

Memorandum

To: Terry Branstad, Iowa State Governor

From: Linnea Powell

Date: May 5, 2017

Subject: Assessing the Impact of Iowa's Statewide Voluntary Preschool Program

The Current State of Early Childhood Education

Early childhood education programs include large federal programs such as Head Start, as well as programs offered through the private sector. Many states have started or expanded state funded pre-K - programs over the last 10 years. As of 2015, 41% of all 4-year-olds were served in some type of public program, including 29% of 4-year-olds served in state-funded pre-K programs, and state-funded preschool programs now exist in 42 states. (The National Institute for Early Education Research, 2016)

These programs often enjoy relatively bipartisan support and championed for a range of beliefs about the impact of preschool. Some supporters say these programs are sure to pay off in the long run in the form of economic benefits to society and the state by producing students with a reduced likelihood of committing crimes or being incarcerated, higher employment, and increased lifetime earnings. Others point out that these programs intend to address educational inequities between low-income students and higher-income students by evening the playing field early on, just as Head Start aimed to do when it was created by the federal government for low-income children in 1965. Still other champions of state preschool programs suggest that preschool increases school readiness for students generally. While all of these are worthy goals, many assumptions about the benefits of pre-K education are based on successful studies done in the 1960s and 1970s that are hard to scale up because of their high costs and intensive interventions, such as the Perry Preschool Project. As these programs continue to expand, policy makers should focus on the efficiency of public funding and the long-term impact these programs have on kids.

Iowa's Statewide Voluntary Preschool Program

In 2007, Iowa established the Statewide Voluntary Preschool Program for Four-Year-Old Children (SWVPP) to expand eligibility for state-run preschool to all children and increase school readiness and success in kindergarten. According to the legislation at the time of adoption in the Iowa legislature, "The purpose of the preschool program is to provide an opportunity for all young children in the state to enter school ready to learn by expanding voluntary access to quality preschool curricula for all children who are four years old." School districts serve as the program providers and submit program proposals in order to receive state funding. In 2016, the program was provided by 322 districts of the 336 districts in the state, or 95% of Iowa school districts. (Iowa Department of Education, 2016)

The legislation lists some requirements of each provider, such as providing a minimum of 10 hours per week of quality preschool experience, adhering to an adult-child ratio of 1 to 10, complying with teacher licensure and education requirements, and including a community involvement component. (Iowa Department of Education, 2016) It also allows the district providers some leeway in setting up their programs, such as selecting one of three quality standards from three approved options: the Iowa Quality Preschool Program Standards, the National Association for the Education of Young Children Program Standards and Accreditation Criteria, and the Head Start Program Performance Standards. (Iowa Department of Education, 2016) Districts are allowed to go beyond the minimum number of hours by using other resources to fund the additional time, and may have adult-child ratios or class sizes that exceed the minimum requirements set by legislation. In practice, these programs likely look different from district to district.

Funding the Statewide Voluntary Preschool Program

Funding for pre-K programs typically comes from multiple state and federal funding sources. In Iowa's SWVPP, new districts enter the program through a competitive grant application process and receive funding from the state based on the number of four year olds enrolled. The initial grant provides one time funding to cover the cost of the first year of operation for the program and then later years are funded through a state funding formula based on the student enrollment. The state's funding formula provides 50% of the necessary funding per pupil using the following formula (Iowa Department of Education, 2016):

$$(\text{District's Preschool Enrollment}) \times .5 (\text{Program State Cost per Pupil})$$

In the first three years of the program, the state selected districts based on a competitive grant application process that awarded funding to about one third of districts that applied. When the number of proposals exceeded funding, the legislation creating the program advised the state to prioritize districts without existing preschool programs, districts with a high percentage of kids in poverty, districts of a size that is not commonly equipped with preschool programs, or districts seeking to expand an established, high-quality program. This would seem to prioritize nearly every district, making it unclear what commonalities districts that won funding the first year shared. By year four, the state awarded funding to all districts that applied.

