Revisiting the Essential Elements of Early Childhood Programs in the Age of the Great Pandemic

Arthur J. Reynolds, HCRC Co-Director

Lunchtime Talk, February 9, 2021

http://hcrc.umn.edu
hcrc@umn.edu, ajr@umn.edu
Twitter: @humancapitalrc
1964 to Today
Mission

Dedicated to advancing effective public policies and programs for young people through research, outreach, and training that spans birth to early adulthood and beyond.

*Prospective Studies We Sponsor:*
Chicago Longitudinal Study
Chicago Longitudinal Health Study (NWU)
Midwest Longitudinal Study of the PK-3 Child-Parent Centers
COVID-19 and Social Unrest Survey (CLS)
HCRC Statement from 2020

A macro-ecological orientation is essential for true progress from our current social and economic turmoil.

This means high priority must be for scientific inquiry dedicated to research, intervention, and dissemination at the family, school-community, organizational, institutional, socio-cultural, and economic systems levels in enhancing well-being.
Changes in Research

As with other sectors, science and disciplinary inquiry must change.

Human capital research and social programs and policies must do better as well to ensure that the quality and effectiveness of investments increase, that we reassess and reflect upon past advances and shortcomings, and restructure accordingly.
“Not everyone can be famous, but everybody can be great because greatness is determined by service.”
(Martin Luther King, Jr.)
1964-1968

Civil Rights Act of 1964
Economic Opportunity Act of 1964
   Community Action Program*
   Job Corps
   VISTA
   Work study
Social Security Amendments of 1965
Voting Rights Act of 1965
Elementary & Secondary Education Act of 1965
Civil Rights Act of 1968
Head Start Vision*

A. Comprehensive Services
  Health, Education, Family Support, Social

B. Local flexibility in design, implementation

C. Direct funding to communities bypassing states

D. Two-generations & employed parents
EC Visions for Today

Universal Preschool for 3- and 4-Year-Olds in All States and Implemented with Elements Essential for Sustaining Gains

Establish and Scale Key P-3 Elements in Elementary Schools
Common Elements, Landmark EC Studies

1. Child to Staff Ratios no higher than 17:2

2. Intensive focus on readiness skills within a developmental philosophy

3. Comprehensive family services

4. Teachers with at least BAs or compensation competitive with public schools

5. Frequent monitoring and feedback for improvement

6. Well-supported organizational context
Overarching EC Principles

A supportive and enriching organizational and social context for learning is foundational to optimal benefits and sustained gains.

Gains are more likely to be initiated and sustained as the number of key elements present in programs and classrooms increases.
Ten Essential Elements and Change from MN Governor’s Summit on School Readiness, June 2006

1. Provide universal access for all  Yes
2. Begin by age 4  Yes
3. Sufficient intensity of learning  No
4. Multifaceted experiences across domains  Yes
5. Highly trained professionals and PD  No
6. Accountability system for improvement  Yes
7. Comprehensive family services  No
8. Small class sizes & class ratios (≤17/2)  Yes
9. Optimal duration and length  No
10. Align and support P-3 continuum  No
<table>
<thead>
<tr>
<th></th>
<th>Gates-15</th>
<th>NIEER</th>
<th>CPC-P3</th>
<th>Zigler et al</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max class size</strong></td>
<td>22</td>
<td>20</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td><strong>BA Teacher/compensation</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Learning time per day</strong></td>
<td>6-6.5h</td>
<td>≥3h</td>
<td>≥3h, &gt;1y</td>
<td>≥3h, &gt;1y</td>
</tr>
<tr>
<td><strong>Intensity specified</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes, detail</td>
<td>No</td>
</tr>
<tr>
<td><strong>Specific supports</strong></td>
<td>DLL, needs</td>
<td>Screen, curric</td>
<td>Screen, curric</td>
<td>Curric</td>
</tr>
<tr>
<td><strong>Integration</strong></td>
<td>Integration</td>
<td></td>
<td>P3 aligned</td>
<td></td>
</tr>
<tr>
<td><strong>Family services</strong></td>
<td>No</td>
<td>No</td>
<td>Menu, plan</td>
<td>PI plan</td>
</tr>
<tr>
<td><strong>Leadership dimension</strong></td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Curriculum</strong></td>
<td>Proven</td>
<td>Comp Stand.</td>
<td>Evid-based</td>
<td>Evid-based</td>
</tr>
</tbody>
</table>

