The Early Years and Later Development: Evidence and Social Policy

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Growing Up in Ireland
Research Conference 2011

Longitudinal Studies

The history of longitudinal studies show their usefulness for policy.
e.g. smoking in pregnancy,
Early experience and development

1. educational success
2. occupational success
3. criminality
4. social adjustment

Social & economic context

By 2050 the EU working population will decrease by 50 million while the elderly will grow by 50%. Similar situations in most industrialised countries.

Economic sustainability will require maximizing the capacity of the workforce.

The skills for good outcomes are rising and changing, And there is still great inequality of opportunity.

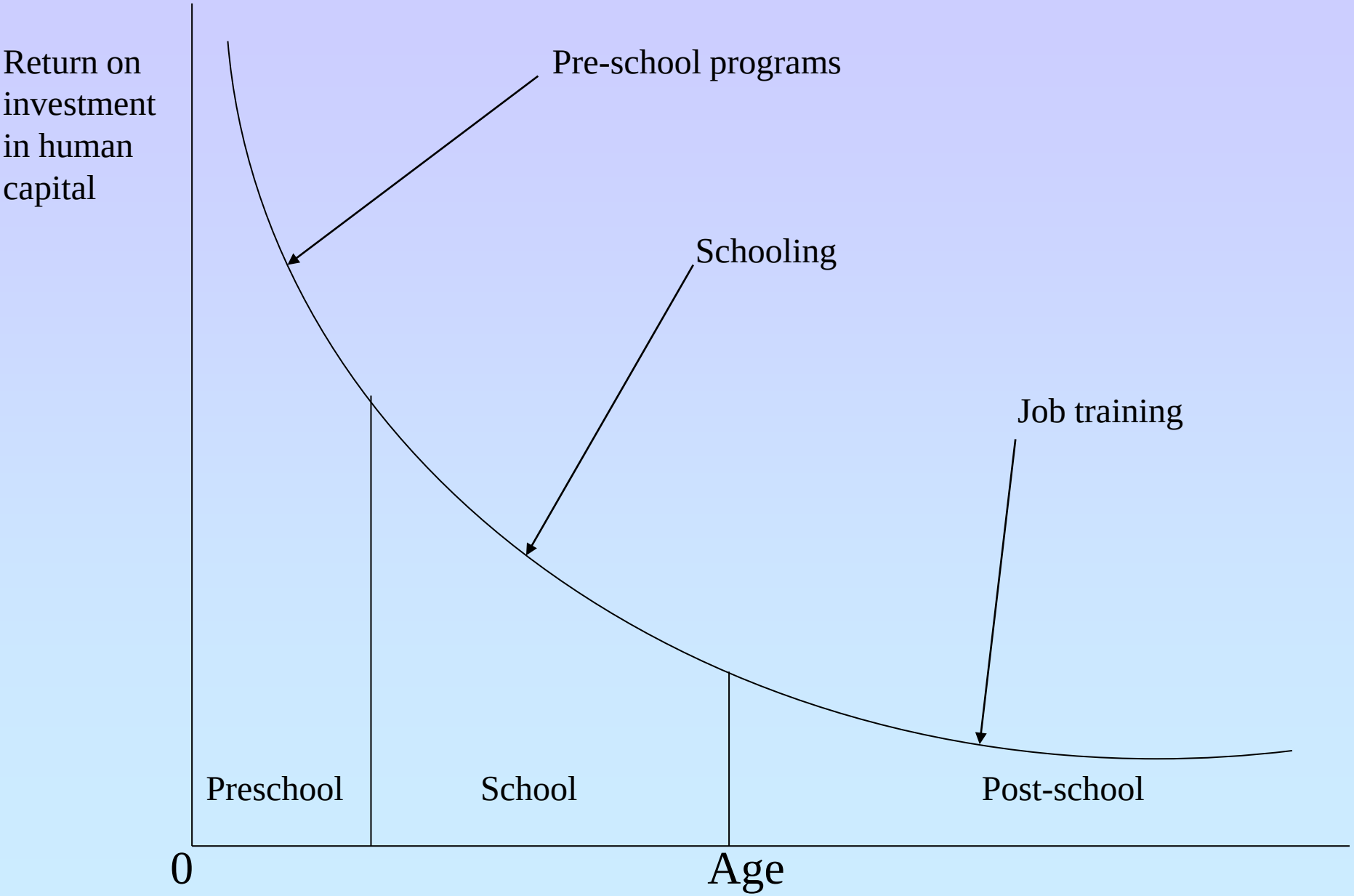
Both cognitive and non-cognitive skills are critical.. How can these be improved for the population?

Why the early years?

" If the race is already halfway run even before children begin school, then we clearly need to examine what happens in the earliest years." (Esping-Andersen, 2005)

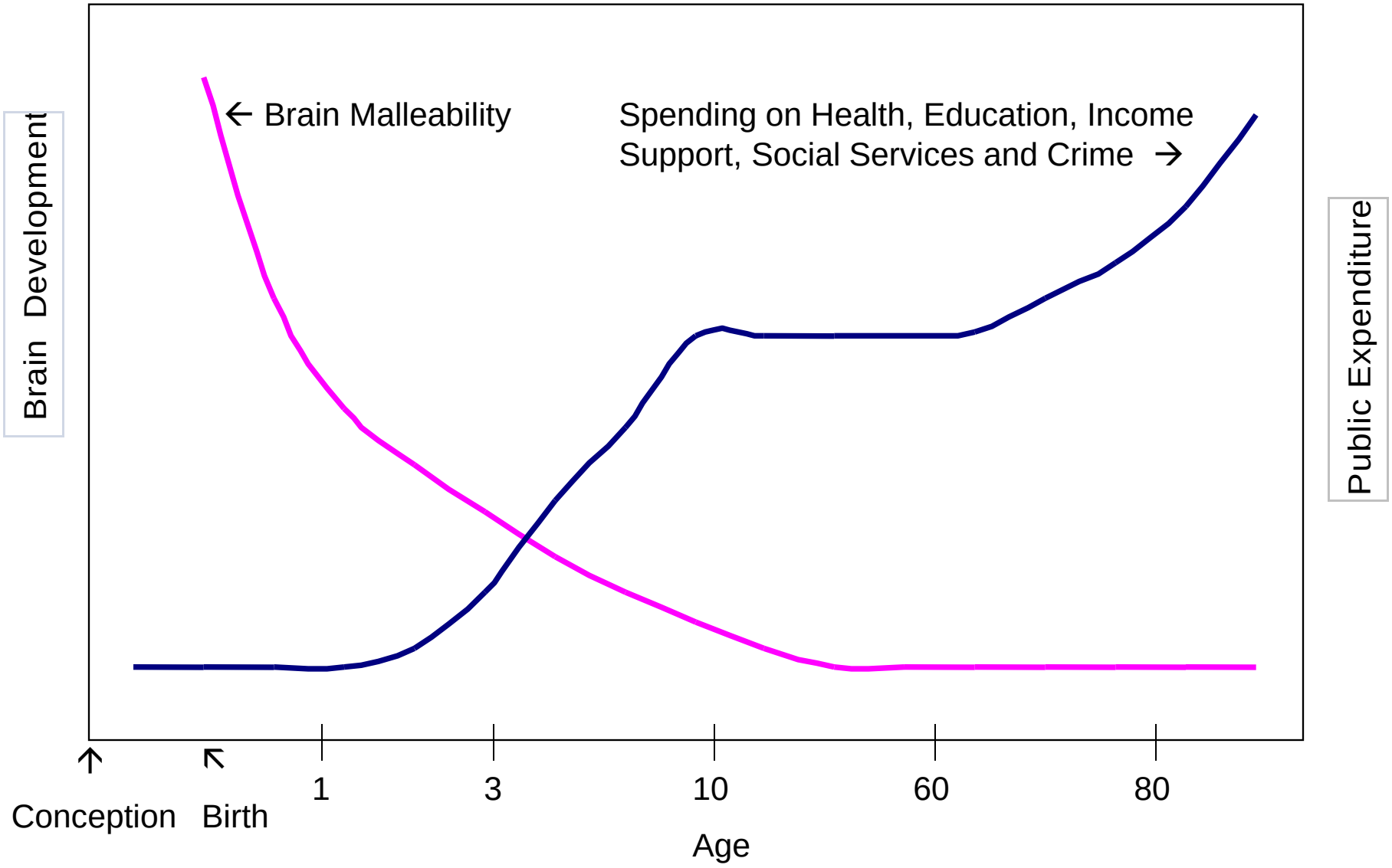
" Like it or not, the most important mental and behavioural patterns, once established, are difficult to change once children enter school." (Heckman & Wax, 2004).