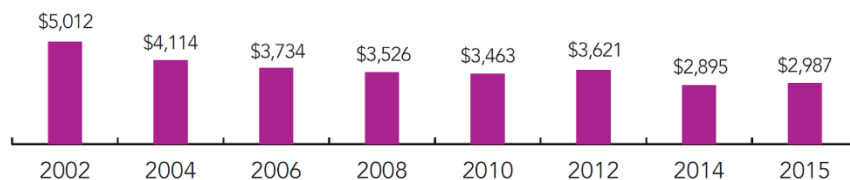
Assessing Indicators of Quality Preschool

In order to assess the impact of the SWVPP on Iowa children, I examine the quality of preschool through three lenses that offer insight into the impact of the program and the choices Iowa has made relative to other states.

Funding per Child

The amount of funding per child continues to hover around \$3,000 per child and has decreased over time in terms of 2015 dollars. As a point of reference, the Perry Preschool Program that saw significant impacts for both students and society had a cost of \$12,356 per child. (Belfield, Nores, Barnett, & Schweinhart, 2006) The higher program cost in the Perry Preschool Project allowed for program components like a lower student to teacher ratio of 5:1, 12.5 hours of instruction per week, and home visits for 1.5 hours per day. Iowa lists this program as an example of why quality preschool programs help children and communities, but offers less than a fourth of the funding seen in that program. (Iowa Department of Education, 2011) Compared to the national average of \$4,521 per child provided by the state, Iowa spends \$1,500 less per child. (The National Institute for Early Education Research, 2016)

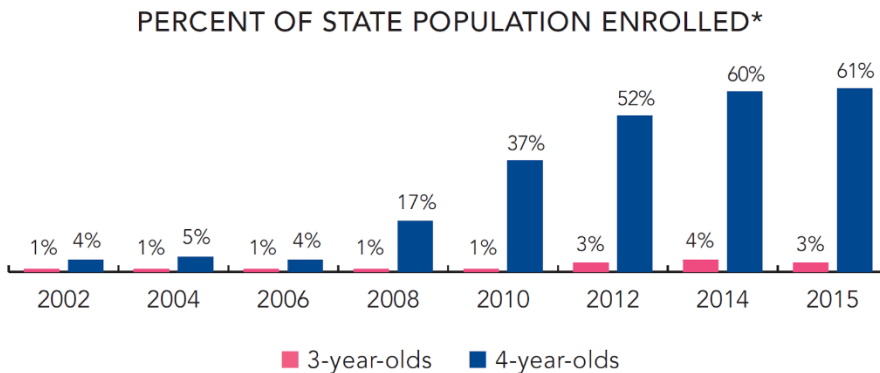
STATE SPENDING PER CHILD ENROLLED*
(2015 DOLLARS)



Source: The National Institute for Early Education Research's 2015 State Preschool Yearbook

Enrollment

The creation of the SWVPP clearly had a positive impact on enrollment in Iowa state preschool programs, as seen in the jump in enrollment after the program was passed in 2007 and expanded to more districts in subsequent years as funding allowed. Total enrollment in the program has increased from 5,126 students in 2007-2008 to 23,141 students in 2015-2016. (Iowa Department of Education, 2016) According to the National Institute for Early Education Research's 2015 State Preschool Yearbook, Iowa ranks 7th nationally in access to preschool.



Source: The National Institute for Early Education Research's 2015 State Preschool Yearbook

Quality Standards

The National Institute for Early Education Research uses a National Quality Standards Checklist to assess the quality of state preschool programs. While these standards do not serve as a checklist to guarantee a high quality preschool program, they serve as a proxy for more robust quality measures and programs that do not meet all of the benchmarks are not considered satisfactory. While repeated in-class observations of state preschool programs would be a better indicator of quality than these structural markers such as teacher-child ratios, observations are often costly or not feasible to do on such a large scale and across all states. Additionally, other grades use standardized test scores to measure quality via student performance, but it makes little sense to ask a four year old to sit for a test, especially when so much of the critical development during this time could not be assessed on a written exam. With this understanding, this checklist is a good starting point for comparing the quality of preschool programs across states because it lists aspects of programs that are measurable and comparable. Based on these standards, Iowa ranks 28th nationally in quality standards, meeting 7 of the 10 benchmarks but missing the mark for assistant teacher certification requirements, teacher professional development, and at least one meal served within the program. (The National Institute for Early Education Research, 2016)