*Not listed are: two adults in classroom, compensation, training, on-going PD, age-appropriate standards, and monitoring are not listed unless unique, specific. Public commitment, continuity, and funding noted.*
Macro Context, *Healthy People 2030*

Create social, physical, and economic environments that promote attaining full potential for health & well-being for all.

Engage leadership, key constituents, and the public across multiple sectors to take action and design policies that improve the health and well-being of all.
Social Determinants of Health (HP 2030)

Broad array of influences, systems, and conditions growing up ("upstream") that affect health and disparities.

- Economic stability
- Education access and quality
- Health care access and quality
- Neighborhood and build environment
- Social and community context
  - (poverty, discrimination & racism, ECE, health access, housing, employment)
Studies in many states support UPK & expansion: Oklahoma, North Carolina, New York, DC Michigan, Massachusetts, New Jersey

My commentaries StarT, Mpost, SPP, 2018
WBWF statute (MN)
RAND (1995) study on UPK returns
Longer-term studies in OK, MI
National Early Ed Enrollment, 3-4yrs

Public/private school-based preschool 54%

Nonparental care not yet in K 75%

3- & 4-year-olds in MN Public ECE (FY20)

<table>
<thead>
<tr>
<th>Program</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head Start (state)</td>
<td>1,032 (EHS=1,040)</td>
</tr>
<tr>
<td>Head Start (federal)</td>
<td>8,767 (EHS=3,410; FY19)</td>
</tr>
<tr>
<td>EC Special Education</td>
<td>10,662 (oth=9,036)</td>
</tr>
<tr>
<td>VPK/SR-Plus</td>
<td>7,241</td>
</tr>
<tr>
<td>EC Scholarships</td>
<td>10,406 (oth=3,815)</td>
</tr>
<tr>
<td></td>
<td>=27% of all 3-4yo</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
<tr>
<td>School Readiness</td>
<td>26,636 (46% paid fees)</td>
</tr>
<tr>
<td>ECFE</td>
<td>6,951 (oth=15,041)</td>
</tr>
</tbody>
</table>
A long history of studies document positive influences on intensity of learning, responsiveness, and teacher satisfaction leading to sustained gains.

(e.g., landmark studies, child care staffing study, NICHD child care, Head Start recs, TN-Star, CPC, NIEER)
## WSIPP Meta-Analyses:
Δ achieve. per 1 student (SD)

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>2007 Report</th>
<th>2013/2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-2</td>
<td>.019</td>
<td>K</td>
</tr>
<tr>
<td>3-6</td>
<td>.007</td>
<td>1</td>
</tr>
<tr>
<td>7-8</td>
<td>-.001</td>
<td>2</td>
</tr>
<tr>
<td>9-12</td>
<td>.004</td>
<td>3</td>
</tr>
<tr>
<td>Class Size</td>
<td>n</td>
<td>Literacy</td>
</tr>
<tr>
<td>--------------------</td>
<td>----</td>
<td>----------</td>
</tr>
<tr>
<td>Class Size 18 (n=270)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class Size 19 (n=114)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class Size 20 (n=160)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class Size 21 (n=105)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class Size 22+ (n=158)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percentage point increase in meeting TS-GOLD national norm.
Effect Sizes for PreK Class Sizes, Chicago, Total Readiness

<table>
<thead>
<tr>
<th>Contrast</th>
<th>ES</th>
<th>Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 17 vs 20</td>
<td>.20</td>
<td>2-3</td>
</tr>
<tr>
<td>Up to 17 vs 22</td>
<td>.33</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Note. School readiness skills measured by TS-Gold Total Score adjusted for baseline characteristics, fall score, and full-day prek. N = 2630.
## Small Classes and Classroom Processes

Percent of CPC pre-K classes (in both Chicago and St. Paul) meeting instructional indicators, by class size.

