



MINNESOTA HEAD START ASSOCIATION, INC.

Demonstrating Results:
 Minnesota Head Start’s Experience
 Developing a Child Outcomes Database

2012

Background

Young children are vital to our economic prosperity. Given the basic architecture of the brain is constructed at birth and shaped through experiences and relationships, offering high-quality, relationship-based, early care and learning programs can have a powerful impact on a child’s later successes. When children and families are given the benefits of early learning, risk factors can be identified and addressed early, stronger communities forged, and positive early life experiences created so students enter kindergarten eager and ready to learn. These early life investments reap tremendous dividends by creating solid foundations that lead to lifelong success and robust communities.

Head Start is a research-based program that uniquely combines state-of-the-art early childhood learning research with decades of family development experience to deliver school readiness – one family at a time. Head Start’s success is based on the creation of compassionate partnerships between Head Start staff and parents on behalf of their young children. The Minnesota children and families Head Start serves are unique:

Children and Families Served by Minnesota Head Start						
66,068	15,056	23%	44%	29%	15%	10%
# of MN children under 5 living in poverty	# of children MN Head Start is funded to serve	% of eligible children Head Start is funded to serve	% of children who are racially diverse	% of children whose primary language is not English	% of children with diagnosed disability	% of children who are homeless

Source: 2010/11 Federal Head Start Program Information Report for Minnesota and the 2010 Small Area Income and Poverty Estimates, U.S. Census.

The Head Start vision embraces accountability and excellence. As such, measuring children’s healthy development sets important benchmarks to understanding and describing child progress, as well as demonstrating the effectiveness of our investments in early childhood services. While there is considerable national debate about what constitutes effectiveness in early education, and how to measure it, quality early childhood programs like Head Start regularly collect information on child development and use this information to inform parents and improve program services.

This report describes how the Minnesota Head Start community set out to describe the developmental progress of four-year-olds enrolled in Head Start across Minnesota using their research-based child assessment data. The exercise of aggregating data from diverse, locally-controlled Head Start programs offers many important lessons about building a state early childhood data system and establishing data variables that offer meaningful insights into the complex interactions that impact children's early developmental progress. It also contributes to the discussion about how children enrolled in Head Start make progress in essential developmental domains.

Approach

Since 2006, the Minnesota Head Start Association, Inc.¹ has convened a group of education coordinators, known as the MHSA Quality Assessment Group, to improve the quality of the child assessment data collected in Head Start classrooms. Established largely in response to the National Head Start Reporting System, local programs set out to demonstrate that research-based child assessment tools offered important information to describe children's developmental progress, and when used properly, should be the tool for translating this information to parents and policymakers about school readiness. By 2010, more than 70% of Minnesota Head Start programs voluntarily participated in the Quality Assessment Group and attended quarterly data review and planning sessions.

Among Minnesota Head Start programs, three research-based child assessment tools are most popular; Teaching Strategies Gold (formerly Creative Curriculum.net), Work Sampling Online and High Scope COR. The Association set up a group license with Work Sampling Online and Teaching Strategies Gold to help local programs purchase online child assessment tools at a reduced rate. At the time High Scope COR was not available as an online tool. These group licenses also afforded data aggregation at the individual program level as well as across all programs using a similar assessment

tool. This allowed education coordinators to talk about data with others using similar tools, discuss data fidelity issues and compare child progress across programs. After four years of working with education coordinators on how to identify data quality concerns and use data to discuss individual child progress with teachers and administrators, the group was interested in taking a more comprehensive look at the aggregated child progress.

In April of 2011, the Association established the School Readiness Goals Project (SRG Project) made up of 23 Head Start programs (or 66% of all state programs). The goal of the pilot project was to establish a state child outcomes database to examine child progress while in Head Start in relation to characteristics of children, families and classrooms. Minnesota grantees also wanted to use aggregated assessment data to inform the development of local school readiness goals, a new federal requirement.² Participating Head Start programs agreed to share the cost of contracting with reputable early childhood assessment researchers to create a state database and conduct data analysis. The Minnesota Department of Education also agreed to share a portion of the costs for the Minnesota Head Start Association to facilitate meetings of the SRG Project group and oversee the data analysis plan and reporting.

