

19/5/2020

Impact evaluation of Programa Huertas en Centros Educativos Montevideo (Uruguay)

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d.i.e

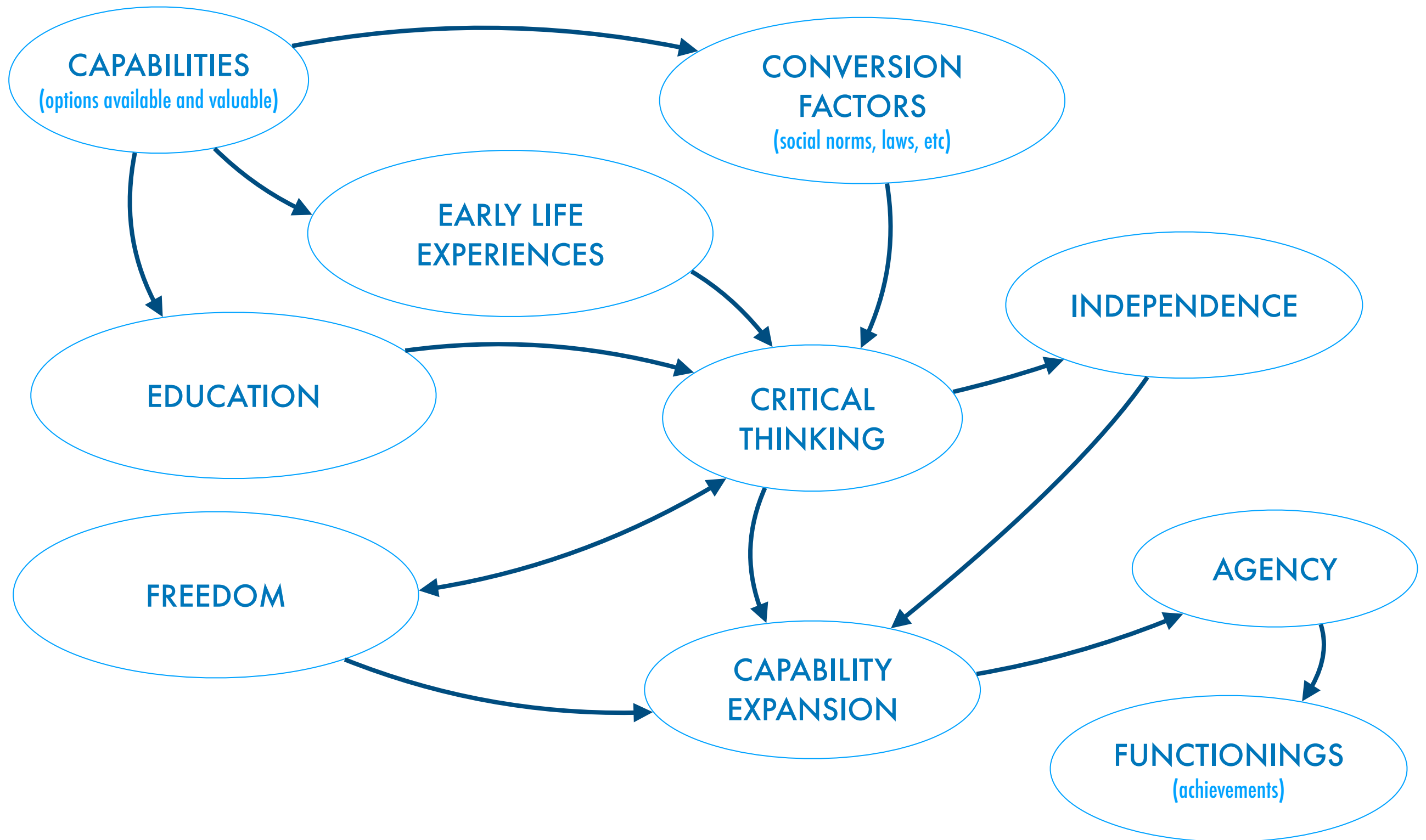
Deutsches Institut für
Entwicklungspolitik



German Development
Institute

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Francesco Burchi
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HUMAN DEVELOPMENT



AGROECOLOGY

PRINICIPLES:

M. Altieri



Enhance recycling of biomass, optimizing nutrient availability and balancing nutrient flow.



Securing favourable soil conditions for plant growth, particularly by managing organic matter and enhancing soil biotic activity.



Minimizing losses due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover.



Species and genetic diversification of the agroecosystem in time and space at the field and landscape level.



Enhance beneficial biological interactions and synergisms among agrobiodiversity components thus resulting in the promotion of key ecological processes and services.

