Evaluation of Pre-Kindergarten Education Programs to Promote Optimum Outcomes for Children and to Collect Data that Will Inform Future Decisions

Response to 16 VSA Sec 829(e)(10) [Amended 2015 Act 11 Sec 13. Restart 5-yr clock at 2015]

REPORT | **Report to the General Assembly**
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Submitted by:

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VERMONT AGENCY OF EDUCATION
AGENCY OF HUMAN SERVICES

Legislation

[Act 166 of 2014](#). *An act relating to providing access to publicly funded Pre-Kindergarten education.*

Introduction

Act 166 requires the establishment of a system by which the Agency of Education and Department for Children and Families shall jointly monitor and evaluate Pre-Kindergarten education programs to promote optimal outcomes for children and to collect data that will inform future decisions. The Agency and Department shall be required to report annually to the General Assembly in January. At a minimum, a system shall monitor and evaluate:

    (A) programmatic details, including the number of children served, the number of private and public programs operated, and the public financial investment made to ensure access to quality Pre-Kindergarten education;

    (B) the quality of public and private Pre-Kindergarten education programs and efforts to ensure continuous quality improvements through mentoring, training, technical assistance, and otherwise; and

    (C) the outcomes for children, including school readiness and proficiency in numeracy and literacy.

Act 166 of 2014 has an effective date for universal Pre-Kindergarten enrollments of July 1, 2015. The law was enacted on May 10, 2014. The implementation of the law required the promulgation of administrative rules by the Vermont State Board of Education and the timeline for adoption of the rules extended through September 2015. On November 25, 2014 an AOE/AHE memo was issued allowing school districts to choose to implement Act 166 as of July 1, 2015 or to wait one (1) year with full implementation July 1, 2016. Of the 217 schools with a kindergarten, 61 schools (just over 1/4) moved forward with implementing Act 166 in the 15/16 school year while the remaining three-quarters deferred until the 2016-17 school year.

Given we are less than half way through this initial year of implementation and that just over a quarter of school districts are implementing Act 166, this first report to the legislature will outline the planned methodology and data requirements for the analysis that the Agency of Education will use to evaluate the quality and impact of pre-kindergarten programs across the state. At this time there is substantial work that must be done in order to establish the data sharing agreements and procedures between both agencies in order to effectively link the data required for performing this important analysis.

Evaluation Goals

Through the evaluation of Act 166 implementation, both Agencies intend to provide the legislature with information regarding:

1. The degree to which all eligible students have the opportunity to participate in Pre-Kindergarten programs
   a. Total participation in each year by program type and location
   b. The number and quality rating of private and public programs operated
   c. The public financial investment made to ensure access to quality Pre-Kindergarten education
2. The degree to which participating students experience an increase in proficiency in numeracy, literacy, approaches to learning and social/emotional ability.
3. The degree to which particular program structures lead to different outcomes for students.

Evaluation Overview

The Agency of Education plans to conduct path analysis, which is a statistical method that can help estimate whether a particular intervention (e.g. a type of Pre-Kindergarten program) has the assumed causal effect on an outcome (e.g. a student's Kindergarten Readiness (KRS) assessment outcome or Teaching Strategies Gold (TSG) score).

Data

The data needed to run this model are stewarded within the Agency of Education and the Bright Futures Information System at the Agency of Human Services. In order to effectively evaluate the success of Act 166 the following data collections will be conducted in standardized ways:

1. Basic information regarding program structures- e.g. age spans, public/private; location, quality ratings, curriculum type, etc.
2. Student information including enrollment and exit dates, attendance, teacher assignment, standard demographic data, etc.
3. Student assessment data including
   a. The Teaching Strategies Gold(TSG) assessment which measures the progress of children's knowledge, skills, and behaviors in all of the developmental domains (social/emotional, cognitive, and physical)
   b. The Kindergarten Readiness Survey data (KRS) which is completed by Kindergarten teachers when students enter kindergarten to measure student readiness in social and emotional development, communication, physical health, cognitive development, knowledge, and approaches to learning. The data collected with this tool is appropriate for monitoring kindergarten readiness of the incoming cohorts over time to inform early childhood policies, such as the alignment across Pre-Kindergarten and

early elementary curricula as well as professional development needs. It provides data about the teachers' assessment of students' skills and knowledge as the students start kindergarten.

4. Early childhood educator information including licensing status, years of experience, key demographics, etc.

5. Financial information detailing the distribution of Pre-Kindergarten dollars and the services purchased with those dollars.

Discussions between the Agencies are ongoing to establish the required data sharing agreements and protocols needed to share, match, and analyze the data. These agreements must be written with sustainability in mind, which will require Agency staff time, attention, and care. It is important to note that this work represents new effort for these Agencies as their relationship is changing. This evolution of the partnership will require not just strong ongoing project management and robust data governance, but consistent IT support as well so as to facilitate both informed writing of the requisite agreements in addition to continued support for sharing, matching, analyzing, and managing the data themselves.