Rates of return to human capital investment (Heckman 2000)



Brain Development – Opportunity and Investment

From van der Gaag 2004 – presentation on World Bank - The Benefits of Early Child development programs



Early Years Risk and Poor Outcomes

Wealth of data from life course studies linking adversity in early life to:

- poor literacy and educational attainment
- anti-social and criminal behaviour
- substance abuse
- poor mental and physical health
- adult mortality

Early Years research

We can distinguish 2 major strategies

1. Intervention with disadvantaged groups
2. For general population

Intervention strategy

If people keep falling off a cliff, don't worry about where you put the ambulance at the bottom. Build a fence at the top and stop them falling off in the first place.

Source: Allen & Duncan-Smith, 2010

– report to UK government

Examples

Perry Preschool Project – preschool 3-6 years

Abecedarian Project – childcare/preschool 0-6

Chicago Child- Parent Centers – preschool and family support 3 years on

UK Sure Start – childcare/ preschool /family support 0-5 years

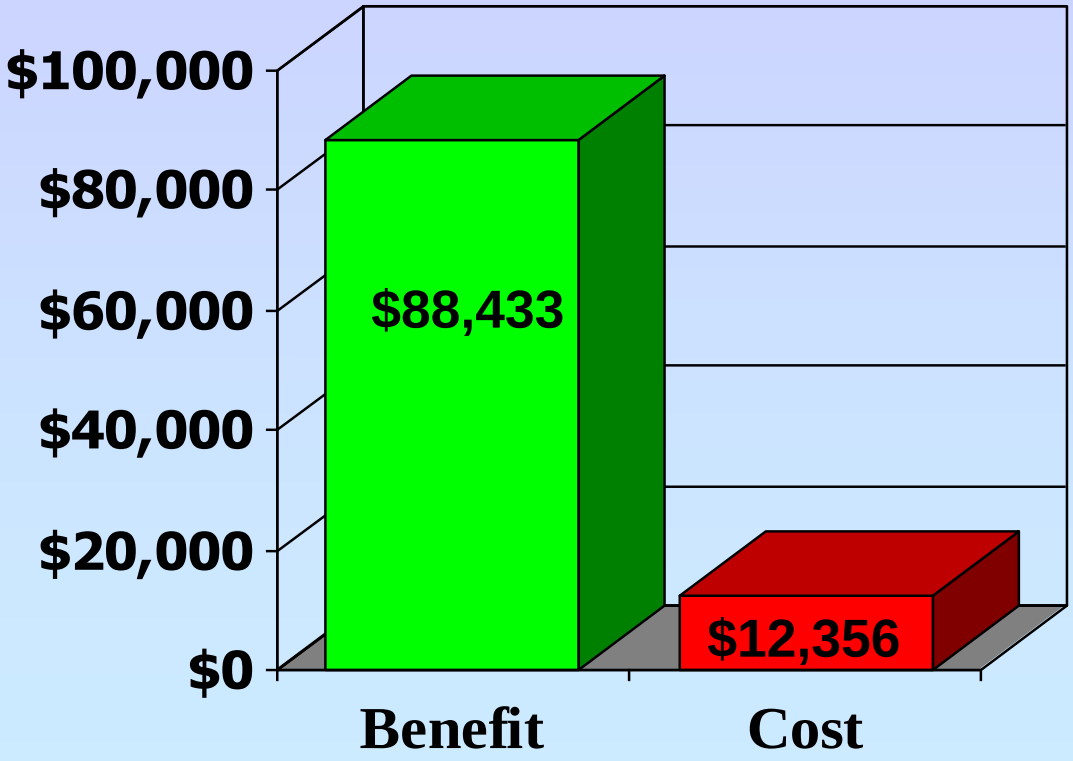
Perry Preschool Study

(Schweinhart, Barnes & Weikart, 1993)

- 123 young African-American children, living in extreme poverty and at risk of school failure
- Randomly assigned at ages 3 and 4 to program and no-program groups
- Daily High/Scope classes with planned learning activities and weekly home visits to families

Return on investment

Program Benefits Versus Cost



1992 dollars, 3% annual discount rate

Return on the dollar invested

$7.16

Abecedarian Project

111 African-American disadvantaged children randomly assigned at age 3 months to:

- High quality centre-based provision

  (day-care and preschool)

- Control group:

  - Both groups followed into adulthood

Abecedarian Project

Results up to age 21 years

- Intervention group showed

- Higher cognitive development from 18 months on
- Greater social competence in preschool
- Better school achievement
- More college attendance
- Delayed child bearing
- Better employment
- Less smoking and drug use
- **Cost – benefit - Savings 2.5 times costs**

Reynolds, A.J. (2011) – Chicago-Parent Centers

• Disadvantaged children who start preschool at age 3 or 4 years had consistent benefits in later life compared to children starting preschool at a later age.

• Male children especially benefit in later life from preschool as do children of high school dropouts.

• Children starting preschool earlier have at age 28

•higher rates of educational status,

•higher income and

•lower rates of substance abuse.

UK, Sure Start

UK government influenced by early years research set up Sure Start

- Targeted - 20% most disadvantaged areas
- 0-5 year olds
- Universal in area - All families in area served
- Locally controlled

National Evaluation of Sure Start (NESS)

- In this evaluation we have set up a longitudinal study of 8000 children living in disadvantaged areas served by Sure Start.

- Also we have used as a comparison group children from another longitudinal study:

  Millennium Cohort Study (MCS)

Changes to Sure Start as a result of evidence

1. Early findings - Sure Start having mixed effects

2. EPPE showed that integrated Children's Centres were particularly effective:

ACTION: the government decided to transform Sure Start Programmes into Children's Centres.

From 2006 all became Children's Centres:
With a more clearly specified set of services and guidelines.

What happened next, 2008

3 year olds

- **5 outcomes indicated beneficial effects for SSLPs.**
  - child positive social behaviour (cooperation, sharing, empathy)
  - Child self-regulation (perseverance, self-control)
  - Parenting Risk Index (observer rating + parent-report)
  - home learning environment
  - total service use
- **In addition there were better results in SSLPs for:**
  - child immunisations
  - child accidents

But these 2 outcomes might be influenced by timing effects

Impact of Sure Start when children are 5 years old

Mothers in Sure Start areas reported:

- greater life satisfaction,
- less harsh discipline
- a less chaotic home and a
- more stimulating home learning environment (HLE)
- *but more depressive symptoms*

Children had:

- Lower BMIs – less overweight
- Better general health

Families had:

- a greater decrease in workless status up to ***5 years*** of age

CONCLUSIONS

- Sure Start has improved over the years and Children's Centres are in the right direction
- Many examples of good practice
- Still great variation between best and worst
- Need to learn from most effective Children's Centres

What about the general population?

Are the early years important for all?

