The Economics of Early Childhood Investments & the Role of EOEL

Hawai`i Data eXchange Partnership's 2017 Data Summit
May 12, 2017
Brain Research

“A child’s brain undergoes an amazing period of development from birth to three—producing more than a million neural connections each second.”
Early Childhood: The Window of Opportunity

Brain Development

Adult-child interactions “wire” a baby’s brain and determine the child’s ultimate cognitive, social and emotional capacities.

Neural connection formation, birth through age two, www.developingchild.harvard.edu
Brain Growth: Birth to Adulthood

- Birth: 25%
- 1 year: 70%
- 3 years: 85%
- 5 years: 92%
- 7 years: 95%
- 10 years: 98%
- Adult: 100%
Human Brain Development
Synapse Formation Dependent on Early Experiences
(700 per second in the early years)

Data source: C. Nelson (2000); Graph courtesy of the Center on the Developing Child at Harvard University
The Achievement Gap Starts Early

1,116 words
(Children in professional families)

749 words
(Children in working class families)

525 words
(Children in welfare families)

Vocabulary: Number of Words

Child's Age in Months
High/Scope Study of Perry Preschool

- Early 1960s; 120 children from low-income families in Ypsilanti, Michigan
- Children randomly selected to attend Perry or control group
- High-quality program with well-trained teachers, daily sessions and weekly home visits
- Tracked participants and control group through age 40
Perry: Educational Effects at Age 40

Source: Schweinhart, et al. (2005)
Perry: Economic Effects at Age 40

Source: Schweinhart, et al. (2005)
Perry: Arrests by Age 40

Source: HighScope/Perry Preschool project
James Heckman

• Henry Schultz Distinguished Service Professor of Economics, University of Chicago and Nobel Prize Laureate in Economics
• Analyzed the Perry Preschool program from an ROI lens
• Benefits totaled $7 to $10, with a baseline estimate of $8.60
This is based on the Heckman et al (2010) research and does not include health or maternal employment benefits.

Source: The Economics of Early Childhood Investments (2014)
The earlier the investment, the greater the return

Source: James Heckman, Nobel Laureate in Economics
<table>
<thead>
<tr>
<th>Study</th>
<th>Tulsa Full-Day Preschool</th>
<th>Tulsa Half-Day Preschool</th>
<th>Oklahoma &amp; Georgia Preschool</th>
<th>Head Start</th>
<th>Perry Preschool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of earnings gains per child</td>
<td>$27,897</td>
<td>$16,683</td>
<td>$24,094</td>
<td>$14,459</td>
<td>$92,020</td>
</tr>
<tr>
<td>Value of total benefits per child</td>
<td>$180,257&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of program per child</td>
<td>$9,118</td>
<td>$4,559</td>
<td>$4,086</td>
<td>$9,173</td>
<td>$20,948</td>
</tr>
<tr>
<td>Net benefit per child</td>
<td>$18,779</td>
<td>$12,124</td>
<td>$20,008</td>
<td>$5,286</td>
<td>$159,309&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Benefit to cost ratio (earnings only)</td>
<td>3.06</td>
<td>3.66</td>
<td>5.90</td>
<td>1.58&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.39</td>
</tr>
<tr>
<td>Benefit to cost ratio (all benefits)</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>8.60&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: All figures in 2014 dollars. For the present value of earnings, all studies use a 3 percent discount rate and assume no real productivity growth except for Cascio and Schanzenbach (2013), who use a 3.4 percent discount rate and a 1.9 real productivity growth rate. Figures are middle estimates when studies present a range. In particular, the figures for Cascio and Schanzenbach (2013) are the average of estimates using 4th and 8th grade test scores.

<sup>a</sup> The estimate from Duncan et al. (2010) likely understates the increase in earnings due to Head Start. See text and footnote 41 for details.

<sup>b</sup> Includes benefits from earnings, reduced crime, reduced receipt of cash transfers, and educational savings.

Source: The Economics of Early Childhood Investments (2014)
Heckman and colleagues’ Research on Abecedarian/CARE (2012)

- ABC/CARE was a North Carolina comprehensive program from birth to age five
- A comprehensive, high-quality, birth-to-five approach delivers higher economic returns than a similar preschool program for three- and four-year-olds.
- High-quality, birth-to-five programs for disadvantaged children deliver a **13% per year return on investment**—substantially higher than the 7-10% return previously established for preschool programs.

Source: The Life-cycle Benefits of an Influential Early Childhood Program (2016)
ABC/CARE FINDINGS: A few of the highlights

- Mothers entered the workforce, gained skills, and increased their earnings and financial independence. Increases in parental income alone paid for the cost of the entire program after just five years.
- Children received foundational skills that made them more productive in the future workforce.
- Early health services are essential for preventing later adult chronic disease and promoting better health and healthier lifestyles in childhood and throughout adulthood.
- NO COGNITIVE FADE OUT: Starting at birth and continuing to age five produced permanent gains in IQ and social-emotional skills—unlike any preschool program.

Source: The Life-cycle Benefits of an Influential Early Childhood Program (2016)
Impact on Participant

- Kindergarten readiness
- Improved vocabulary and early math skills
- Interpersonal skills
- Graduate high school
- Attend college
- Earn more over lifetime
Impact on Families

• Strengthens families
• Allows parents to stay in the workforce
• Increases family resources
• Reduce financial hardship
• Reduce parental stress
Impact on Businesses

• Reduces absenteeism among working parents
• Increases productivity
• Skilled workforce
Impact on State Economy

- Less spending on special and remedial education
- Reduced crime
- Reduced spending on criminal justice
- Participants earn more
- Higher tax revenues
- Productive society
Lessons Learned

- Invest in quality
- Reach at-risk population
- Involve parents
- Start early
- Bring to scale
The Business Case for Preschool

- Preschool Participants: 50%
- Non-preschool Participants: 50%

Students Placed in Special Education: 14%
Students Held Back a Grade: 25%
Students Graduating High School: 38%

Source: Long-term Effects of an Early Childhood Intervention on Educational Achievement and Juvenile Arrest (2001)

America's Best Investment: Early Childhood Development

Investing in quality programs for at-risk children produces high returns for all Americans.