Educational Outcomes for Kids in SWVPP

Outcomes as Reported by the State of Iowa

The Iowa Department of Education says the number of students proficient in early literacy skills upon kindergarten entry is increasing because of the program. In a 2011 report, it compared kindergarteners who participated in the SWVPP in the previous year to those who did not attend and finds that 65% of SWVPP participants scored proficient on the DIBELS exam compared to 57% proficient among those who did not attend SWVPP. (Iowa Department of Education, 2011) However, the composition of these two groups are likely to be systematically different and may not indicate the impact of SWVPP but rather other indicators that determine who selects into the program. In 2016, the Iowa

Department of Education released an update on the performance of the program and switched to a different literacy assessment in assessing student progress, making it difficult to compare these new figures to past reports. Additionally, the state has begun highlighting progress in the percent of kindergarteners proficient overall, noting an 11% increase in proficiency among all kindergarteners between 2014 and 2015. (Iowa Department of Education, 2016) However, it does not report on the proficiency rate for those in the program, so we do not have any reason to believe that the presence of SWVPP led to the increase.

Outcomes as Analyzed by the American Institute of Research

In 2012, the Iowa Department of Education admirably asked the American Institutes for Research to prepare a report analyzing 3rd grade test results for children enrolled in Iowa's 2007-08 Statewide Voluntary Preschool Programs, the first year of the program. (American Institutes for Research, 2013) The report attempted to establish a comparison group to assess the impact of the SWVPP compared to those who did not participate in the program. However, the researchers had trouble establishing an adequate comparison group because any comparison group is suspect since most students would likely have chosen other forms of preschool and different types of students might select into each type of preschool program. For example, wealthier families in suburban districts with multiple preschool options may have enrolled their kids in established private preschools. In that case, any potential difference in outcomes between those students and the students in the SWVPP may reflect other factors such as their family background. To avoid selection bias, the researchers need to identify how the group of kids in the SWVPP would have performed without it, but there was no control group established at the time of the program's creation.

Lacking a truly adequate comparison group, the researchers used nearly every potential comparison group, including students with no prekindergarten experience, students in a different type of public prekindergarten program, and students who had some type of preschool experience outside of a public school. They consistently found that any initial academic gains from the SWVPP had faded by 3rd grade, and a variety of comparison groups all suggested that an Iowa 4-year-old would have done better as a 3rd grader without SWVPP. (American Institutes for Research, 2013) While these results are not encouraging, it is difficult to say how the students enrolled in SWVPP would have performed without the program. Potentially the gap between these students and the students in other programs could have been larger in the absence of the SWVPP. Additionally, the study only looked at the scores for students in the first year of the program, a year when many programs may have been new and only a small share of districts participated. The program also operates for just 2 hours a day for 9 months of one year, so it is difficult for a relatively small intervention to have strong positive effects four years later.

Comparing Components of SWVPP to Other State Preschool Programs

Given the lack of evidence that the SWVPP improved educational outcomes for participants, there is reason to look at how the program differs from successful programs in other states. As shown earlier, Iowa does well in terms of access and enrollment relative to other states, but poor in terms of quality standards. Compared to the national average, Iowa has less funding per student (\$2,987 compared to \$4,521) and fewer hours of preschool per day (2 hours compared to 4.5 hours). (The National Institute for Early Education Research, 2016)

West Virginia offers an example of a state preschool program that has shown a continued impact on student performance even into the 3rd grade. Students in West Virginia's Universal Pre-K scored 4.1 percentage points higher in 3rd grade ELA exams than their peers who did not attend West Virginia's Universal Pre-K. (The National Institute for Early Education Research, 2016) West Virginia has attained these improvements by expanding to full day preschool (25 hours per week) and spending \$6,427 per child. In contrast, Iowa's minimum requirement of 10 hours per week in the state preschool program is less than what almost every other state with a similar program requires.