The value of fully implementing the robust evaluation plan described in this report is clear as a means of measuring and maximizing the return on Vermont's investment in Pre-Kindergarten education. What we propose here, is one of the best methods for coming to those conclusions that can shape policy moving forward. However, the current resources allocated to the Agency of Education and the Agency of Human Resources are insufficient to fully implement all aspects of the plan and may result in a more modest evaluation that leaves some questions unanswered.

For example, due to the limited number and high respective workloads of Agency personnel with the required expertise to establish the needed data sharing agreements, to learn the data, to develop the model, and to produce findings in formats accessible to lay audiences, unless adequate staffing can be allocated to perform this work, a less nuanced approach to evaluation may be necessary.

One form this could take might be reporting summary statistics surrounding participation in different types of Pre-Kindergarten programs, frequency of participation, length of participation, metrics surrounding teacher quality, metrics surrounding cost of various different Pre-Kindergarten programs, and relevant student outcomes on an annual basis.

However, this kind of reporting alone, while descriptive of conditions in themselves, will not help discern whether correlations, or what might potentially be causal

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relationships, exist between the degree and type of exposure to Pre-Kindergarten instruction and students' outcomes later in education. Essentially, summary statistics can tell you *what* is happening at "face value", but they cannot tell you *why* it may be happening or *how* it is related to the intervention that you are introducing. This kind of analysis will not in itself answer the question, "does a relationship exist between high quality Pre-Kindergarten instruction and improved student outcomes later in students' educational careers?" This means it will have limited utility for informing the Legislature regarding the return on investment of Pre-Kindergarten education dollars.

Therefore, while the planned model discussed in this report could help determine the *why* more effectively than reporting summary statistics, for full disclosure we are noting here that it will require considerably more effort to design, build, and maintain. If additional staffing resources cannot be found to support this effort, an alternative approach might be contracting some of this work out to experts in the fields of applied research and evaluation with view to developing the model and training Agency staff to maintain it in the long-term. Regardless of the approach to ensuring appropriate personnel are dedicated to this important effort, the requisite data governance and data sharing agreements will require Agency resources to establish and maintain in the immediate future. As the plan moves forward, the agencies will assess resource needs and request support accordingly.

Why Path Analysis
Path analysis is an established methodology used in the social sciences to examine whether or not particular variables (e.g. a type of Pre-Kindergarten program) have a causal influence on other variables (e.g. Kindergarten Readiness Survey results or a student's TS Gold score). Essentially, path analysis will help us to know if the Pre-Kindergarten experience is leading to improved readiness for Kindergarten in terms of social-emotional development, mathematics and literacy skills; and eventually we will be able to see if Pre-Kindergarten participation leads to improved performance on third grade statewide standardized test scores.

Another advantage of using this approach is that it will produce a descriptive picture of our Pre-Kindergarten student population, Pre-Kindergarten educator preparedness, and Pre-Kindergarten program characteristics (e.g. accreditation and quality ratings). Also, path analysis lets us know how big of an impact each of these factors has on outcomes which will help us target program development in the direction that shows the greatest return on investment.

Model Structure

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This model is designed to explore whether there are relationships between different types of Pre-Kindergarten programs, educator preparedness, and student characteristics in relation to student outcomes as measured by the Teaching Strategies Gold assessments and Kindergarten Readiness Survey results. This model also accounts for the characteristics students bring with them to the educational environment (e.g. IEP status, FRL status, ELL status, etc.). By controlling for these student characteristics, this model will help us examine whether or not students' outcomes are related to educator preparedness and or program type (e.g. public Pre-Kindergarten, private licensed Pre-Kindergarten programming, or private registered Pre-Kindergarten programming). Figure 1 on the next page shows the basic structure of the model.

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Organization (View)

(View joining district records with state records. State attributes will come from State table, District attributes will come from District table)

District

Quality Ratings: school-based, private licensed childcare, private registered childcare,
levels: NAEYC accredited, 4 and 5 STAR ratings, some 3 with a plan to become higher level rating (2 year)

District Org table (AOE information) Organization Profile
Staffing Pattern, tuition cost or % cost voucher covers.

BFIS STARS Ratings
By Program -ratings,
Pre K curriculum

Vermont Pre K Planned Evaluation Data Model for Vermont Universal Pre K Act 166

Educator

(View joining district records with state records. State attributes will come from State table, District attributes will come from District table)

Educator table
Teacher Credentials (license, level, and endorsement)
Gender
Race

Student (View)

(View joining district records with state records. State attributes will come from State table, District attributes will come from District table)

Student table

Gender, Race, IEP Status, FRL, ELL, DOB, Years in Pre K, 504 Status

Student Assessment Data

TS Gold is done through Teacher/ Educator observation of preschool classroom. Early Fall and Spring

Pre K Outcomes Evaluation
Matching Assessment Data with measures of Program Quality, Educator Preparedness, And basic Demographic Information.
Additional Data Points* Post Pre K evaluation points
Kindergarten Readiness, SBAC 3rd grade