- The return on investment in early childhood development is 7-10% compared to 6.77% for the median industrial average.
- The return on investment in early childhood education is higher than the 7-10% return on investment by preschool alone.

Higher Returns Than Preschool Alone

Quality birth-to-five early childhood education delivers the greatest return on investment.

Quality Programs Are Comprehensive

- Childhood education is about more than learning letters and numbers. It’s about getting children ready for future success.
- Quality programs help mothers of young children by teaching them the skills they need to succeed.
- Supporting early childhood education is an investment in our future workforce.

It pays to invest in comprehensive, high-quality, birth-to-five early childhood education. Learn more at www.heckmanequation.org.
EOEL’s Role

- Provide high quality public pre-k
- Reach at-risk population
- Involve parents
- Bring to scale
## Hawaii’s Public Pre-K Program

### Quality Standards Checklist

<table>
<thead>
<tr>
<th>Policy</th>
<th>State Pre-K Requirement</th>
<th>Benchmark</th>
<th>Does Requirement Meet Benchmark?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early learning standards</td>
<td>Comprehensive</td>
<td>Comprehensive</td>
<td>✓</td>
</tr>
<tr>
<td>Teacher degree</td>
<td>BA</td>
<td>BA</td>
<td>✓</td>
</tr>
<tr>
<td>Teacher specialized training</td>
<td>Hawaii Teaching Standards</td>
<td>Specializing in pre-K Board License (K-6)</td>
<td></td>
</tr>
<tr>
<td>Assistant teacher degree</td>
<td>AA</td>
<td>CDA or equivalent</td>
<td>✓</td>
</tr>
<tr>
<td>Teacher in-service</td>
<td>21 hours/year</td>
<td>At least 15 hours/year</td>
<td>✓</td>
</tr>
<tr>
<td>Maximum class size</td>
<td>20</td>
<td>20 or lower</td>
<td></td>
</tr>
<tr>
<td>3-year-olds</td>
<td>NA</td>
<td>1:10 or better</td>
<td>✓</td>
</tr>
<tr>
<td>4-year-olds</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff-child ratio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-year-olds</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-year-olds</td>
<td>1:10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening/referral</td>
<td>Full physical exam; psychosocial/behavioral; and support services</td>
<td>Vision, hearing, health; and developmental; and support services</td>
<td>✓</td>
</tr>
<tr>
<td>and support services</td>
<td></td>
<td>at least 1 support service</td>
<td></td>
</tr>
<tr>
<td>Meals</td>
<td>Lunch</td>
<td>At least 1/day</td>
<td>✓</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Site visits and other monitoring</td>
<td>Site visits</td>
<td>✓</td>
</tr>
</tbody>
</table>
Teacher Specialized Training

• EOEL will require that all teachers in the EOEL Pre-K Program have specialized training in ECE

• Partnership with higher education to create increased access to ECE programs

• Working with HTSB and UH Manoa on alternate pathway to licensing

• Funding from Samuel N. & Mary Castle Foundation (scholarships)
Early Learning Academy

• State funding for 5 school teams (2017-18 school year)
• Requirement prior to opening a new EOEL Pre-K class
• Understand how to implement and support a high quality pre-k program
• Develop a P-3 plan
Targeting “At Risk” Populations in Public Pre-K Settings

• Families who meet income requirement of 300% of FPG, including homeless

• Students with special needs

• English Language Learners

• Children in foster care
Moving Forward

• Conversion of ELAB (HB 498, HD1, SD1, CD1)

• Family Child Interaction Learning (HB 937, HD1, SD1, CD1)

• Requirement for schools to participate in an early learning induction program prior to opening a new pre-k class (HB 498, HD1, SD1, CD1)

• Funding for early learning induction program and expansion of public pre-k (HB 100, HD1, SD1, CD1)

• Workforce Development

• Hawaii’s Early Childhood Strategic Plan
Hawaii’s Early Childhood Strategic Plan
- Families and Children’s Needs
  - Health & Safety
  - Prenatal/Maternal Development
  - Family Support & Engagement
  - Community Messaging
  - Child Development, Care & Education
• Personnel
  • Workforce Development
  • Professional Development
• Programs & Services
  • Safety
  • Quality
  • Data Systems/Data Gathering
  • Standards, Policies & Procedures
  • Sustaining Effective Programs
Programs & Services
- Safety
- Quality
- Data Systems/Data Gathering
- Standards, Policies & Procedures
- Sustaining Effective Programs
• Cross Systems
  • Shared Vision
  • Transitions
  • Access for Vulnerable Populations
• Healthy start for all children;
• Ready families, schools and communities;
• Increased access to high quality EC programs & services; and
• Increased family awareness, access and utilization of services
Official Launch of Hawaiʻi’s Early Childhood Strategic Plan

October 2017
Other References

• Helpful information about the Heckman equation, including handouts: https://heckmanequation.org

• The Economics of Early Childhood Investments (2014) – argument made to fund the Preschool Development Grant: https://obamawhitehouse.archives.gov/sites/default/files/docs/the_economics_of_early_childhood_investments.pdf

• First Five Years Fund – organization provides infographics and other resources on the economic benefits of early education: http://ffyf.org/resources