Recommendations

1. Evaluation of the SWVPP should differentiate between district-level programs. Districts are allowed some flexibility in setting up their program components and likely vary in terms of quality, standards, instructional time, class size, and teacher-child ratios. The state should identify good programs at the district-level and what characteristics make them unique. The state should encourage those practices associated with successful programs and to the extent that commonalities in structural characteristics arise, these could be revised into the law to further stipulate the requirements of the program. For example, the program allows districts to choose from one of three quality standards. The state should investigate what programs with higher quality outcomes chose for their standards to see if there is a trend in the quality standards selected by higher achieving districts.
2. The state should reconsider the proper cost function given that some districts serve students with higher costs and adjust the funding per student accordingly. For example, districts in Des Moines are more diverse and likely serve more children from low-income families or with limited English proficiency than more rural districts. The spending required to support these students is greater than it is for other student populations. Since middle-income and higher-income families are more likely to have the resources to opt into private preschool programs, the state preschool program likely serves a population with a higher concentration of low-income students. Given these different costs, it does not make sense for the state to provide the same funding per student for all districts. Given that Iowa's minimum hours of instruction lags behind the national average, it is likely that more state funding per child is necessary to reach a larger number of instruction hours, but any adjustment should also consider the different costs of educating students faced by districts.
3. The state should continue to allow third party evaluators to examine the 3rd grade educational outcomes as the program matures. More studies are needed to assess the impact in later years of the SWVPP as the program expanded and became more established. Continuing to evaluate data from later years would allow the state to estimate the effect of more mature programs on student performance. Additionally, the state should identify in advance what assessments they will use to measure effectiveness and continue to use these same assessments so that the impact can be consistently evaluated and compared.

Annotated Bibliography

American Institutes for Research. (2013). *State-Funded Preschool: Analyses of Third-Grade ITBS Results of Children Enrolled in Iowa's 2007-2008 Statewide Voluntary Preschool Programs*.

AIR is a nonprofit organization that conducts social science research and evaluation. This report was prepared for the Iowa Department of Education to examine the longitudinal impact of the statewide preschool program. The state sought AIR as an independent and objective organization to evaluate the outcomes of the preschool program based on the first cohort's 3rd grade test results. The report compares the initial cohort's scores to those of other potential comparison groups and finds that students in the SWVPP perform worse than students who attended other programs or no program. This was a useful resource because AIR received access to the state's individual-level data for students that is generally not publicly available. The report clearly walks through its methodologies and reports on the statistical significance of the findings.

Belfield, C., Nores, M., Barnett, S., & Schweinhart, L. (2006). The High/Scope Perry Preschool Program: Cost-Benefit Analysis Using Data from the Age-40 Followup. *The Journal of Human Resources*, 162-190.

This is an updated cost-benefit analysis of the Perry Preschool Program using data on the participants at age 40. It walks through the costs and benefits of the program to both the individual and society and offers information about the amount of initial investment in the program, which I used as a comparison point for the state's spending per child. This report is especially relevant since the state cites this program as evidence of preschool program success, though the characteristics of the state program in Iowa look very different from the characteristics in this program.

Iowa Department of Education. (2011). *Statewide Voluntary Preschool Program for Four-Year-Old Children: Fact Sheet*.

The Iowa Department of Education published this fact sheet, which contains basic facts about the number of students enrolled in the program, districts that participate, and specific requirements for providers. It is a useful resource for those basics on the program, but its section on "Early Indicators of Success" should be read with caution as the evidence appears weak, cherry-picked, and not at all comprehensive.