Non-intervention studies – General population

NICHD Study of Early Child Care in USA

Effective Preschool & Primary Education – EPPE

3000 children followed from age 3 in England

Effective Preschool Provision in Northern Ireland - EPPNI

NICHD Study of Early Child Care in USA

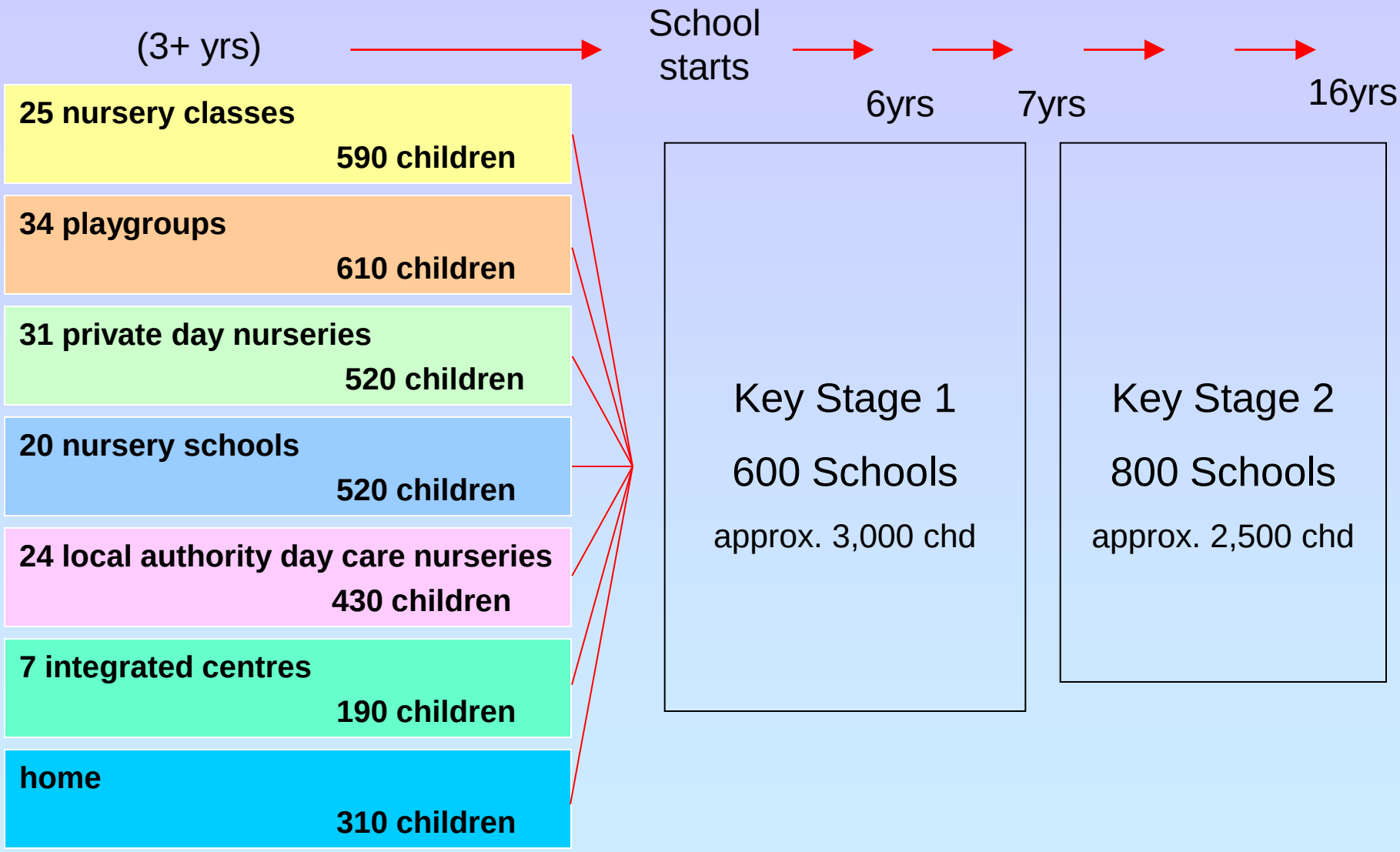
Early Child Care has Benefits and Risks

- **Higher quality child care linked to**
  - ➢better pre-academic skills
  - ➢better language skills
- **Experience in child care centres linked to**
  - ➢better language skills
  - ➢more problem behaviors
- **More hours in child care centres linked to**
  - ➢more problem behaviors—aggression, disobedience

Effective Pre-School and Primary Education
EPPE

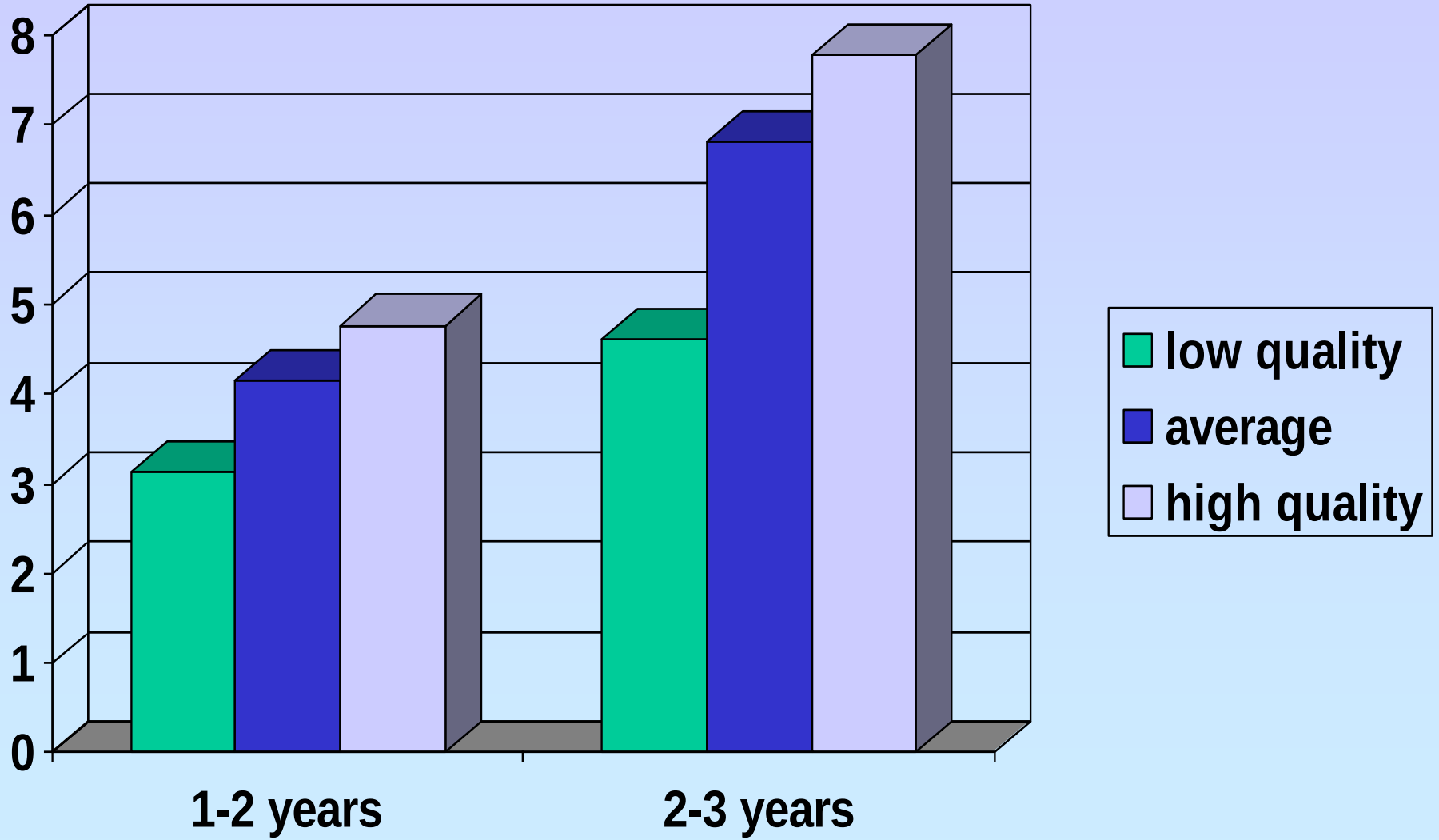
Kathy Sylva – University of Oxford
Pam Sammons – University of Oxford
Iram Siraj-Blatchford – Institute of Education, University of London
Brenda Taggart – Institute of Education, University of London
Edward Melhuish – Birkbeck, University of London

