioemocionais - Analista 1

	Total	São Paulo - SP	Rio de Janeiro - RJ	Porto Alegre - RS	Belo Horizonte -	Vale do Paraíba - SP
Construtos						
Autoestima Neg.	**-0,033**	-0,164	0,1	0,068*	0,041	-0,126
Autoestima Pos.	**-0,035**	0,011	-0,194	0,026	0,024	-0,057
Barrat Imp	**-0,06**	-0,13	0,126	-0,022	-0,067	-0,155
Barrat Pon.	**0,033**	0,008	0,182	0,011	-0,124	0,019
BFI Agree.	**-0,048**	0,055	-0,082	-	-	-0,115
BFI Cons.	**-0,056**	-0,061	0,173	-	-	-0,189
BFI Cons. (Det)	**-0,123**	-0,23	0,106	-	-	-0,169
BFI Cons. (Comp.)	**-0,127**	-0,181	0,111	-	-	-0,224
BFI Ext.	**-0,005**	0,126	0,104	-	-	-0,182
BFI E/C	**-0,105**	-0,119	-0,043	-	-	-0,13
BFI Neuro.	**-0,118**	-0,266	0,118	-	-	-0,134
BFI Open.	**-0,062**	-0,064	-0,095	-	-	-0,04
Conscienciosidade	**-0,133**	-0,173	-0,048	-	-	-0,149
Neuroticismo	**0,083****	0,168**	-0,002	0,047	0,089**	0,099
Locus Externo	**-0,016**	0,129*	-0,096	-0,085	-0,021	-0,013
Extroversão	**-0,071**	0	-0,169	-0,08	0,088**	-0,096
Locus Interno	**-0,019**	-0,172	0,011	0,102**	-0,016	-0,04
FONE	**0,081***	-0,133	0,156	0,063	-0,055	0,255***
Rotter Ext	**-0,091**	-0,061	0,008	-	-	-0,177
Rotter Int	**-0,009**	0,162	-0,189	-	-	-0,046
Teste2 Ext.	**0,017**	0,207*	0,019	-0,137	0,015	0,024
Teste2 Int	**-0,13**	-0,283	-0,014	-0,013	-0,038	-0,217

Fonte: elaboração própria a partir dos dados do Jovem de Futuro.

Impacto do JF em Características Socioemocionais

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Impacto do Jovem de Futuro em Características Socioemocionais - Analista 2

	Total	São Paulo - SP	Rio de Janeiro - RJ	Porto Alegre - RS	Belo Horizonte -	Vale do Paraíba - SP
Construtos						
BFI Cons.	**-0,043**	0,006	0,113	-	-	-0,178
BFI Cons. (Energ..)	**-0,101**	-0,03	-0,174	-	-	-0,118
BFI Cons. (Comp.)	**-0,084**	-0,021	0,001	-	-	-0,189
BFI Ext.	**-0,005**	0,126	0,104	-	-	-0,182
BFI Neuro.	**-0,118**	-0,266	0,118	-	-	-0,134
BFI Open.	**-0,076**	-0,032	-0,21	-	-	-0,033
Constraint	**-0,066**	-0,119	0,048	-0,017	-0,083	-0,141
Negative Emot.	**0,022**	0,001	0,03	0,028	0,06**	0,022
Conscienciosidade	**-0,038**	-0,244	0,04	-	-	0,091
Locus Externo	**-0,055**	-0,085	-0,043	-	-	-0,037
Neuroticismo	**0,026**	-0,038	-0,028	0,095**	0,03	0,035
Extroversão	**-0,114**	-0,14	-0,129	-0,089	0,033	-0,139
Afetos Positivos	**0,029**	0,062	0,027	0,028	-0,031	0,017
Positive Emot	**-0,038**	-0,154	-0,133	0,097**	-0,01	-0,038
Social Anx.	**0,081***	-0,133	0,156	0,063	-0,055	0,255***

Fonte: elaboração própria a partir dos dados do Jovem de Futuro.