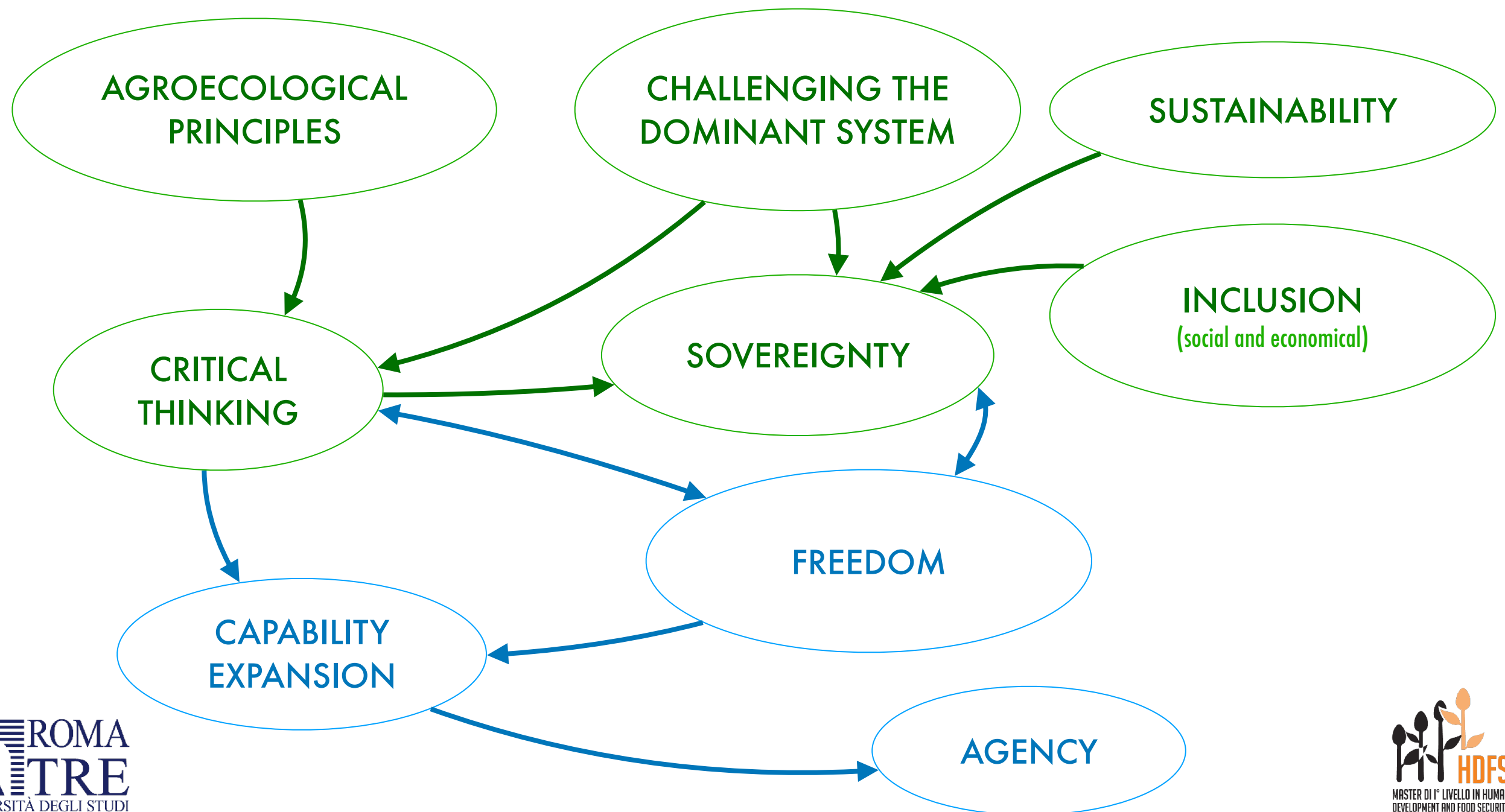
"The study of the interactions between agricultural plants."

P. Baret

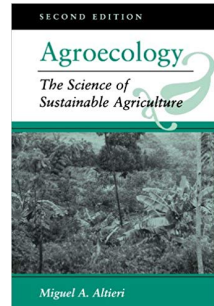
AGROECOLOGY

*"Agroecosystems that may be regarded as true cybernetic systems whose goal is **increased social value**. This is achieved through a variety of strategies that combine different levels of productivity, stability, sustainability and equitability."*

P. CONWAY



HOW CAN WE ENCOURAGE THE CHANGE?



Agroecology: The Science Of Sustainable Agriculture
M. Altieri, 1995



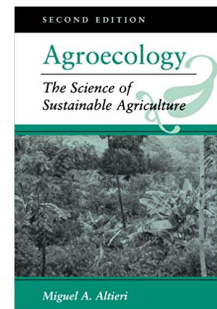
Campesino A Campesino Approach.
Word of mouth practice.



“... promote transformative change in how food is grown, produced, processed, transported, distributed and consumed.”

FAO's 2nd International Symposium on Agroecology: Scaling up agroecology to achieve the Sustainable Development Goals (SDGs).

HOW CAN WE ENCOURAGE THE CHANGE?



Agroecology: The Science Of Sustainable Agriculture
M. Altieri



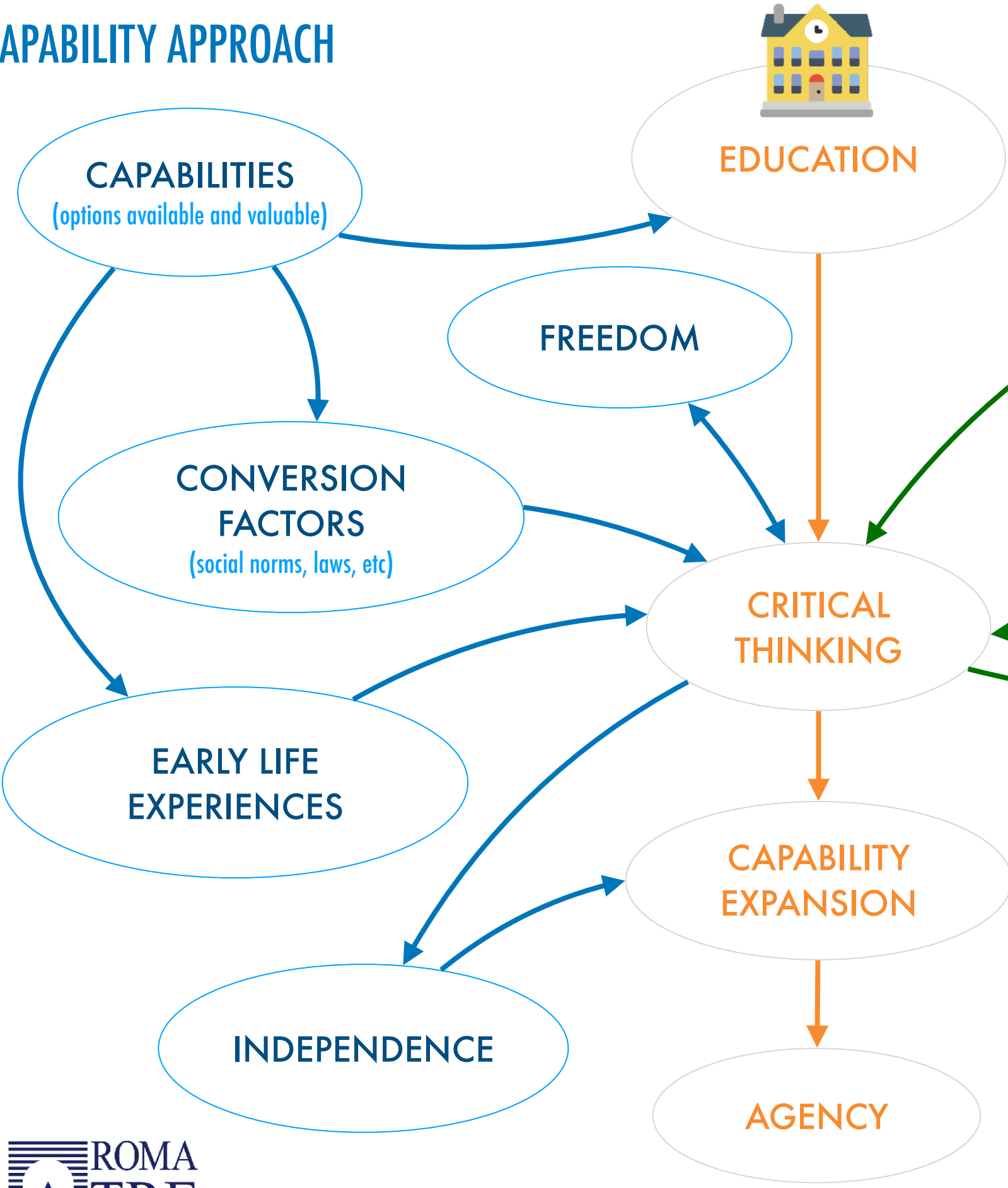
Campesino A Campesino Approach
Word of mouth practice