Minnesota grantees participating in the SRG Project moved quickly to establish a data sharing agreement with the University of Minnesota Human Capital Research Collaborative (HCRC).³ The HCRC agreed to compile Head Start data into a database and conduct analysis to inform programs how enrolled children made progress in all domains of learning, as well as how programs could improve outcomes and establish measurable goals around children's developmental progress. Child assessment data, child and family demographic data and data from children's classrooms on four-year-olds who participated in Head Start in the 2010/2011 school year was transferred to HCRC in June and early July 2011. Table 1 provides a list of the data variables that the SRG Project group agreed to include in the database.

Table 1: Data Variables for 2010/2011 School Readiness Goals Project

■ Highlighted data variables had the most missing data

Child Characteristics
Head Start Grantee Agency Name
Last Name of Child
First Name of Child
Years in Head Start
Gender
Race
Birth Date
Primary Language Spoken at Home
IEP Status
EHS Participation
Number of Days Absent
Number of Days Attended
Number of Home Visits
Center Type
Center Name
Classroom Name
Birthdate of Primary Adult
Education of Primary Adult
Eligibility Basis
Family Type
Primary Adult Relationship to Child:
WIC Participation
TANF Services
Number of Parent In-Kind Hours
Number of Parent Conferences in Attendance

Child Assessment Data
Fall Checkpoint Data for All Domains
Winter Checkpoint Data for All Domains
Spring Checkpoint Data for All Domains

Classroom Characteristics
Head Start Grantee Agency Name
Classroom Name
Participating in MN Reading Corp (yes/no)
Number of Hours per Week for Children
Number of Hours per Day
Number of Days per Year for Children
Average Monthly Attendance
Number of Paid Staff in the Classroom (not including one-on-one aides or volunteers)
4-year-olds Only or Mixed Ages
Number of Children in the Classroom
Collaborative Classroom (yes/no)
Number of Planned Home Visits per Family
Number of Meals per Child per Day
Agency Receives Coaching/Mentoring Grant (yes/no)

Throughout the late summer and fall of 2011, the HCRC provided data analysis summaries for individual programs as well as across all programs using a similar assessment tool. They also attempted to align the indicators for all three commonly used

assessment tools in order to assess the feasibility of looking at child progress across the different tools. A final report was provided by HCRC to the SRG Project group on December 28, 2011 and salient findings from these analyses are provided in this report.

Findings

The findings of the first year of the SRG Project fall into three categories: 1) data quality, 2) child progress and achievement and 3) factors related to child outcomes.

Data Quality

Of the 23 Head Start programs participating in the SRG Project, 18 programs were able to provide child assessment and student data for the state database. The remaining five programs were unable to provide data because they did not use electronic data systems for assessment or demographic data and were unable to manually collect the data in a spreadsheet form. Exporting data from assessment and client information systems was a learning experience for most programs. In many cases the individuals with the technical skills to run reports from the data systems were different than those who entered the data and were most likely to use the information. Pulling data out of the client information systems in many cases required technical support from specific software companies (i.e. ChildPlus). Programs using online assessment under the Association's group license had the greatest advantage in data transfer because the license allowed the state administrator to download all of the state assessment data into a single data set.

The SRG Project launched in the spring. This meant utilizing data from the current year and acknowledging that some of the fields were not populated by all programs. Missing data was an issue for some assessment information and many of the child and family demographic variables. Missing assessment data was most frequent for programs that had recently changed assessment systems and whose teachers were learning a new assessment tool. Consequently, missing assessment data was a greater challenge for programs using the newly designed TS Gold (18.7%) and High Scope COR (12.2%), and for programs assessing dual language learners. Demographic information was most complete for programs with at least one year of experience using a client information system like ChildPlus. The demographic variables most frequently missing in the data base are highlighted on Table 1.