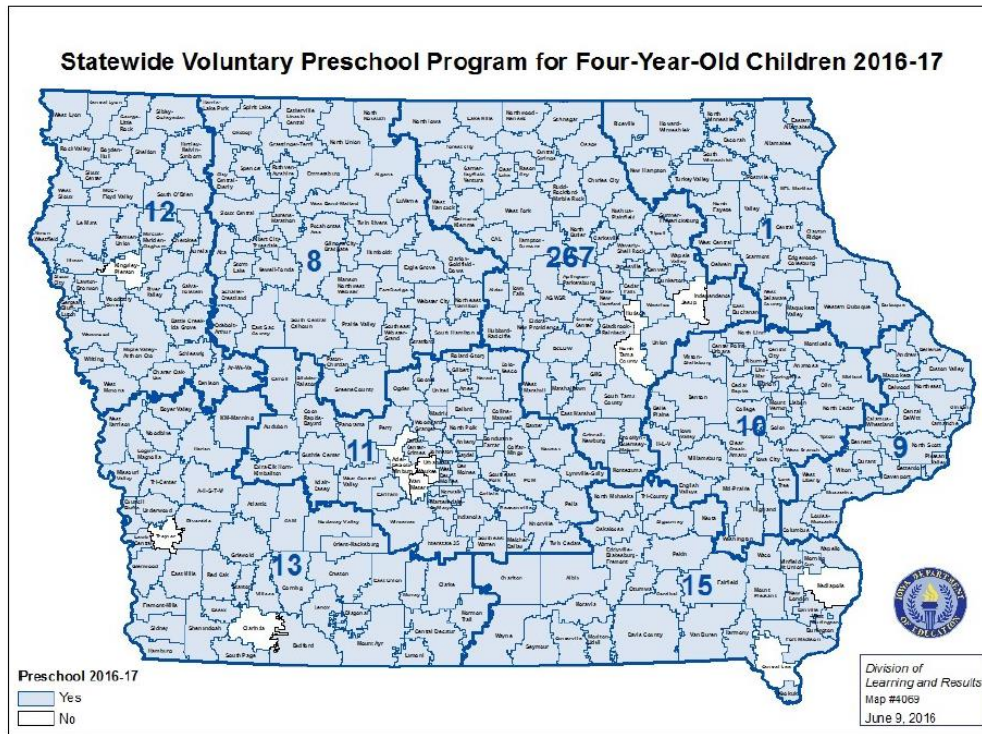
Iowa Department of Education. (2016). *Statewide Voluntary Preschool Program for Four-Year-Old Children: Fact Sheet*.

This is another fact sheet published by the Iowa Department of Education and it offers more current information about the program and details of how it has expanded since it began in 2007. Again, it useful for basics about the program but the section on "Early Indicators of Success" uses different assessments than the same report in 2011 and does not offer much detailed information about student performance.

The National Institute for Early Education Research. (2016). *The State of Preschool 2015: State Preschool Yearbook*. Rutgers Graduate School of Education.

The NIEER conducts academic research to inform policy decisions. This report offers a comprehensive look at state-funded prekindergarten programs in the U.S. and is a useful baseline for comparing programs across states. It offers updates on current programs and tracks changes over the last decade, and discusses enrollment figures, funding per child, and quality benchmarks.