EPPE STUDY

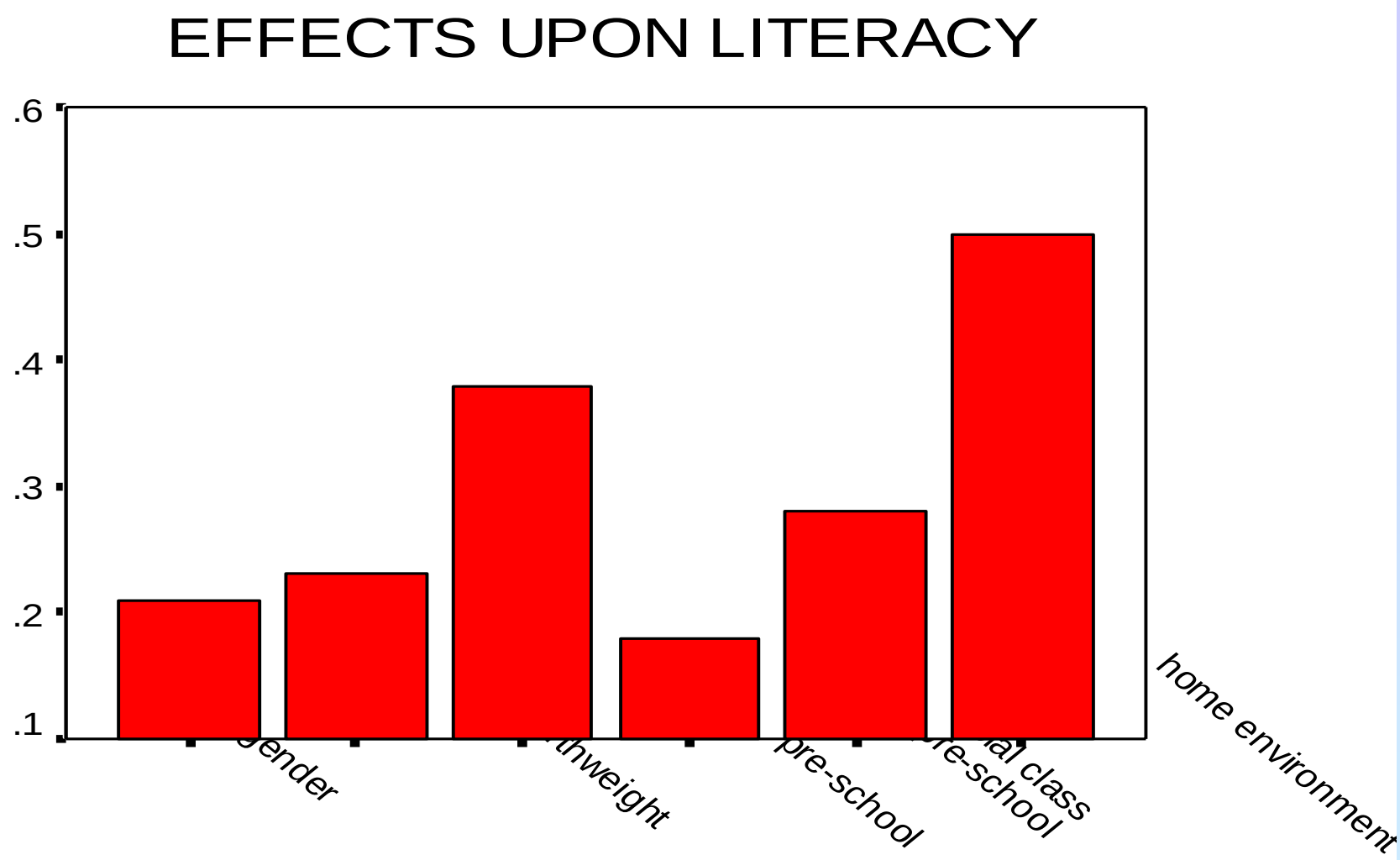

(3+ yrs)
School starts
6yrs
7yrs
16yrs
25 nursery classes
590 children
34 playgroups
610 children
31 private day nurseries
520 children
20 nursery schools
520 children
24 local authority day care nurseries
430 children
7 integrated centres
190 children
home
310 children
Key Stage 1
600 Schools
approx. 3,000 chd
Key Stage 2
800 Schools
approx. 2,500 chd

Quality and Duration matter

(months of developmental advantage on literacy)



Effects of child, home, and pre-school compared



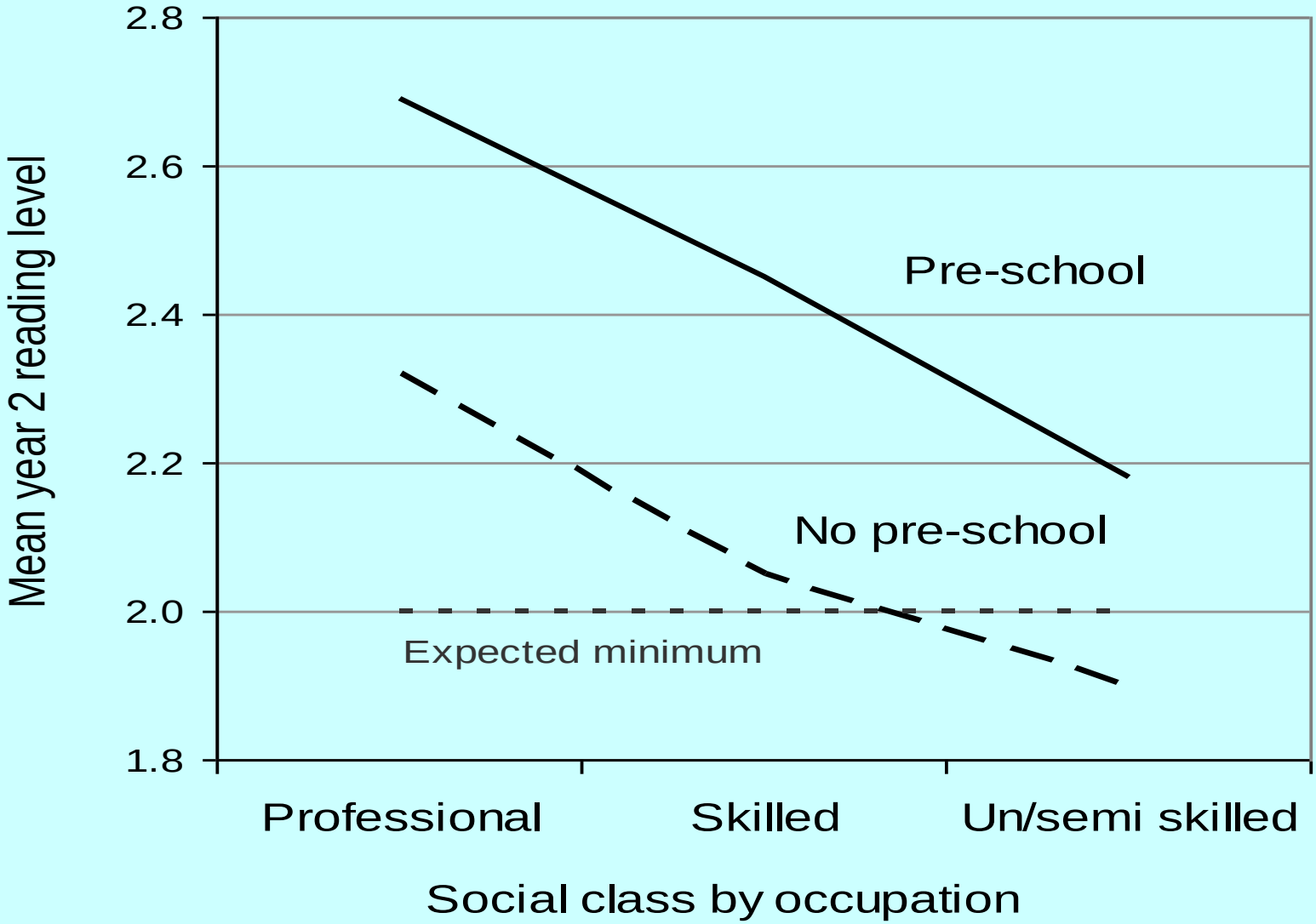
Home Learning Environment

Parents were asked about learning and play activities in the home. An index of the home learning environment (HLE) was constructed. There were seven types of home learning activities. These were:

- Reading
- Painting and drawing
- Playing/ teaching with numbers /shapes
- Library visits
- Playing/ teaching the alphabet or letters
- Playing with letters or numbers
- Playing/teaching of songs/ nursery rhymes

Each activity was rated on a scale 0–7 where 0 is not occurring and 7 is occurring very frequently. These ratings were then combined to form the Home Learning Environment index (HLE) (Melhuish et.al. (2001).