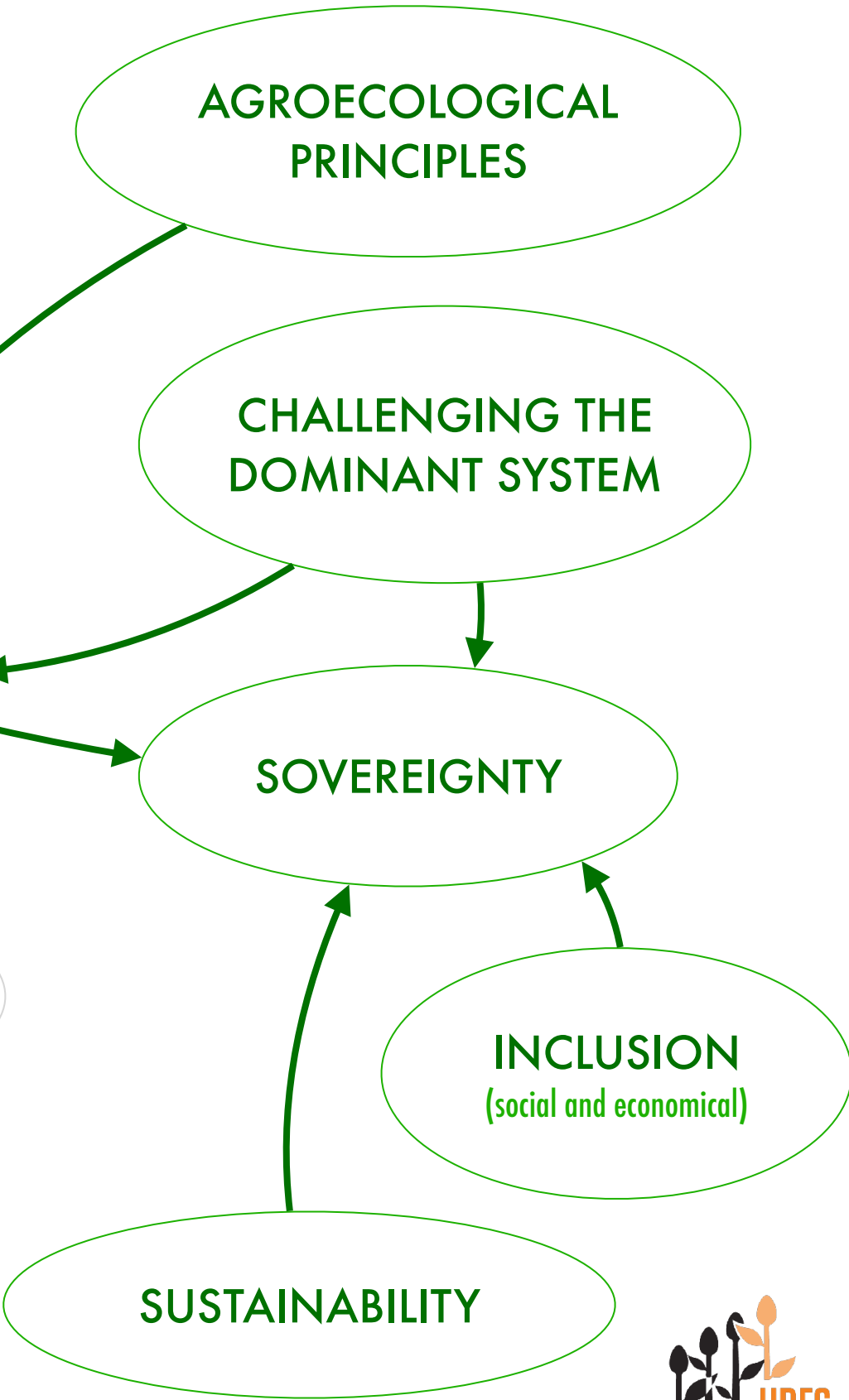
"...
pro...
FAO's
Develop...
...ive
...d is grown,
consumed."
...ieve the Sustainable

54%

CAPABILITY APPROACH



AGROECOLOGICAL APPROACH



PROGRAMA HUERTAS EN CENTROS EDUCATIVOS



Public program born in 2005 through an agreement between the Administration National of Public Education (ANEP), the Intendancy of Montevideo and Udelar, with coordination of the Faculty of Agronomy.



Active in 15 public primary schools of Montevideo.



The objective is to promote a **cultural change** towards a **new way of dignifying the person inside the community and in relationship with the nature**. It also contributes to the learning of curricular contents, develops work habits and healthy eating, it promotes agroecological practices and environmental education, and extends them to the households.



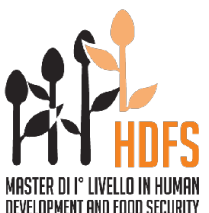
ADMINISTRACIÓN NACIONAL
DE EDUCACIÓN PÚBLICA



UNIVERSIDAD
DE LA REPÚBLICA
URUGUAY



FACULTAD DE
AGRONOMÍA
UNIVERSIDAD DE LA REPÚBLICA



THEORY OF CHANGE

Objectives

Curricular contents

Outputs

Outcomes

Impacts

Program objectives

Install vegetable gardens in educational centers with pedagogical, demonstrative, productive, integrating and articulating purposes.

Improving children consumption of vegetables

Community Orchard Plan interconnection

Planting and growing an orchard

Agroecology theory and practice:

Compost

Soil condition

Microclimate

Biodiversity

Plants interactions

Experiments involving different agricultural practices

Sustainability

Do you know how to cook?

