Highlights of Research Findings from the Abecedarian Studies

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A series of randomized controlled trials (RCT’s) called “the Abecedarian studies” demonstrate the significant benefits of high-quality early childhood education for poor and at-risk children and their families. Children in the studies included those at risk from multiple social conditions such as poverty, young maternal age, or low parental education. Other children in two orphanage studies were at risk because of parental abandonment. Importantly, children in some of the studies came from a wide range of social classes. Many of these children had no additional risk other than being born at low birth weight or with cerebral palsy. Each Abecedarian study used LearningGames® as a core component of the educational program delivered through center and/or home intervention. Abecedarian Study 1 began in 1972, and follow-up data were collected through 2009. These are the RTC’s:

<table>
<thead>
<tr>
<th>Randomized Controlled Trials</th>
<th>Location</th>
<th>Duration of Program</th>
<th>Type of Program</th>
<th>Oldest Age of follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abecedarian Study 1</td>
<td>Chapel Hill, NC</td>
<td>Birth to 5 years</td>
<td>Center + social work home visits</td>
<td>30 years</td>
</tr>
<tr>
<td>Cerebral Palsy Study</td>
<td>Baltimore, MD</td>
<td>Age 1 year to age 2 years</td>
<td>Parent training for home intervention</td>
<td>2 years</td>
</tr>
<tr>
<td>Orphanage Study 1</td>
<td>Iaşi, Romania</td>
<td>Age 1 year to age 2 years</td>
<td>Home (small group in orphanage)</td>
<td>2 years</td>
</tr>
<tr>
<td>Orphanage Study 2</td>
<td>Iaşi, Romania</td>
<td>Age 2 years to age 3 years</td>
<td>Home (small group in orphanage)</td>
<td>3 years</td>
</tr>
</tbody>
</table>
What were some of the outcomes for participants in these scientific investigations? The following paragraphs and figures highlight some key findings, first in the early years of life, then in the middle and adolescent years, and then in the young adult years. Finally, findings are presented for the parents of the children who were enrolled in the Abecedarian program.

**Percentage of Child Sample in Normal IQ Range (>84) by Age**

Almost all of the at-risk children in both the experimental and control groups of Abecedarian Study 1 were in the normal IQ range at the beginning of the study. Most of those who received the Abecedarian intervention continued to stay in the normal IQ range, while more than half of those who did not receive the intervention fell out of the normal range by 48 months of age. This decline is seen in the descending yellow bars in the accompanying figure (Martin, Ramey, & Ramey, 1990).

**Special Education Placements by Age 15**

When the at-risk young children entered public school, those who did not receive the Abecedarian enriched educational child care program in the first 5 years of life were more than twice as likely to be placed in special education for 1 or more years by the time they reached age 15 (Ramey & Ramey, 1999).

**Adolescent Outcomes for Low Birth Weight Babies**

What about the results for low birth weight babies who received the Abecedarian program? When the intervention and control groups (pooled from eight sites in Abecedarian Studies 3-10) were compared at age 18. The intervention group in the 2000–2500 grams birth weight range had these characteristics:

- higher math achievement
- higher receptive vocabulary
- fewer risk-taking behaviors (McCormick et al., 2006).

These long-term, positive findings are particularly encouraging because they were achieved in a program that lasted from birth to 36 months of age rather than from birth to 60 months of age as in Abecedarian Studies 1 and 2. They underscore the importance of the first 3 years of life.
Percentage of Young Adults in a Skilled Job or Higher Education

At age 21, almost 70% of the young adults who had received the Abecedarian intervention in the infancy and preschool years were attending a 4-year college or were employed in a skilled job (such as an electrician or higher), compared to about 40% of those who did not receive the preschool intervention (Campbell, Ramey, et al., 2002).

Post-High School Education for Teen Mothers of Children Studied

Not only did the children benefit, but benefits accrued for the mothers of the children who received the Abecedarian program. In Abecedarian Study 1, over a third of the parents of the infants enrolled were teenagers. About 80% of the teen mothers whose infants received the Abecedarian program continued on to get post-secondary education, compared to about 30% of teen mothers whose infants did not receive the Abecedarian program. As seen in the red line in the accompanying figure, the teen mothers continued to get more education for as long as 8 years after their children entered the program (Ramey et al., 2000).

Behavior of Parents Who Received Training in Key Parts of the Abecedarian Approach (LearningGames and Conversational Reading)

In addition to the Abecedarian studies, a national study was commissioned by the U.S. Department of Education’s Institute of Education Sciences of the use of some of the elements of the Abecedarian curriculum approach in Even Start programs. This RCT was conducted in 120 sites across the USA and analyzed measurements from 2,430 parents and 2,790 3- and 4-year old children. In randomly selected sites, the parents received a parent education program using LearningGames, conversational reading, and enriched caregiving as important program components. Outcome variables for the study included parental responsiveness to child and parental interactive reading skill. Both variables were coded from videotaped parent–child interaction sessions. The study produced these parent findings:

1. An Abecedarian parent education program can increase parental responsiveness to child and parental interactive reading skill (Judkins et al., 2008, p.90).
2. These parent behaviors are increased by a combined classroom plus parent education program (Judkins et al., 2008, Table K-3).
3. Adding the parent education element creates parent effects above and beyond providing the classroom element alone (Judkins et al, 2008, Table K-4).

These findings are presented in statistical form in the following table.

<table>
<thead>
<tr>
<th>Parent Outcomes</th>
<th>Effects of Combined Curricula on Parents (ECE/PE vs. control)</th>
<th>Incremental Effects of Parenting Curriculum on Parents (ECE/PE vs. ECE only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Effect size</td>
<td>95% CI</td>
</tr>
<tr>
<td>Interactive reading skill</td>
<td>0.50</td>
<td>0.29,0.71</td>
</tr>
<tr>
<td>Responsiveness to child</td>
<td>0.18</td>
<td>0.01,0.35</td>
</tr>
</tbody>
</table>

Of interest, one of the measured parent behaviors (responsiveness to child) is positively and significantly correlated to child literacy outcomes and social outcomes (Judkins et al., 2008, Table 7-1, p. 111).

**What Curriculum Approach Produced these Multiple, Long-Term Results?**

The Abecedarian Approach is comprised of (1) *LearningGames*, (2) conversational reading, (3) enriched caregiving, and (4) a comprehensive conceptual framework such as *The Creative Curriculum®*. In the various Abecedarian studies, these components have been combined and typically delivered through center-based child care and parent education.

*LearningGames* is the set of adult-child interaction games originally developed for Abecedarian Study 1, and it has been used consistently in all of the Abecedarian studies, even when the other curriculum components were not used. In the cerebral palsy study, *LearningGames* was the only Abecedarian component used. Beyond these scientific studies, *LearningGames* has been implemented successfully in a variety of service–delivery modalities:

- home visiting
- parent education classes
- family child care homes
- child care centers
- pre-K classes
- family literacy programs.

In home visiting, *LearningGames* can be used as a stand-alone curriculum or in conjunction with other curricula, especially *Partners for a Healthy Baby*.

### Partial List of Abecedarian Research Publications

(In chronological order)