Social class and pre-school on literacy (age 7)



Effective Pre-schools

Five areas were particularly important:

- **Quality of the adult-child verbal interaction.**
- **Knowledge and understanding of the curriculum.**
- **Knowledge of how young children learn.**
- **Adults skill in supporting children in resolving conflicts.**
- **Helping parents to support children's learning at home.**

Measuring the effectiveness of primary schools

- **Data every child in England in state school**

- **600, 0000 children in each year,**
  N = 15,771 primary schools

We used data to calculate the effectiveness of each school

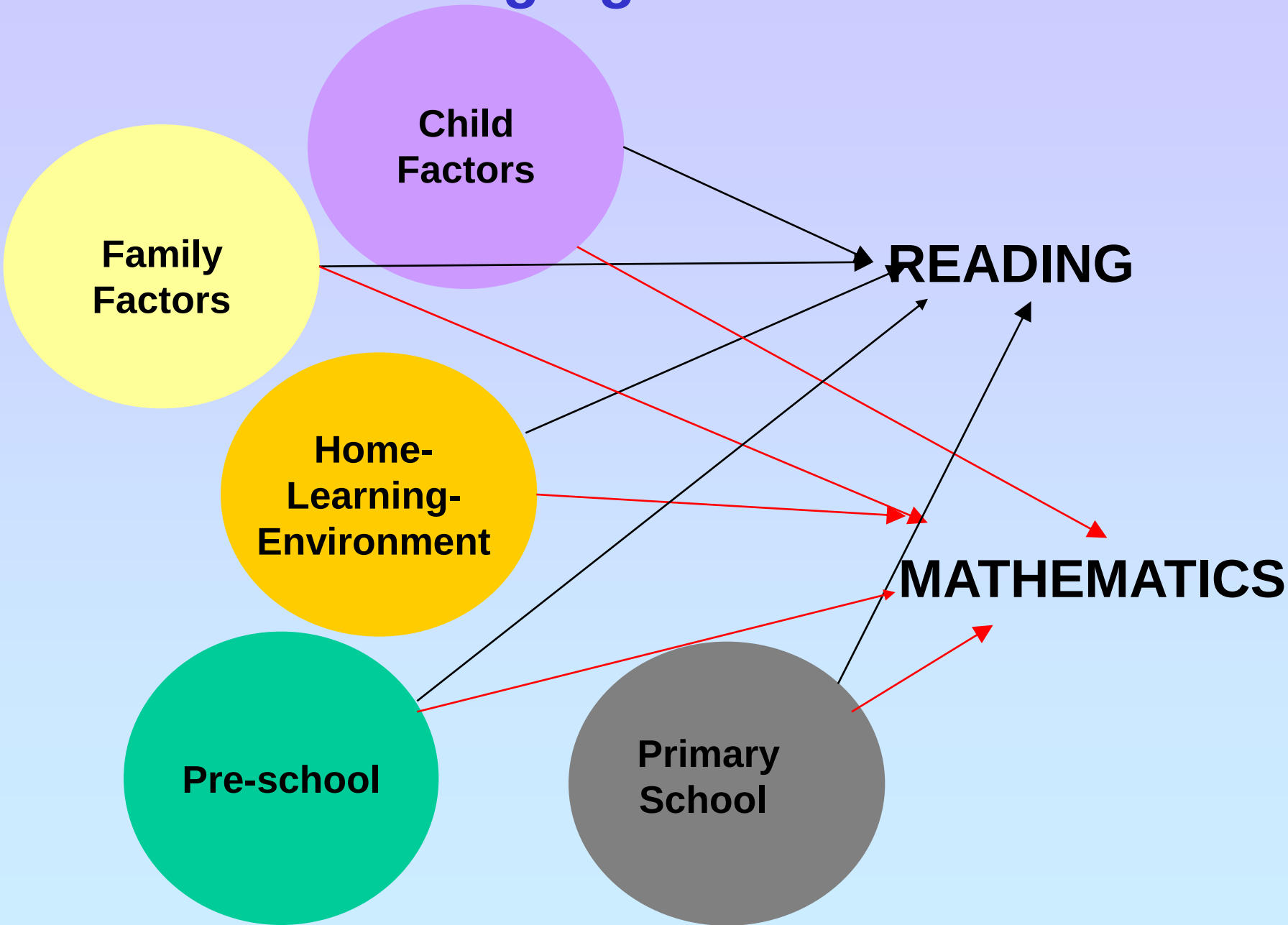
EFFECTIVENESS

- **Schools where children make greater progress than predicted on the basis of initial attainment and pupil and area characteristics can be viewed as *more effective*.**

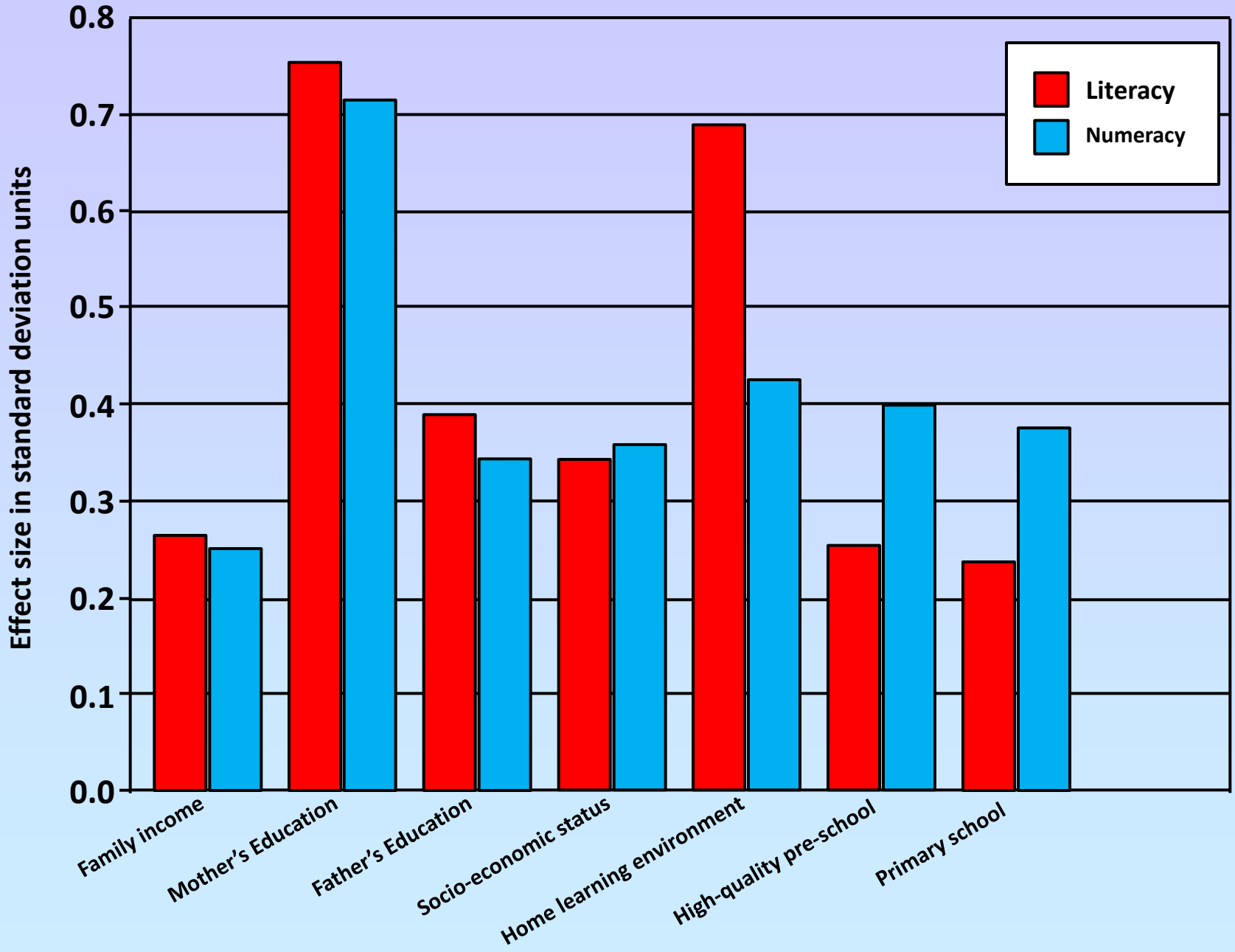
- **Schools where children make less progress than predicted can be viewed as *less effective*.**