From the orchard to the canteen

Inclusion of the families in the program

Do you grow veg/fruits at home?

Outside and in group activity

Orchard knowledges

Insects are good or bad for the environment?

Biology knowledges

Questioning conventional agriculture

Do you do compost at home?

Sensitization toward sustainability

Your favourite place in the school?

Improved perception of the school

Additional practical capabilities (knowing that alternatives exist)

Qualitative analysis

Capability to grow a plant

Do you burn waste/recycle at home?

Individual Diet Diversity Score

Eating more vegetables

Diet quality improvement

Evaluation framework Evaluation indicators

Better possibilities for career

How would you manage your field?

A new generation that cares about sustainability

Healthier population

PHCE

Control factors

School-level control factors

Socio – cultural quintile

School area

Type of school

School canteen

Children-level control factors

Ownership of an auto or moto

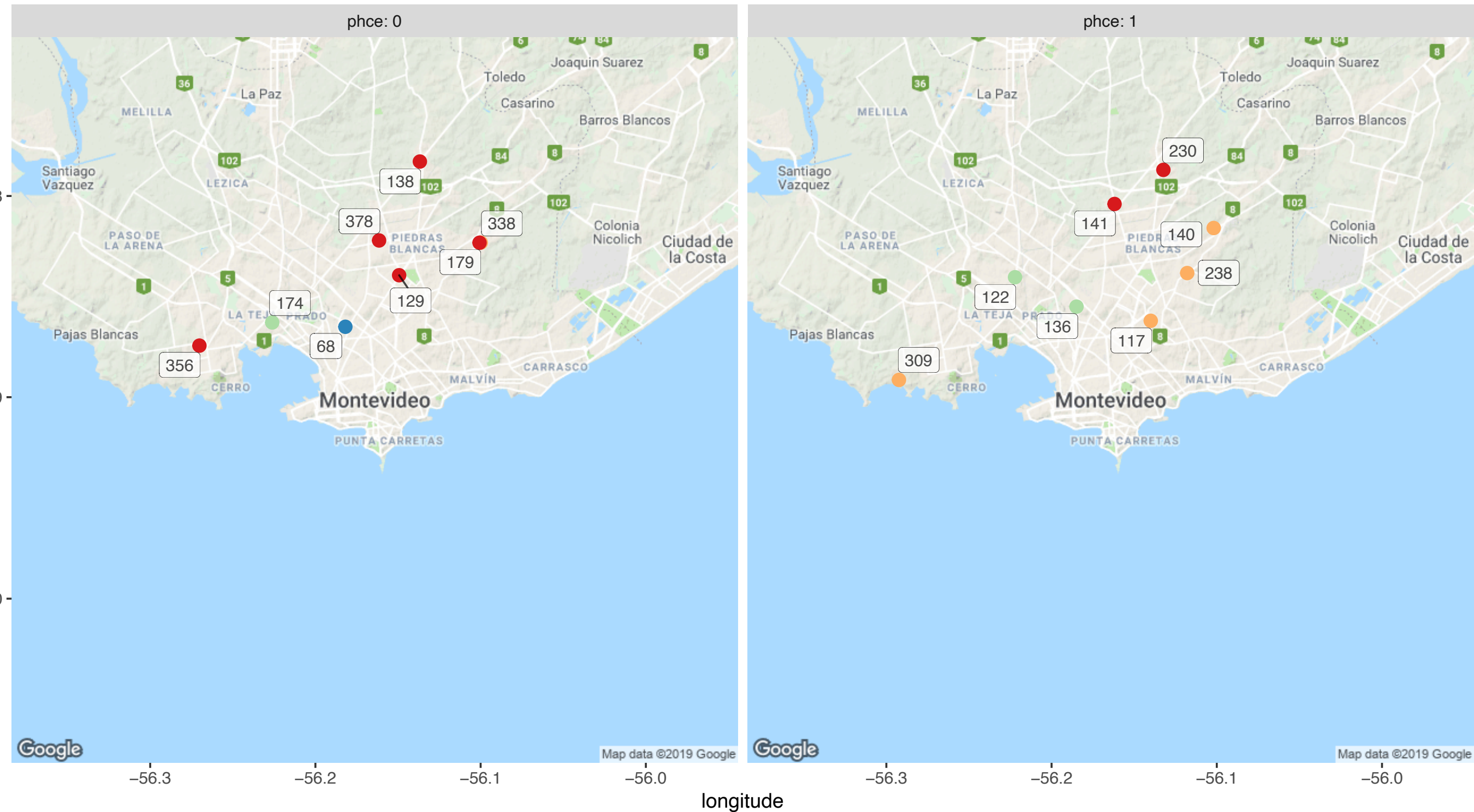
Presence of an home orchard

Parent's job

School year

SAMPLING

Sampled Schools



DATA COLLECTION METHODOLOGY

IN CLASS
SINGLE CHILD

ONLINE SURVEY
(QUANTITATIVE)



Personal informations

Socio-economical status
(child's perception)

Nutrition

Practices learned

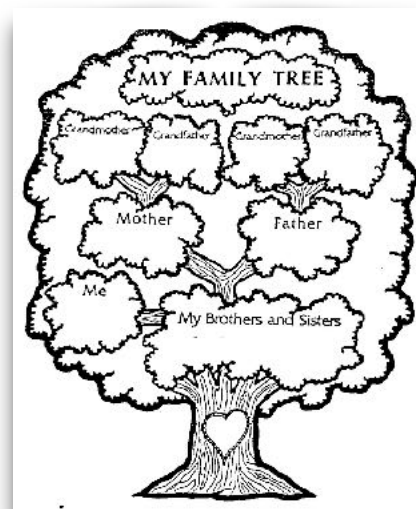
IN CLASS
FOCUS GROUP

CAPABILITY MAP
(QUALITATIVE)



Capability analysis

Participatory approach



VIA EMAIL
ADDITIONAL INFO

TEACHERS
(QUALITATIVE)

DIRECTORS
(QUANTITATIVE)