The final sample for data analysis consisted of four-year-olds who had assessment scores at all three checkpoints throughout the 2010/11 school year (n = 2463 children). Table 2 provides a summary of the number of children for each assessment represented in this sample. It is important to note that this is a convenience sample. Minnesota Head Start programs provided this data voluntarily, and this sample does not necessarily represent a statistical sub-sample of the entire Minnesota Head Start population.

Table 2: Number of Children in the Sample by Assessment Tool

	TS Gold	Work Sampling	High Scope COR
Total Sample	2431	918	517
Analyzed Sample	1385	918	160

Child Progress and Achievement

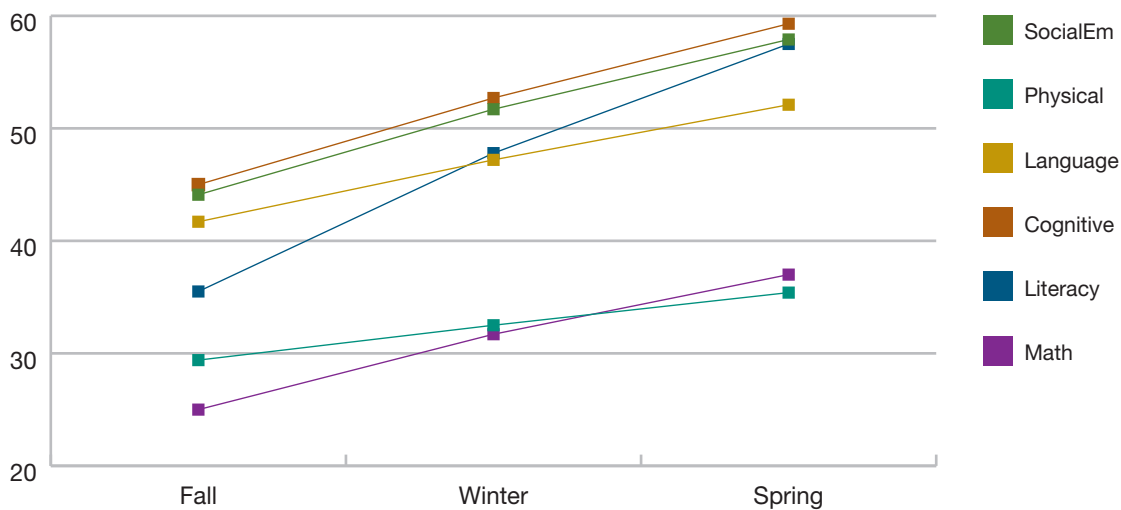
Children in the Head Start sample made significant progress from the fall to the spring of the school year. These results are demonstrated by: 1) the gains in average summated scores across seasons for all domains of learning, 2) the percentage of children making medium to large gains from fall to spring across domains and 3) measures of student achievement. In addition, this pattern of results also was indicated in each program included in the sample.

Graph 1 provides an example of gains in average summated scores in each domain of learning from fall to spring for the children assessed using TS Gold (similar growth patterns were seen for children assessed on each tool). Average gains in children's literacy scores were particularly strong and this was a consistent growth pattern for children on each assessment and for all programs in the sample. Many Minnesota Head Start programs have had a long-term relationship with literacy-based initiatives (i.e. Word Works⁴ and Minnesota Reading Corp⁵) and programs have worked to integrate these practices into all of their programming. Classrooms