<table>
<thead>
<tr>
<th>Class Size</th>
<th># of Classes</th>
<th>Task-oriented Classroom</th>
<th>Time in Key Domains</th>
<th>Balance of Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 17</td>
<td>84</td>
<td>71.4% 60.7%</td>
<td>51.2% 88.1%</td>
<td>81%</td>
</tr>
<tr>
<td>18</td>
<td>20</td>
<td>60% 45%</td>
<td>40% 95%</td>
<td>90%</td>
</tr>
<tr>
<td>19</td>
<td>9</td>
<td>66.7% 44.4%</td>
<td>44.4% 100%</td>
<td>77.8%</td>
</tr>
<tr>
<td>20</td>
<td>7</td>
<td>57.1% 28.6%</td>
<td>57.1% 100%</td>
<td>71.4%</td>
</tr>
<tr>
<td>≥ 21</td>
<td>6</td>
<td>100% 50%</td>
<td>66.7% 100%</td>
<td>50%</td>
</tr>
</tbody>
</table>

*Class size ranged from 9 to 22*
3 of 5. Multifaceted and Engaged Learning Experiences

Time and quality matter a lot
Active & engagement learning
Balance of instruction
Responsiveness and tailoring
## Comparison of Effect Sizes

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Midwest CPC</th>
<th>CLS CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readiness</td>
<td>.46</td>
<td>.63</td>
</tr>
<tr>
<td>Higher Dosage</td>
<td>.33</td>
<td>.35</td>
</tr>
<tr>
<td>Parent Inv.</td>
<td>.40</td>
<td>.46</td>
</tr>
</tbody>
</table>

Note. School readiness skills measured by TS-Gold /PALS/ISEL in MCPC and ITBS Composite in CLS. Parent involvement is school participation. Dosage is higher vs. lower.
Classroom Learning Activities Checklist (CLAC)

Overall Task Orientation/Engagement of Mod. High to High

<table>
<thead>
<tr>
<th></th>
<th>Year 1 (PK)</th>
<th>Year 2 (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPC</td>
<td>81%</td>
<td>82%</td>
</tr>
<tr>
<td>Control</td>
<td>50%</td>
<td>56%</td>
</tr>
</tbody>
</table>
Select CPC Impacts at Age 35

Note. Combination of administrative records and self reports. Average annual wages from ages 30-35 (2015 dollars). Rates are adjusted by IPW.
Effective Learning Experiences

1) Full day program
   - Program provides full-day preschool (6+ hours/day)

2) Low class size
   - Program classes have no more than 17 students

3) Task-oriented classroom
   - Instruction is sensitive to student needs, and structured in a way that supports child engagement, focus on learning, and active participation.

4) Time in key domains
   - Program provides diverse learning experiences, including ample time in literacy, math, and science.

5) Balance of child- and teacher-driven instruction
   - Program provides a mix of activities allowing for independent child exploration and activities directed by the teacher.
## CPC PreK Elements Linked to Gains

<table>
<thead>
<tr>
<th></th>
<th>Effect Size on School Readiness</th>
<th>% reduction in 3rd grade SES achievement gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-day PreK</td>
<td>Large</td>
<td>28 percent</td>
</tr>
<tr>
<td>Class Size of 17 or less</td>
<td>Large</td>
<td>16 percent</td>
</tr>
<tr>
<td>Task-Oriented Classroom</td>
<td>Large</td>
<td>8 percent</td>
</tr>
<tr>
<td>Parent Resource Room/Plan Variety</td>
<td>Medium</td>
<td>22 percent</td>
</tr>
<tr>
<td>Continuity between PreK/K</td>
<td>Medium</td>
<td>22 percent</td>
</tr>
</tbody>
</table>