Perception of
the school

Functionings

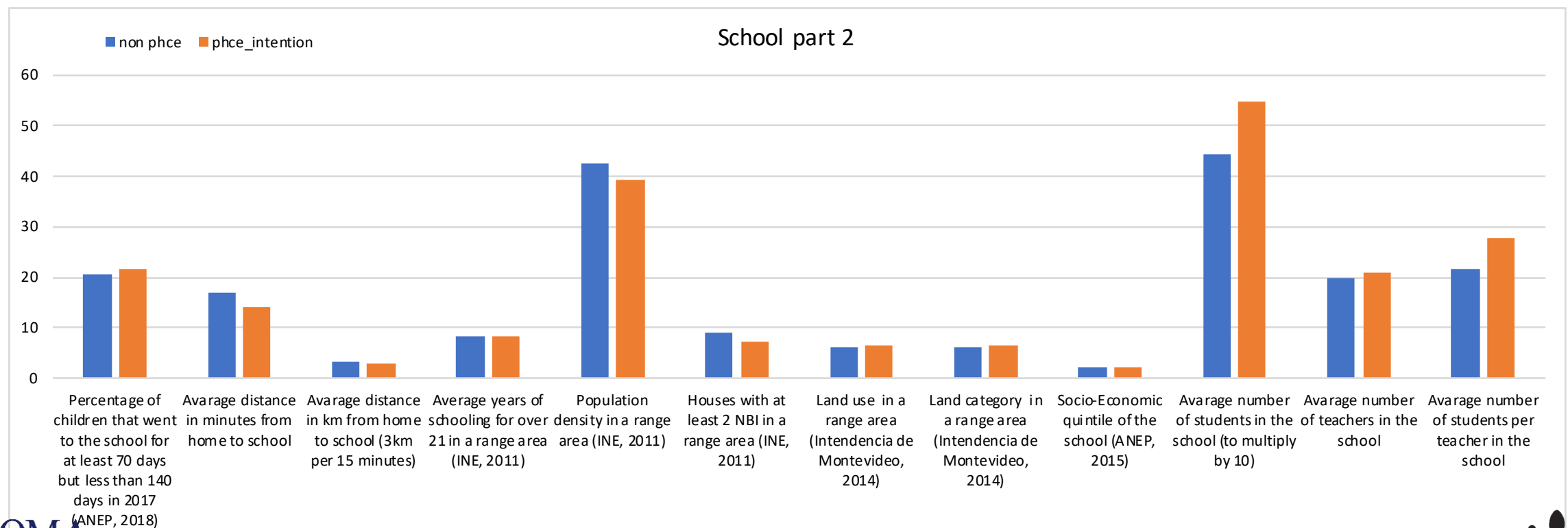
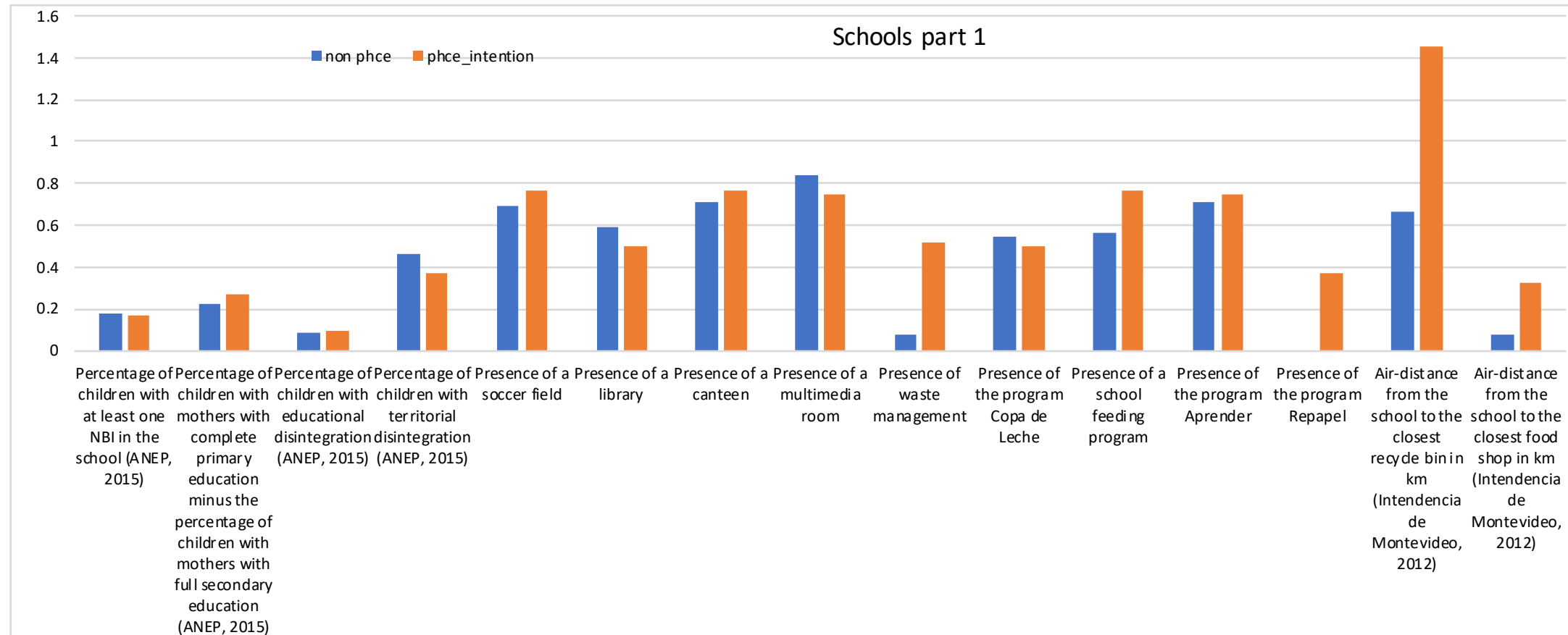
Capabilities