We have a continuous scale of school effectiveness

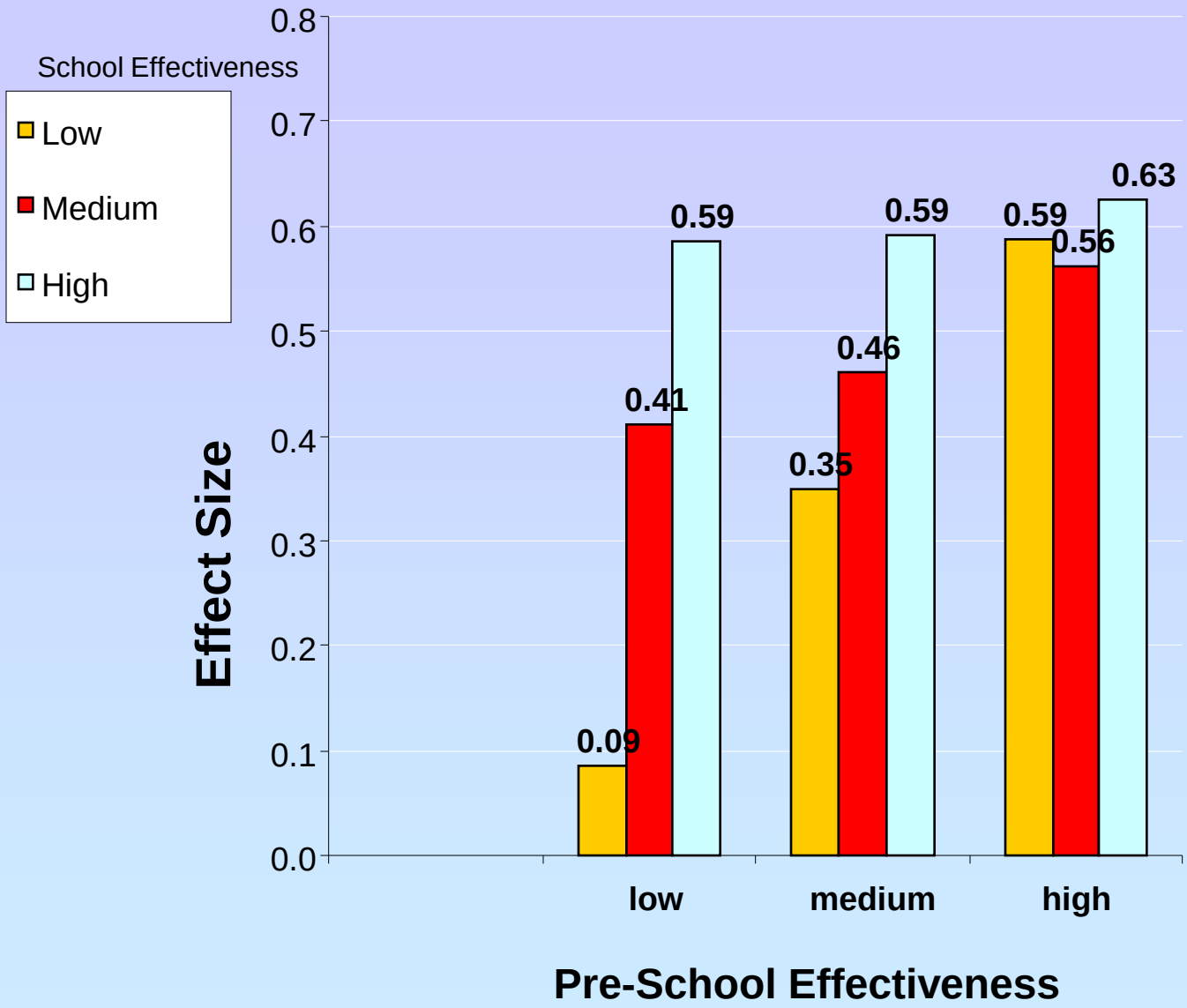
Modelling Age 11 outcomes



Effects upon Age 11 (+age 14) literacy and numeracy

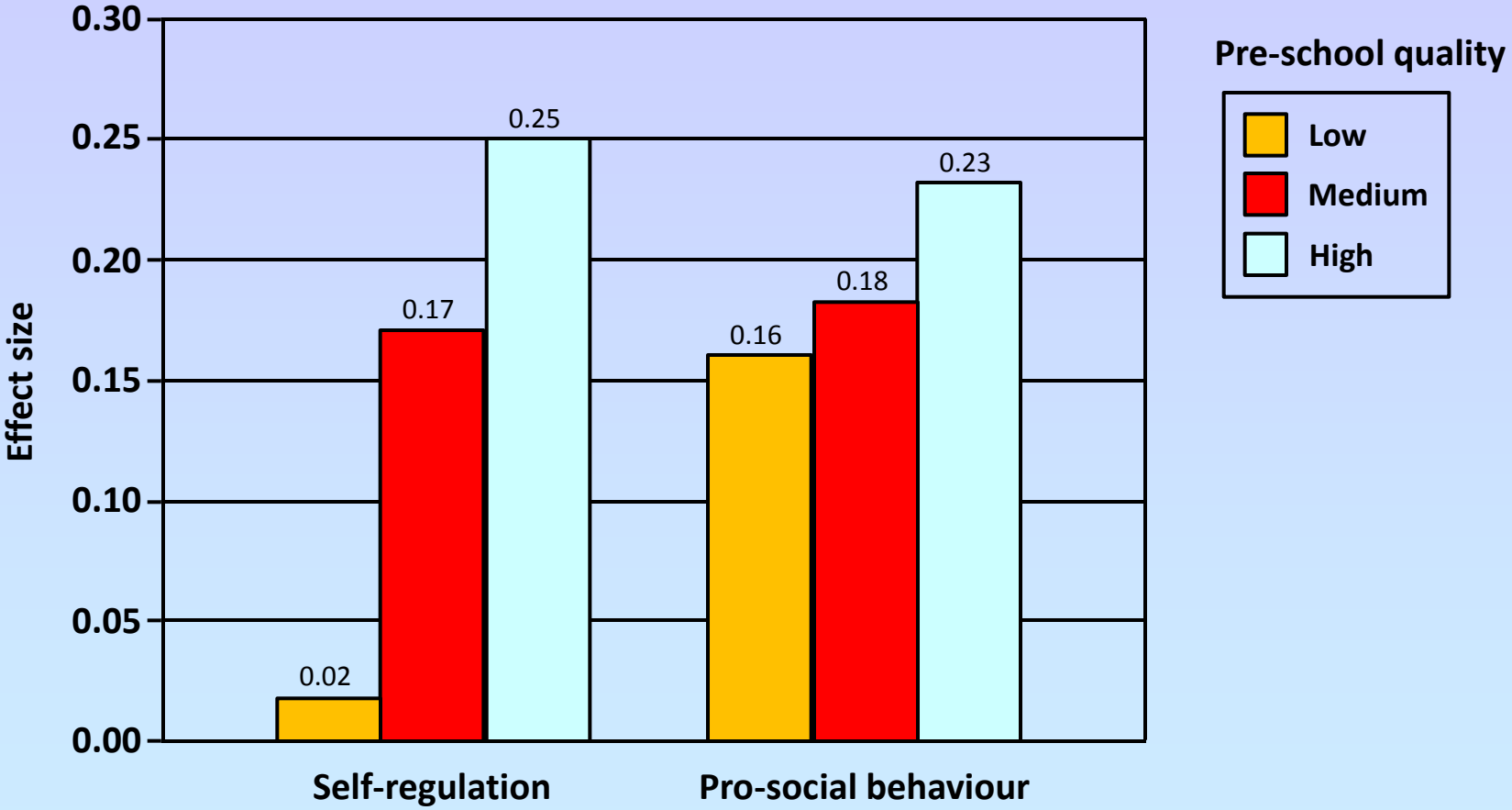


Combined Impact of Pre- and Primary School - Maths

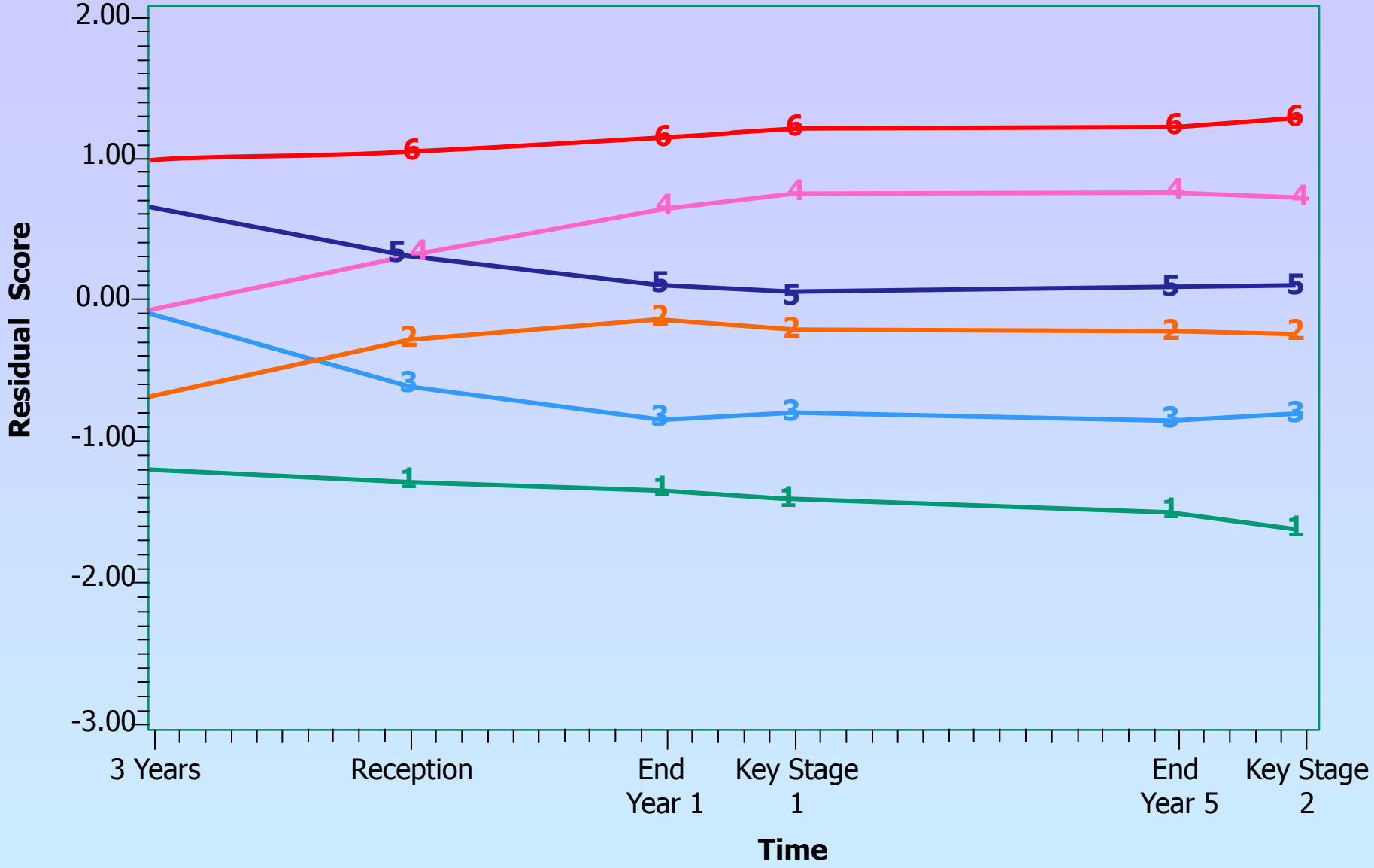


Reference Group: No Pre-School and low Primary School Effectiveness

Pre-school Quality and Self-regulation and Pro-social behaviour (age 11)



Trajectories for Numeracy



Group % 1 1 1 8.2% 2 2 2 19.6% 3 3 3 18.8% 4 4 4 17.3% 5 5 5 23.2% 6 6 6 12.9 %

EFFECTIVE PRE-SCHOOL PROVISION IN NORTHERN IRELAND (EPPNI)

Similar study to EPPE with children in Northern Ireland
850 children followed from to 11 years of age.
Similar results to EPPE in England.

At age 11, allowing for all background factors,
The effects of quality of pre-school persist until age 11 years

High quality pre-school – improved English and maths,
And improved progress in maths during primary school.

Children who attended high quality pre-schools were 2.4 times more likely in English, and 3.4 times more likely in mathematics, to attain the highest grade at age 11 than children without pre-school.

What matters

3 elements that can lead to educational success

Good Home Learning Environment (pre-school)

Good Pre-schools for longer duration

Good Primary schools

Those children with all 3 will out-perform those with 2
who will out-perform those with 1
who will out-perform those with 0
All other things being equal

Conclusions

- From age 2 all children benefit from pre-school.
- The quality of preschool matters.
- Part-time has equal benefit to full-time.
- Quality of preschool effects persist until at least the end of primary school.
- High quality preschool can protect a child from consequences of attending low effective school.

EPPE results have influenced policy:

- Retention of nursery schools
- Free part-time pre-school place for all 3 & 4 year-olds (2004)
- Extension of parental leave (2004)
- 10-year Childcare Strategy (2004)
- Guidance for Children's Centres (2005)
- Childcare Bill (2006)
- Acceptance that money spent on pre-school produces savings later