Note. Values are percentage change over no element present averaged across districts and adjusted for baseline factors in PreK. Ns = 2,101 to 3,200.
4 of 5. Comprehensive Family Services

No ECE program has shown a high economic return or sustained effects into adulthood without substantial family support services.
Figure 1: Two Contexts in Five Hypothesis Model of Program Impacts

Early Childhood
Ages 0-9

Child, Family, Community Factors
Race/ethnicity
Gender
Family/demographic
Neighborhood
Institutional

Program Participation
Timing
Duration/Time
Quality

Family Support
Parent-child interactions
Home support for learning
Participation in school
Parenting skills

School & Community Support
Quality of school environment
Climate and resources
Civic engage., social contexts

Competence Behaviors
School Achievement and Performance
School Remediation
Delinquency and Crime
Child Maltreatment
Participation in Social Services
Health & Mental Health
Educational Attainment
Economic Well-Being
Family Circumstances

Ages 5-12

Adolescence to Adulthood

MA = Motivational Advantage
CA = Cognitive Advantage
SA = Socio-Emotional Adjustment
FS = Family Support Behavior
SC = School & Community Support
Parent Involvement and Engagement

“It’s all about the relationship. Without it, families will not open up about their real needs. Families need someone they can go to when in crisis, and I am happy that I can be available to point them in the right direction to find the assistance they need.”

*Beth Kelley, School-Community Representative, McLean County Unit 5 School District*

“School-home involvement gives the parents an active part in their child’s academic life, in addition to helping with or supervising regular school homework. This involvement goes beyond that and includes time spent with the child reading for pleasure, conversations while watching TV, playing games, and being out and about in the community.”

*Sonja Griffin, Mentor, Chicago Public Schools*
## Family Engagement, PI log data

<table>
<thead>
<tr>
<th>District</th>
<th>Group</th>
<th>Average number of events</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Comparison</td>
<td>2.7*</td>
</tr>
<tr>
<td>CPC</td>
<td></td>
<td>12.4</td>
</tr>
<tr>
<td>Chicago</td>
<td>Comparison</td>
<td>2.9*</td>
</tr>
<tr>
<td>CPC</td>
<td></td>
<td>14.4</td>
</tr>
<tr>
<td>Evanston</td>
<td>Comparison</td>
<td>1.3*</td>
</tr>
<tr>
<td>CPC</td>
<td></td>
<td>2.9</td>
</tr>
<tr>
<td>Normal, IL</td>
<td>Comparison</td>
<td>N/A</td>
</tr>
<tr>
<td>CPC</td>
<td></td>
<td>6.3</td>
</tr>
<tr>
<td>Saint Paul</td>
<td>Comparison</td>
<td>2.7*</td>
</tr>
<tr>
<td>CPC</td>
<td></td>
<td>8.4</td>
</tr>
</tbody>
</table>

*denotes significant differences ($p < .01$).
Reform Models with Family & Macro Ecological Focus

Comer’s School Development Program

School of the 21st Century

Community Schools Model
Partnership Model for Scaling

5. Alignment & Continuity

Continuity and support in curricula, school, and family experiences help sustain gains over time.
Continuity System, P-3

Early Ed

P
K
1-3

Collaborative Leadership
Aligned Curriculum
Continuity and Stability

Effective Learning Experiences
Professional Development
Parent Involvement & Engagement

Achievement
Well-Being
Reading Advantage of CPC

Test Scores vs. Ages

- CPC P+K
- CPC Pk-3
- Nat. Norm
## Correlations between Leadership Fidelity and Other CPC Elements

<table>
<thead>
<tr>
<th>CPC Element</th>
<th>Corr.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective Learning</td>
<td>0.22</td>
</tr>
<tr>
<td>Aligned Curriculum</td>
<td>0.45</td>
</tr>
<tr>
<td>Continuity and Stability</td>
<td>0.45</td>
</tr>
<tr>
<td>Professional Development</td>
<td>0.12</td>
</tr>
<tr>
<td>Parent Involvement</td>
<td>0.71</td>
</tr>
</tbody>
</table>