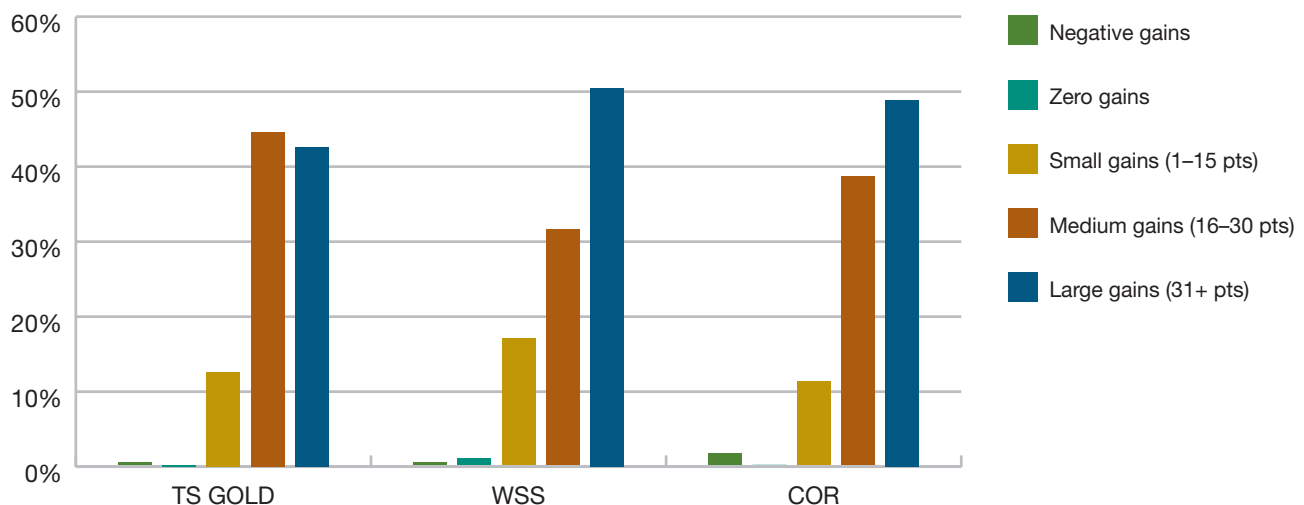
specifically identified as Minnesota Reading Corp classrooms in the sample showed even stronger literacy gains than other classrooms. Average math gains were smaller than gains in other domains and math was identified by education coordinators as an area for additional teacher training. The need for adequate supports and resources for early childhood teachers in the area of mathematics education is best articulated in a joint position statement of the National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM).⁶

Graph 2 shows the percentage of children with overall point gains from fall to spring for each assessment tool. On each assessment over 40% of children made large gains (31+ points) and well over 80% of the sample made either medium or large gains from fall to spring. Further, the average fall score was the lowest for those individuals making the largest gains from fall to spring, and the average fall score was the highest for those individuals with zero gains from fall to spring. In other words, the children entering the programs furthest behind made the largest gains.

Graph 1: Average Summated Scores by Season and Domain, TS Gold



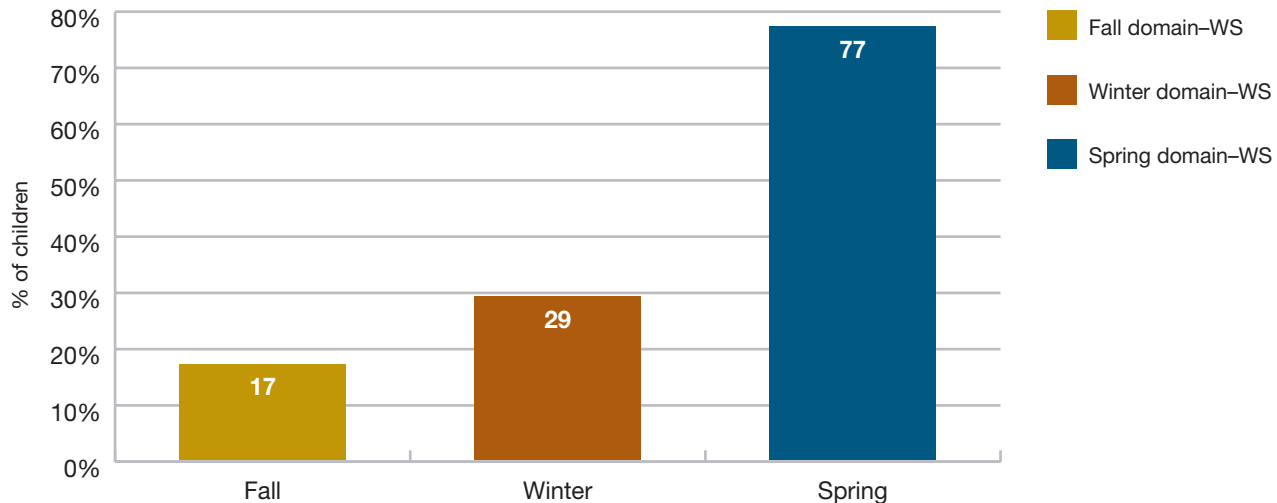
Graph 2: Percentage of Sample with Overall Point Gains from Fall to Spring, All Assessment Tools