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Impacto do Jovem de Futuro em Características Socioemocionais - Construtos Originais

	Total	São Paulo - SP	Rio de Janeiro - RJ	Porto Alegre - RS	Belo Horizonte -	Vale do Paraíba - SP
Construtos						
Barrat	**-0,011**	-0,081	0,174	0,012	-0,113	-0,072
BFI Agree.	**-0,098**	-0,229	-0,17	-	-	0,056
BFI Cons.	**-0,008**	-0,17	-0,124	-	-	0,199*
BFI Ext.	**-0,074**	-0,243	0,069	-	-	-0,015
BFI Neuro.	**-0,192**	-0,276	-0,041	-	-	-0,211
BFI Open.	**-0,074**	-0,141	-0,222	-	-	0,071
FONE	**0,081***	-0,133	0,156	0,063	-0,055	0,255***
Rosenberg	**-0,034**	-0,102	-0,056	0,081*	0,042	-0,106
Rotter	**0,004**	0,116	0,12	-	-	-0,162
Tel Aviv	**-0,091**	-0,102	0,018	-	-	-0,146
Teste de Simon	**0,052**	0,265**	0,013	-0,116	0,024	0,086

Fonte: elaboração própria a partir dos dados do Jovem de Futuro.

Impacto do JF em Características Socioemocionais (reponderado)

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Impacto do Jovem de Futuro em Características Socioemocionais (Reponderado)

Analista 1

	Total	São Paulo - SP	Rio de Janeiro - RJ	Porto Alegre - RS	Belo Horizonte -	Vale do Paraíba - SP
Construtos						
Autoestima Neg.	**-0,019**	-0,18	0,09	0,067	0,053	-0,051
Autoestima Pos.	**-0,019**	0,019	-0,285	0,063	0,033	0,013
Barrat Imp	**-0,096**	-0,208	0,136	-0,079	-0,128	-0,153
Barrat Pon.	**0,016**	0,068	0,163	0,024	-0,115	-0,1
BFI Agree.	**0,181**	0,136	0,381	0,304	0,55	-0,105
BFI Cons.	**-0,197**	-0,205	-0,205	-0,136	-0,038	-0,281
BFI Cons. (Det)	**-0,214**	-0,094	-0,233	-0,299	-0,235	-0,21
BFI Cons. (Comp.)	**-0,31**	-0,12	-0,388	-0,422	-0,287	-0,314
BFI Ext.	**-0,189**	0,146	-0,345	-0,267	-0,299	-0,275
BFI E/C	**-0,112**	0,074	-0,174	-0,162	-0,073	-0,189
BFI Neuro.	**0,144**	-0,149	0,303	0,37	0,288	0,033
BFI Open.	**-0,378**	-0,047	-0,642	-0,691	-0,613	-0,125
Conscienciosidade	**-0,281**	-0,259	-0,287	-0,39	-0,216	-0,194
Neuroticismo	**0,088**	0,147	-0,03	0,107	0,139	0,08
Locus Externo	**-0,023**	0,028	0,038	-0,071	-0,036	-0,051
Extroversão	**-0,041**	0,032	-0,2	-0,005	0,082	-0,07
Locus Interno	**-0,001**	-0,032	-0,147	0,147	0	-0,041
FONE	**0,065**	-0,226	0,269	0,017	-0,029	0,258
Rotter Ext	**0,07**	0,206	-0,008	0,136	0,018	-0,06
Rotter Int	**-0,049**	-0,342	0,066	0,046	-0,021	0,028
Teste2 Ext.	**-0,04**	-0,066	0,203	-0,165	-0,011	-0,04
Teste2 Int	**-0,079**	-0,035	-0,235	-0,033	-0,019	-0,082

Fonte: elaboração própria a partir dos dados do Jovem de Futuro.