Note. Fidelity Ratings were aggregated across Years 1 to 5.
HCRC Website:

Reports on many elements and comparisons between Gates and CPC frameworks

Policy briefs on topics such as small classes, sustaining gains

Quality monitoring indicators for Use

Also see cpcp3.org and innovation.umn.edu/cls
New HCRC Action Steps:

Evidence Matters Blog (http://hcrc.umn.edu)  
(early ed workforce, 10 elements)

HCRC Summer Graduate Research Fellows (2@50%)

Pilot Matching Grant Program (50/50) to support implementation of structural Essential Elements with centers/schools for FY22
HCRC Fund Accounts

Lorraine M. Sullivan Memorial Fund of the Child-Parent Education Centers

Human Capital Research and Innovation Fund

Accept Digital Currencies (USDC, Bitcoin, Ethereum)
Themes

1. Think big for early childhood goals!
2. Think macro-ecologically (individual to socio-cultural and beyond).
3. Human capital = human development = policy.
4. Interdisciplinarity reins.
5. Critical analysis of needs, problems, and evidence are essential.
6. We all must do better on dissemination, translation, and scaling.
First book on sustaining gains

15 chapters

Cambridge, 2019
HCRC Tools:

Classroom Activities Report (CAR)
https://carforms.educationaltechnologyinnovations.com/
Time and Format

Full-day programs have strong acceptance.

Our work in Midwest CPC expansion led to scaling of full-day PK in Chicago, Saint Paul, other districts.
## Gates PreK elements linked to gains

<table>
<thead>
<tr>
<th></th>
<th>Effect Size on School Readiness</th>
<th>% reduction in 3rd grade SES achievement gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Learning Time</td>
<td>Large</td>
<td>32%</td>
</tr>
<tr>
<td>Integrated Systems Approach</td>
<td>Large</td>
<td>22%</td>
</tr>
</tbody>
</table>

Note. Values are percentage change over no element present averaged across districts and adjusted for baseline factors in PreK. Ns = 2,101 to 3,200. A large effect size is an increase in proficiency of at least 30% (medium is 20% to 30%). Full-day is Chicago only. Achiev gap = 32 points. Gates data-driven decisions linked to positive achievement gains in Saint Paul but not Chicago. PD modules/coaching linked to gains in Chicago.
Greater Assistant Time in K Classrooms, More Child-Initiated Learning

<table>
<thead>
<tr>
<th></th>
<th>Class. assistant time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75%+</td>
</tr>
<tr>
<td></td>
<td>50-74%</td>
</tr>
</tbody>
</table>

**Literacy instruction**

<table>
<thead>
<tr>
<th></th>
<th>Teacher-Directed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63%</td>
</tr>
<tr>
<td></td>
<td>74%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Child-Initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>26%</td>
</tr>
</tbody>
</table>

The increased percentage of time equals 60 more hours in child-initiated learning.
<table>
<thead>
<tr>
<th>Format</th>
<th>Hours/ Day</th>
<th>Hours/ Year</th>
<th>Time in child-initiated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-day</td>
<td>7 (6:15)</td>
<td>936</td>
<td>49%</td>
</tr>
<tr>
<td>Part-day</td>
<td>3 (2:40)</td>
<td>418</td>
<td>43%</td>
</tr>
</tbody>
</table>

Note. Based on 11 schools offering Full-day. Teacher report of hours per year. (Allocated instruction time).
Impacts of MCPC Effective Learning Elements in meeting TSGOLD norms

![Graph showing percentage point increase in meeting TS GOLD national norm for different categories of individuals.]

- 2 Ind. (n=348)
- 3 Ind. (n=677)
- 4 Ind. (n=652)
- 5 Ind. (n=47)