Active programs

School data

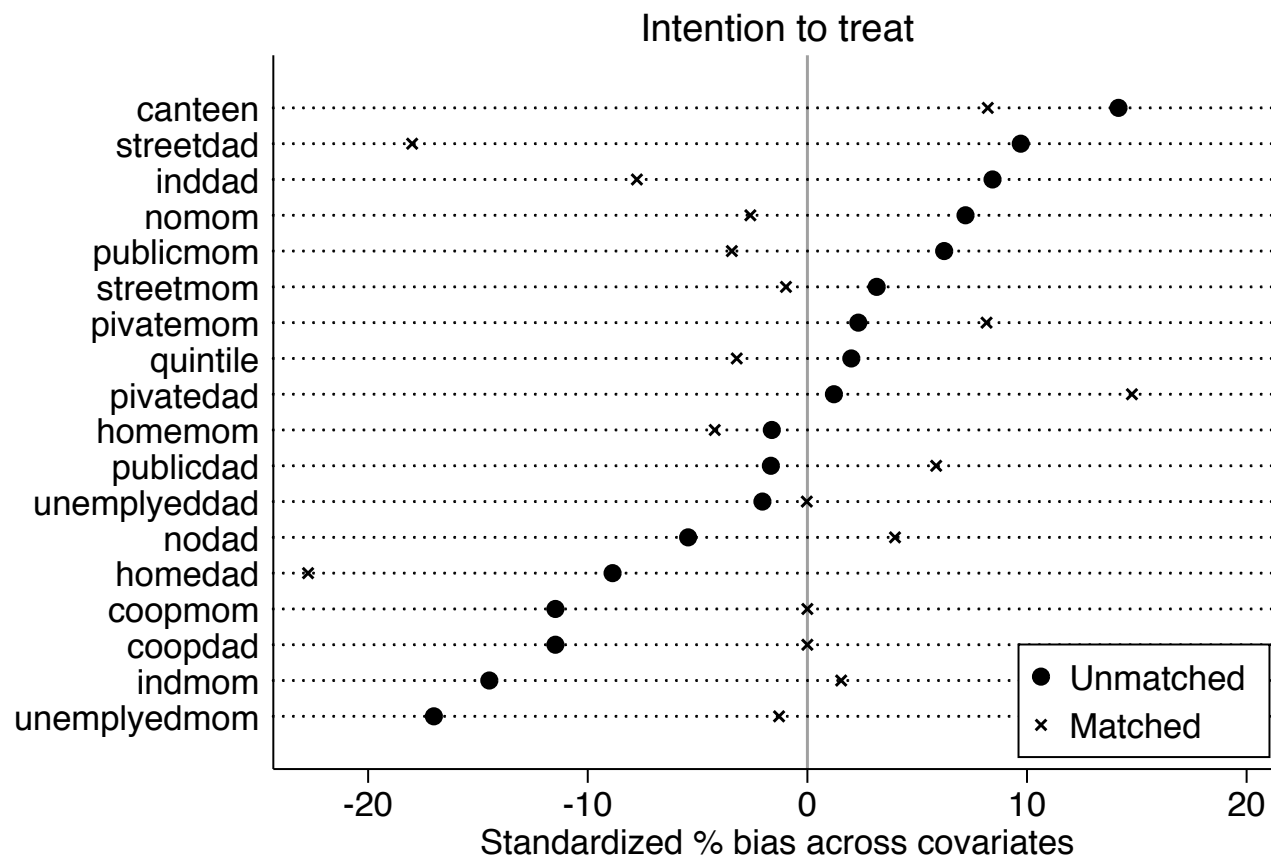
Eventual problems

DESCRIPTIVE STATISTICS

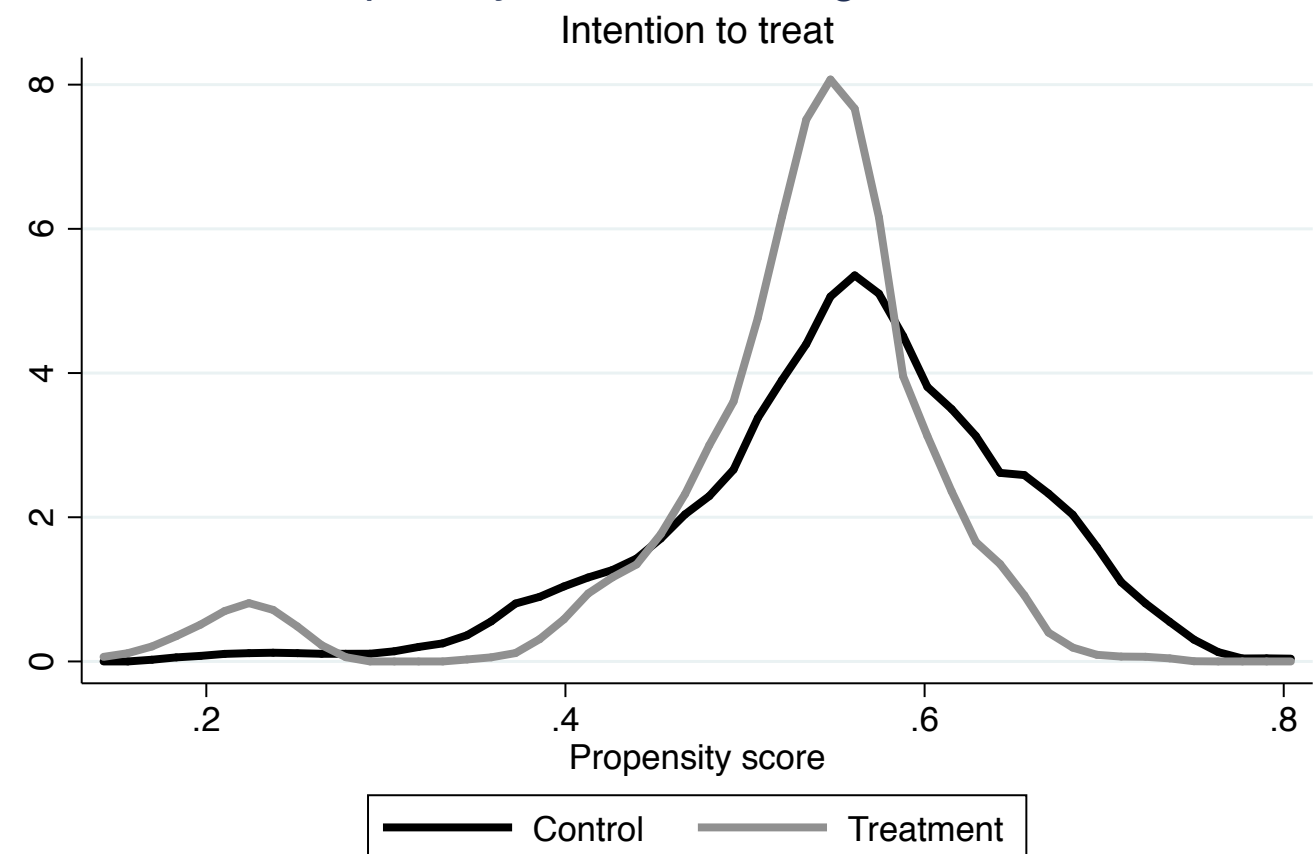


PSM BALANCING

Propensity score matching balance



Propensity score matching distribution



PSM RESULTS: IDDS AND DIET

	Individual Diet Diversity Score (FAO)	Individual Diet Diversity Score with minimum two hits	Avarage number of food groups in the top 2 more diverse meals of the day	Avarage number of food groups in the top 3 more diverse meals of the day	Having eaten cereals at least once.	Having eaten meat at least once.	Having eaten oil or grease at least once.	Having eaten sweets at least once.	Having eaten spices or drinks at least once.	Having eaten fruits at least once.	Having eaten eggs at least once.
VARIABLES	idds	idds2	meantop2	meantop3	al1cereal	al1meat	al1oil	al1sweet	al1spice	al1fruit	al1egg
_treated	0.108 (0.166)	-0.114 (0.143)	0.123 (0.104)	0.0848 (0.0938)	0.0248 (0.0220)	0.0774** (0.0337)	0.00832 (0.0453)	-0.0314 (0.0447)	0.0191 (0.0425)	-0.0279 (0.0451)	0.0214 (0.0421)
Constant	6.162*** (0.125)	3.515*** (0.108)	2.993*** (0.0780)	2.418*** (0.0706)	0.926*** (0.0166)	0.799*** (0.0254)	0.377*** (0.0341)	0.657*** (0.0337)	0.284*** (0.0320)	0.642*** (0.0339)	0.275*** (0.0317)
Observations	471	471	471	471	471	471	471	471	471	471	471
R-squared	0.001	0.001	0.003	0.002	0.003	0.011	0.000	0.001	0.000	0.001	0.001

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Having eaten milk at least once.	Having eaten legumes at least once.	Having eaten vegetables at least once.	Having eaten tubers at least once.	Having eaten fish at least once.	Self-perception of the child's diet quality	Having tasted at least a new fruit or vegetable in the last year
al1milk	al1legume	al1vegetable	al1tuber	al1fish	dietquality	newfruitveg
-0.00424 (0.0274)	0.0102 (0.0384)	-0.0296 (0.0456)	0.0977** (0.0455)	-0.0577** (0.0258)	0.0188 (0.0350)	0.0134 (0.0391)
0.907*** (0.0206)	0.211*** (0.0289)	0.618*** (0.0343)	0.348*** (0.0343)	0.118*** (0.0195)	0.725*** (0.0257)	0.580*** (0.0287)
471	471	471	471	471	639	639
0.000	0.000	0.001	0.010	0.011	0.000	0.000

PSM RESULTS: KNOWLEDGE AND PRACTICES