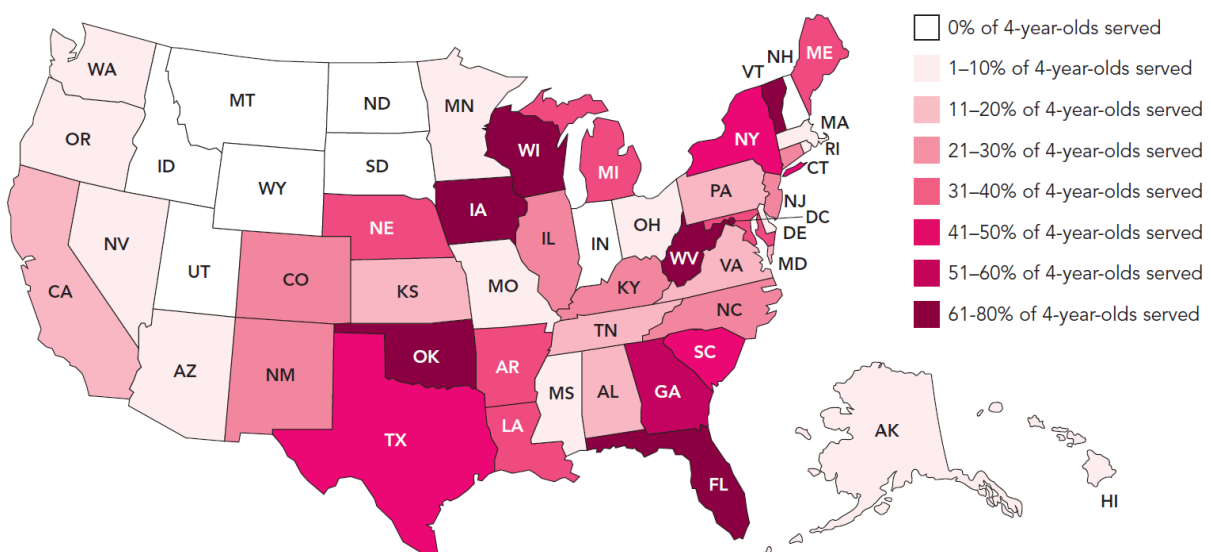
Appendix A: Coverage of Statewide Voluntary Preschool Program in Iowa



Source: Iowa Department of Education Statewide Voluntary Preschool Program Map 2016-2017

Appendix B: State Enrollment Figures

FIGURE 1: PERCENT OF 4-YEAR-OLDS SERVED IN STATE PRE-K



Source: The National Institute for Early Education Research's 2015 State Preschool Yearbook

Appendix C: National Institute for Early Education Research’s List of Quality Standards

NATIONAL QUALITY STANDARDS CHECKLIST SUMMARY

OF THE 57 STATE-FUNDED
PRE-K INITIATIVES, NUMBER
MEETING BENCHMARKS

POLICY	BENCHMARK	
Early learning standards	Comprehensive	57
Teacher degree	BA	33
Teacher specialized training	Specializing in pre-K	47
Assistant teacher degree	CDA or equivalent	21
Teacher in-service	At least 15 hours/year	48
Maximum class size	20 or lower	48
3-year-olds		
4-year-olds		
Staff-child ratio	1:10 or better	49
3-year-olds		
4-year-olds		
Screening/referral	Vision, hearing, health; and	38
and support services	at least 1 support service	
Meals	At least 1/day	29
Monitoring	Site visits at least every five years	39

Source: The National Institute for Early Education Research’s 2015 State Preschool Yearbook

Appendix D: American Institutes for Research’s Various Comparison Groups for SWVPP

Table 3. Grade 3 ITBS Results for Students Enrolled in SWVPP Compared With Students With No Prekindergarten Experience

Metric	Mathematics	Reading
Scale score point difference	-0.08	-0.14
p <	0.85	0.78
Effect size	0.00	0.01
Percentile difference	0	0

Table 4. Grade 3 ITBS Results Compared for Students Enrolled in SWVPP and Other Public Prekindergarten Programs

Metric	With Des Moines		Without Des Moines	
	Reading	Mathematics	Reading	Mathematics
Scale score point difference	-1.45	-1.57	-4.15	-3.55
p <	0.16	0.25	0.00	0.01
Effect size	0.08	0.07	-0.24	-0.16
Percentile difference	-3	-3	-9	-6

Table 6. Grade 3 ITBS Results Comparing Students Enrolled in SWVPP to Students Whose Parents Say They Experienced Some Preschool Program Other Than an Iowa Public School Program

Metric	Mathematics	Reading
Scale score point difference	-2.15	-4.11
p <	0.00	0.00
Effect size	-0.12	-0.18
Percentile difference	5	7

Source: American Institutes for Research’s Report: State-Funded Preschool: Analyses of Third-Grade ITBS Results of Children Enrolled in Iowa’s 2007-2008 Statewide Voluntary Preschool Programs