Magnusson, Meyers Ruhm & Waldfogel (2003)

Results for US nationally- representative sample of 12,800 children

Age 5 Reading by sub-group & pre-school quality:

- Comparison with no pre-school

Year Before	READING				
	ALL	**Poverty**	**Low Mother Educ.**	**Single Parent**	**Non-English**
Pre-school (High Quality)	1.66**	2.23**	3.44**	3.10**	2.72**
Pre-school (Low Quality)	1.34**	1.48*	1.21	2.11**	1.56**

Goodman & Sianesi (2005). Early education and children's outcomes: How long do the impacts last? *Fiscal Studies, 26*, 513-548.

Pre-school in a random sample of children born in 1958 in UK

Effects on cognition and socialisation are long-lasting.

Controlling for child, family and neighbourhood, there were **long-lasting effects from pre-school education**.

pre-school leads to **better cognitive scores at 7 and 16 years**
In adulthood, pre-school was found to increase

the **probability of good educational qualifications** and **employment at age 33**, and
better earnings at age 33.

In France, free school provision was made available to children aged 3 years during the 1960's and 1970's – this produced a huge increase in preschool attendance.

• Analysis showed preschool:

- leads to higher income in later life

- reduces socio-economic inequalities - children from less advantaged backgrounds benefit more from preschool than those from advantaged backgrounds.

Switzerland has also expanded the age of children starting preschool.
The impact of this expansion: - improved the children's intergenerational education mobility - was especially more beneficial for children from disadvantaged backgrounds.

Similarly, Norway expanded preschool education for 3-6 year olds during the 1970's and found children attending preschool had higher educational levels and better job outcomes later in life.

Bauchmüller, Gørtz and Rasmussen (2011)
http://www.cser.dk/fileadmin/www.cser.dk/wp_008_rbmgawr.pdf

Danish register data on whole population
5 quality indicators of preschools:
1) the staff-to-child ratio
2) the share of male staff in the preschool,
3) % of pedagogically trained staff
4) % of non-native staff,
5) the stability of the staff (staff turnover).