VARIABLES	Perception of insects as good for the environment insectsgood	Self-perception of the child's ability to grow a plant grower	Self-perception of the child's ability to cook food knowcooking	Composting organic waste at home compost	Burning waste at home wasteburnt	Growing vegetables at home veggrowing	Growing aromatic plants at home aromaticgrowing	Hypothetical field management: animals for meat production allanimals	Hypothetical field management: half animals, half vegetables halfhalf	Hypothetical field management: using technology and chemicals technologic	Hypothetical field management: increasing the biodiversity biodiverse
_treated	0.0722* (0.0401)	-0.0878*** (0.0336)	-0.00255 (0.0353)	0.00688 (0.0329)	0.0138 (0.0253)	0.0287 (0.0382)	0.0498 (0.0402)	0.0325 (0.0233)	-0.0661* (0.0394)	-0.0270 (0.0327)	0.0607* (0.0338)
Constant	0.672*** (0.0292)	0.834*** (0.0248)	0.732*** (0.0259)	0.196*** (0.0243)	0.104*** (0.0186)	0.326*** (0.0281)	0.400*** (0.0296)	0.0780*** (0.0171)	0.485*** (0.0289)	0.231*** (0.0240)	0.207*** (0.0248)
Observations	511	594	639	597	627	623	609	639	639	639	639
R-squared	0.006	0.011	0.000	0.000	0.000	0.001	0.003	0.003	0.004	0.001	0.005

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

QUALITATIVE RESULTS: CAPABILITIES

409 children surveyed.

237 observations belonged to schools with PHCE active and 172 belonged to non PHCE schools.

QUESTIONS

1. What does the school represent for children like you?
(a place for studying, or what it comes to your mind when you think about the school)
2. What would children like yourself like to study in school?
(mathematics, to live better)
3. What do you think that going to school and learning will help you do and be in the future?
(be a better..., have a better..., nothing)
4. On a scale from 1 to 4 how this school is far from your ideal?
(1 close, 4 far)
5. What is your favorite place in the school?

QUALITATIVE RESULTS

	non PHCE Gr=933; GS=145			PHCE Gr=1078; GS=174			Totals		
	Absolute	Row- relative	Table- relative	Absolute	Row- relative	Table- relative	Absolute	Table- relative	% Diff
○ Orchard Gr=22	0.00	0.00%	0.00%	22.00	100.00%	1.00%	22.00	1.00%	-100.00%
○ Others Gr=1083	595.09	50.64%	26.93%	580.00	49.36%	26.24%	1175.09	53.17%	1.28%
Bad Atmosphere Gr=32; GS=2	24.84	69.31%	1.12%	11.00	30.69%	0.50%	35.84	1.62%	38.62%
Behavior Gr=192; GS=2	85.18	41.52%	3.85%	120.00	58.48%	5.43%	205.18	9.28%	-16.97%
Good Atmosphere Gr=75; GS=2	28.39	35.76%	1.28%	51.00	64.24%	2.31%	79.39	3.59%	-28.47%
Science Gr=86; GS=2	41.41	44.81%	1.87%	51.00	55.19%	2.31%	92.41	4.18%	-10.38%
Study Gr=372; GS=2	214.14	52.86%	9.69%	191.00	47.14%	8.64%	405.14	18.33%	5.71%
Work Gr=177; GS=2	115.94	59.48%	5.25%	79.00	40.52%	3.57%	194.94	8.82%	18.95%
Totals	1105.00		50.00%	1105.00		50.00%	2210.00	100.00%	