Minnesota’s version of the Preschool/Age Four tool from the Work Sampling System®: “percent proficient at 75%” was used as one measurement of student achievement. This is based on an HCRC finding that children achieving 75% of the total points on that instrument at the beginning of kindergarten were able to pass Minnesota’s achievement tests in math

and literacy when they reached third grade. Graph 3 shows the percentage of children in 2010–11 who met an overall proficiency rate of 75% based on the total number of points on the Work Sampling System. In the Spring, 77% of the children assessed in programs using the Work Sampling System met the 75% standard, and meet this criteria for school readiness.

Graph 3: Percentage of Children Meeting 75% Standard by Season, WS Online



Factors Related to Child Progress

Using the demographic and classroom data compiled in the state database, relationships were tested between children’s achievement gains and child/family characteristics (see Table 1). Of all the characteristics tested, gender (female), age (four + at entry), teacher experience (two or more years) and classroom composition (four-year-olds only) were among the strongest predictors of growth. Children in classrooms participating in the Minnesota Reading Corp had stronger growth in the literacy domain. A child’s fall math and literacy assessment is a strong predictor of achievement gains in all domains by spring. As a result, literacy and math measures may be a useful early identifier of the most at-risk children. These findings were particularly useful for programs as they set out to use this data for program improvement.

Lessons Learned and Next Steps

Valuable lessons were learned from this first year of building a state Head Start database that can inform programs about child progress and the factors that influence child progress. This exercise can also inform the early childhood field on how to engage the broader early learning community in data aggregation and data-driven decision making. Some of these lessons are highlighted here:

- **Federal emphasis on school readiness goals has empowered Head Start** to use their assessment data to demonstrate and enhance child progress, and explore new ways to learn from existing systems and leverage state and national expertise.

- **Administrative buy-in and leadership around data-driven decision making is essential** for making necessary investments in technology and data expertise as well as encouraging program staff to use data to plan for program improvements.
- **Coordinated client information and online assessment systems make data aggregation easier**, and small early learning programs are at a disadvantage to purchase the latest technology and hire staff with data expertise.
- **Improving data quality requires continuous focus on teacher training and data monitoring**, and conversations with all program staff (education, health and enrollment) are essential to ensuring a robust data set.
- **Dual language learners continue to challenge teachers' assessment approaches and current tools**. The field needs better tools and data systems to describe the developmental progress for dual language learners.
- **Fall literacy and math scores are strong predictors of children needing individualization**, and low fall scores in this area should be a red flag to teachers that these children will need special attention, individualization and support.
- **Classroom composition was influential to this convenience sample** and programs are evaluating whether four-year-old only classrooms can benefit children as they prepare to enter kindergarten.
- **Head Start data provides a vehicle to initiate discussions with school officials about child development** and allows us to work collaboratively to offer each student the tools and approaches they need for continued success.