Controlling for background factors, better preschool quality linked to better test results in 9th grade.

“the fact that we find long-lasting effects of pre-school even after 10 years of schooling is quite remarkable”

Benefits of preschool have also been evident in Asia and South America.

- In Bangladesh, children attending preschool achieved higher attainment levels at primary school.

- Uruguay has followed suit - studies identified better secondary educational attainment in children who attended preschool.

- Argentina found increases in primary school attainment from children who spent at least 1 year in preschool.

Many studies agree that high preschool quality is critical to success.

Research from the US and UK suggest higher quality preschools provide greater long term benefits.

By the age of 11 years, children attending high quality preschools outperformed those who did not in numeracy and literacy.

Low quality pre-schooling does not have any beneficial effects on children.

These findings are important to preschools as an intervention strategy.

• In the US, some argue that government funded preschool programs are of poor quality.

• Children attending these programs gain little cognitive advances.

• Others argue that public funded low quality programs narrow the gap between advantaged and less advantaged children by less than 5%.

• The gap could be narrowed by 50% if the quality of the programs were improved.

PISA results for 2009

15-year-olds who had attended pre-school were on average a year ahead of those who had not.

Also, PISA results suggest that pre-school participation is strongly associated with reading at age 15 in countries that

1. have sought to improve the quality of pre-school education
2. provide more inclusive access to pre-school education.

PISA 2009 - the relationship between pre-school and performance at age 15 is strongest when

1. larger % of population can use pre-school
2. pre-school is for more months
3. pre-school has smaller pupil-to-teacher ratios
4. more in spent per child in pre-school

OECD report on PISA results

"The bottom line: Widening access to pre-primary education can improve both overall performance and equity by reducing socio-economic disparities among students, if extending coverage does not compromise quality."

OECD (2011). *Pisa in Focus 2011/1: Does participation in pre-primary education translate into better learning outcomes at school?*. Paris: OECD. Available at **www.pisa.oecd.org.dataoecd/37/0/47034256.pdf**

International Perspectives

Countries planning for economic expansion are increasing their investment in pre-school education.

E.g. China, New Zealand, Scandinavia, Canada, some US states (e.g. California, Minnesota, Massachusetts).

See

Melhuish & Petrogiannis (Eds.) (2006)

Early Childhood Care & Education: International Perspectives.

London: Routledge

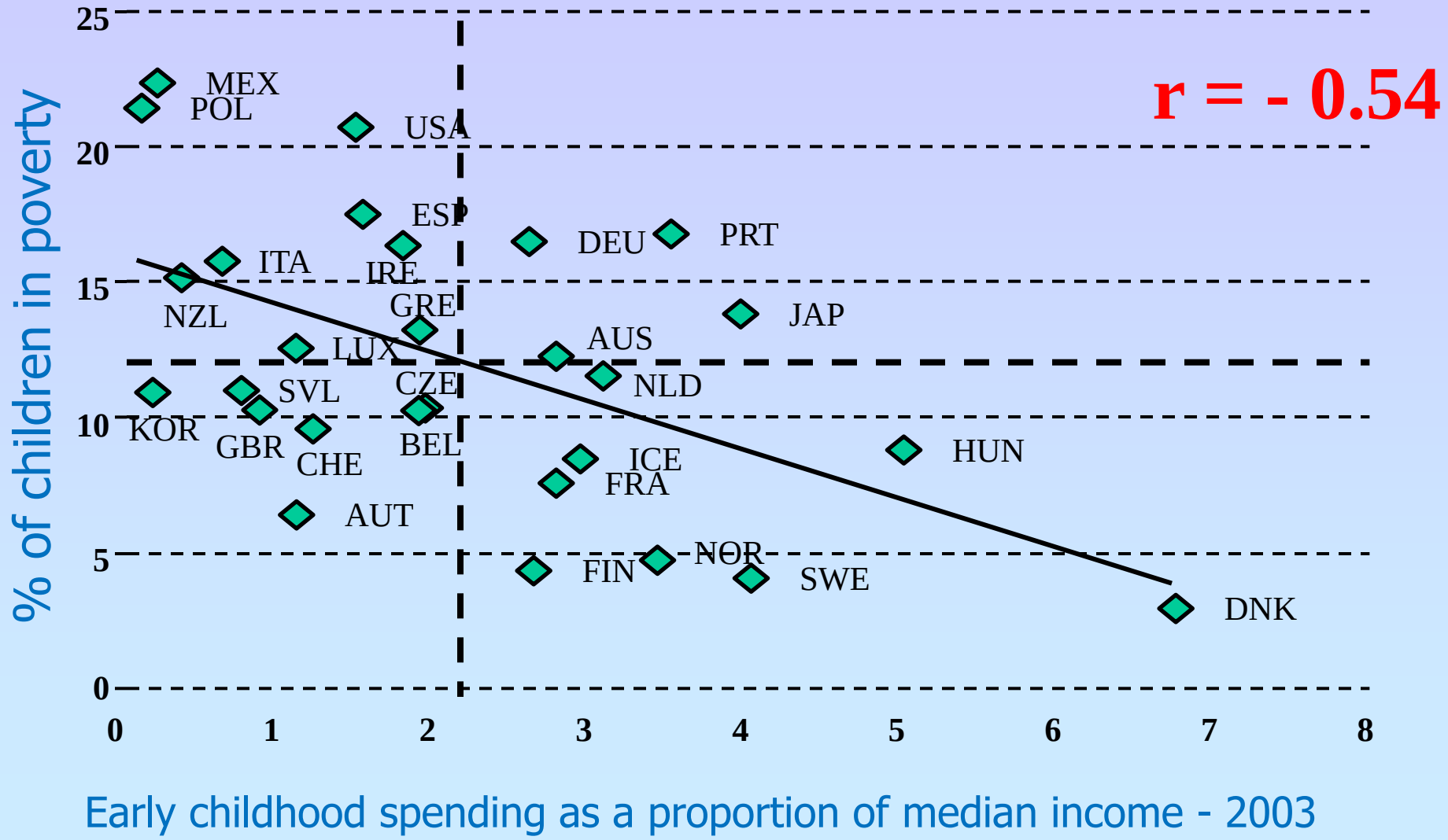
Some governments are realising-

Good quality pre-school is an essential component of the infrastructure for sustained economic development

Head US Federal Reserve- Ben Bernanke, 2011

"No economy can succeed without a high-quality workforce, particularly in an age of globalization and technical change. Cost-effective schooling crucial to building a better workforce, but they are only part of the story. ***Research increasingly has shown the benefits of early childhood education and efforts to promote the lifelong acquisition of skills for both individuals and the economy as a whole. The payoffs of early childhood programs can be especially high****. "*

Early childhood spending is linked with lower poverty rates



Longitudinal studies & Policy

The critical evidence showing the importance of the early years for life-long development all comes from longitudinal studies.

It is absolutely clear that longitudinal studies are an essential resource for sound policy development.

For more information

EPPE eppe.ioe.ac.uk

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Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I. and Taggart, B., (Eds) (2010). *Early Childhood Matters: Evidence from the Effective Pre-school and Primary Education Project*. London: Routledge

NESS www.ness.bbk.ac.uk

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Melhuish, E, Belsky, J., & Barnes, J. (2010). Evaluation and value of Sure Start. *Archives of Disease in Childhood, 95,* 159-161.

Reviews

Melhuish, E. C. (2004). *A literature review of the impact of early years provision upon young children, with emphasis given to children from disadvantaged backgrounds: Report to the Comptroller and Auditor General.* London: National Audit Office. Available at www.nao.org.uk/publications/0304/early_years_progress.aspx

OECD (2009). Doing Better for Children
www.oecd-ilibrary.org/social-issues-migration-health/doing-better-for-children_9789264059344-en

European Commission (2011). Early Childhood Education and Care: Providing for all our children with the best start for the world of tomorrow. Brussels, 12.2.2011. COM (2011) 66final. Available at: ec.europa.eu/education/school-education/doc/childhoodcom_en.pdf

Melhuish E C (2011) Preschool Matters. *Science, 333, 299-300.*