QUALITATIVE RESULTS

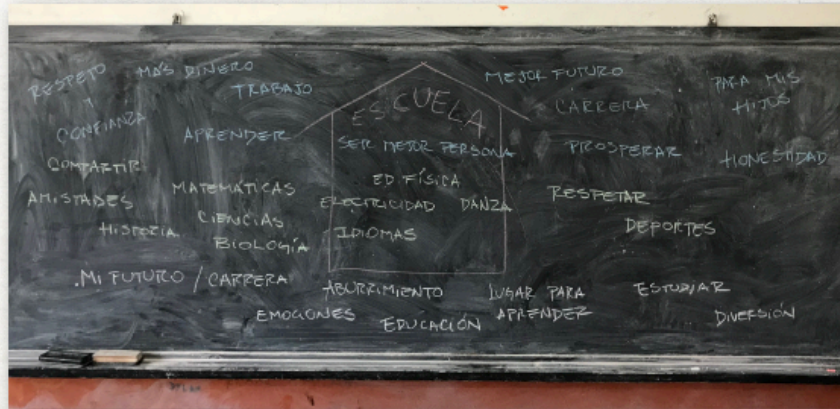
	oBad Atmosphere non PHCE Gr=21	oBad Atmosphere PHCE Gr=11	oBehavior non PHCE Gr=72	oBehavior PHCE Gr=120	oGood Atmosphere non PHCE Gr=24	oGood Atmosphere PHCE Gr=51	oOrchard Gr=22	oOthers Gr=1083	oScience non PHCE Gr=35	oScience PHCE Gr=51	oStudy non PHCE Gr=181	oStudy PHCE Gr=191	oWork non PHCE Gr=98	oWork PHCE Gr=79
oQ1 Gr=319	17	4	28	55	20	46	0	287	0	0	43	57	9	3
oQ2 Gr=319	2	3	21	32	0	2	6	286	35	51	59	48	3	3
oQ3 Gr=319	2	4	23	33	4	3	0	191	0	0	79	86	86	73
oQ4 Gr=319	0	0	0	0	0	0	16	319	0	0	0	0	0	0

QUALITATIVE RESULTS: EXAMPLE

129

NORMAL

MEAN DISTANCE = 2
QUINTILE = 1



1.

diversión
aburrimiento
horror
indiferente
aprendizaje
emociones
carrera
futuro
educación

2.

idiomas
historia
ciencias
biología
compañía
curriculares
física
electricidad
danza
educación
ciencia
amistad
respetar

5.

patio
paula

3.

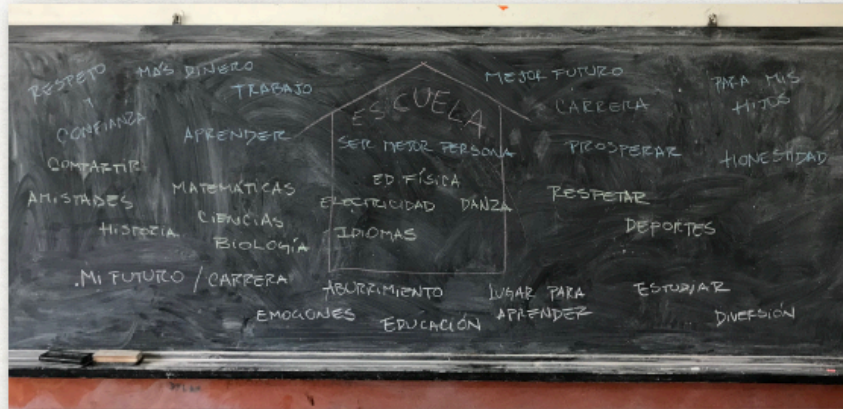
trabajo
carrera
aprendizaje
deportes
mayor
personas
mis respetos
nadie
futura
progresar

QUALITATIVE RESULTS: EXAMPLE

129

NORMAL

MEAN DISTANCE = 2
QUINTILE = 1



1.



2.



5.



3.

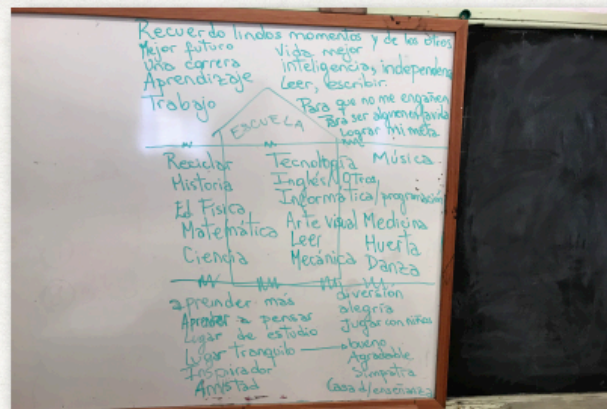


QUALITATIVE RESULTS: EXAMPLE

117

PHCE

MEAN DISTANCE = 2
QUINTILE = 2



1.



2.



5.



3.

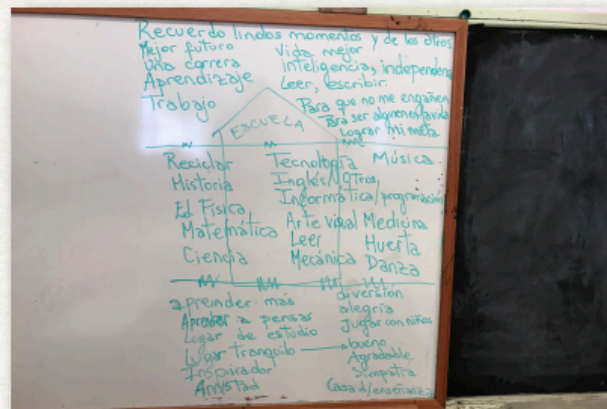


QUALITATIVE RESULTS: EXAMPLE

117

PHCE

MEAN DISTANCE = 2
QUINTILE = 2



1.



2.



5.



3.



CONCLUSIONS

PHCE has an impact on children's life.



The effect on children's diet is low due to lack of involvement of the families.

The presence of a home orchard makes a real difference in improving IDDS.



Few significant effects of PHCE on knowledge and replicability of practices learned at school.

PHCE makes a school more attractive and interesting for the children and it contributes to widening their spectrum of capabilities, while it looks less common to reach similar levels for a non PHCE school.



The orchard is one of the favorite places inside the school.

POLICY SUGGESTIONS



These results suggest that when PHCE is well embedded into the school curriculum and there is a real collaboration between normal teachers and orchard teachers, it has a real power to considerably expand teaching.



Agroecological formation, in this case, should be mandatory for all the teacher in order to internalize the orchard activity inside the school curriculum.



In order to have a real impact on the diet and practices, it's fundamental to involve the families in the orchard activity and bring the orchard to the houses. This would be possible by strengthening the link between PHCE and other active programs.

Thank you!