Impacto do JF em Características Socioemocionais (reponderado)

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Impacto do Jovem de Futuro em Características Socioemocionais (Reponderado) - Analista 2

	Total	São Paulo - SP	Rio de Janeiro - RJ	Porto Alegre - RS	Belo Horizonte -	Vale do Paraíba - SP
Construtos						
BFI Cons.	**-0,17**	-0,167	-0,207	-0,071	-0,006	-0,287
BFI Cons. (Energ..)	**-0,086**	0,067	-0,124	-0,126	-0,009	-0,168
BFI Cons. (Comp.)	**-0,137**	-0,08	-0,151	-0,058	0,043	-0,296
BFI Ext.	**-0,189**	0,146	-0,345	-0,267	-0,299	-0,275
BFI Neuro.	**0,144**	-0,149	0,303	0,37	0,288	0,033
BFI Open.	**-0,348**	-0,083	-0,584	-0,594	-0,507	-0,142
Constraint	**-0,063**	-0,162	0,241	-0,072	-0,144	-0,135
Negative Emot.	**0,061**	0,089	0,063	0,038	0,065	0,059
Conscienciosidade	**-0,123**	-0,318	-0,157	-0,127	-0,064	0,057
Locus Externo	**-0,033**	0,126	-0,075	-0,073	-0,105	-0,088
Neuroticismo	**0,078**	0,048	0,036	0,182	0,073	0,021
Extroversão	**-0,063**	0,004	-0,225	-0,016	0,016	-0,089
Afetos Positivos	**0,053**	0,125	0,033	0,046	-0,029	0,025
Positive Emot	**-0,026**	0,014	-0,384	0,122	0,012	-0,008
Social Anx.	**0,065**	-0,226	0,269	0,017	-0,029	0,258

Fonte: elaboração própria a partir dos dados do Jovem de Futuro.

Impacto do JF em Características Socioemocionais (reponderado)

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Impacto do Jovem de Futuro em Características Socioemocionais (Reponderado)

Construtos Originais

	Total	São Paulo - SP	Rio de Janeiro - RJ	Porto Alegre - RS	Belo Horizonte -	Vale do Paraíba - SP
Construtos						
Barrat	**-0,026**	-0,088	0,338	-0,024	-0,149	-0,171
BFI Agree.	**-0,014**	-0,161	0,098	0,027	0,122	-0,026
BFI Cons.	**-0,066**	-0,042	-0,155	-0,242	-0,189	0,175
BFI Ext.	**-0,147**	-0,19	-0,073	-0,369	-0,036	0,056
BFI Neuro.	**-0,067**	-0,109	-0,101	-0,019	-0,061	-0,063
BFI Open.	**-0,267**	-0,108	-0,542	-0,554	-0,431	0,099
FONE	**0,065**	-0,226	0,269	0,017	-0,029	0,258
Rosenberg	**-0,02**	-0,122	-0,111	0,097	0,062	-0,018
Rotter	**0,214**	0,241	0,374	0,235	0,173	0,082
Tel Aviv	**0,08**	0,373	-0,015	0,106	-0,039	-0,115
Teste de Simon	**-0,011**	-0,049	0,248	-0,131	-0,003	-0,009

Fonte: elaboração própria a partir dos dados do Jovem de Futuro.

Análise 2 - Nelson

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- Emoções Positivas: comportamento e características temperamentais que conduzem à alegria, ao engajamento ativo e recompensador com ambiente social e de trabalho. Polo negativo: desinteresse, fadiga, tendência ao desapego depressivo
  - Potência social, proximidade social, bem-estar, *achievement*

- Emoções negativas: tendência a experiementar ansiedade, raiva e envolvimento negativo. Polo negativo: calma, relaxamento, desapego por indiferença
  - Reação ao estresse, alienação e agressão

- Controle: tendência a reprimir impulsividade, tomada de risco e comportamento não-convencional.
  - Tradicionalismo, autocontrole, excesso de cuidados (*harm avoidance*)