The Minnesota Head Start Association and its member agencies agreed at the onset of the 2011–2012 school year to work together on a Year Two of the SRG Project. Programs agreed to coordinate their ongoing data collection to ensure fewer missing variables and many programs invested in student information systems to streamline their data collection activities. Head Start programs in Minnesota found great value in the information they learned from their first year of aggregating and analyzing data within and across programs. Their commitment to continuous improvement and strong outcomes for children is evident in their questions and willingness to spend time and energy gathering and sharing data. The Minnesota SRG Project group hopes to have Year Two findings by the fall of 2012.

Acknowledgement

The Minnesota Head Start Association wishes to thank a number of organizations and individuals for their contributions to the first year of the SRG Project. The University of Minnesota Human Capital Research Collaborative under the direction of Dr. Arthur Reynolds and his team including Matthew Hendricks, Michelle M. Englund, Erin Lease, Nicole Smerillo and Mallory Warner-Richter provided data management and analysis expertise. The Minnesota Department of Education (MDE) provided financial support and Avisia Whiteman in MDE Early Learning Services offered valuable assistance and technical support. We also thank the technical support teams at ChildPlus, Teaching Strategies Gold and Work Sampling Online for their help downloading data and generating reports.

Endnotes

1. The Minnesota Head Start Association (MHSA), Inc. is a non-profit organization established to advocate for the concerns of low income families with young children and to improve the delivery of Head Start programs and services in Minnesota. Its membership constitutes the 35 federally designated Head Start grantees in Minnesota including programs serving migrant farmworkers and tribal nations.
2. Establishing local school readiness goals became a Head Start requirement under the 2007 Federal Head Start Act. In 2011, the Federal government also announced plans to use local programs' school readiness goals and their ability to measure progress against these goals as a benchmark of program quality and a condition for maintaining a Head Start grant under the federal Head Start Designation Renewal System or Recompetition.
3. "The Human Capital Research Collaborative (HCRC) is a unique partnership that brings together prominent researchers and faculty members in a variety of disciplines at the University of Minnesota with economists at the Federal Reserve to develop and synthesize research on cost-effective investments in early childhood. The Collaborative's mission is to foster multidisciplinary research on early development from birth to age 8 on topics such as the impact and cost-effectiveness of preschool and family support programs; family, school, and community influences on child development; and psychological and biological foundations of child health and well-being." <http://www.cehd.umn.edu/ceed/projects/HCRC/>
4. "Developed by the F. R. Bigelow Foundation and The Saint Paul Foundation, Words Work! is an early literacy program proven to cultivate the early reading and writing skills in low-income and other at-risk preschoolers. Words Work! takes a proactive approach to closing the achievement gap." http://www.saintpaulfoundation.org/who_we_are/our_impact/community_initiatives/words_work/
5. "Minnesota Reading Corps is a statewide initiative to help every Minnesota child become a successful reader by the end of 3rd grade. The program places AmeriCorps members as literacy tutors in sites across Minnesota to implement a researched-based early literacy effort to help struggling readers. The Minnesota Reading Corps strategies are designed for both preschool-aged children and K-3rd grade students." <http://www.minnesotareadingcorps.org/about>
6. Early Childhood Mathematics: Promoting Good Beginnings. National Association for the Education of Young Children. 2002 (updated 2010). <http://www.naeyc.org/files/naeyc/file/positions/psmath.pdf>

This paper was produced in partnership by the Minnesota Head Start Association, Inc. and the Region V Head Start Association, Inc. with consultation from Matthew Hendricks, Ph.D.

Matthew Hendricks, PhD. is an assistant professor of economics at the University of Tulsa, where he teaches courses in microeconomics, labor economics, and econometrics. His research interests are rooted in education policy analysis and labor economics.

Minnesota Head Start Association, Inc.

904 Valley Drive, Duluth, MN 55804
218-728-1091 / Fax 218-728-0083
www.mnheadstart.org