![Pennsylvania DEPARTMENT OF EDUCATION]

# Research Agenda

*April 2022*

> **PDE Mission Statement:** The mission of the department is to ensure that every learner has access to a world-class education system that academically prepares children and adults to succeed as productive citizens. Further, the department seeks to establish a culture that is committed to improving opportunities throughout the commonwealth by ensuring that technical support, resources, and optimal learning environments are available for all students, whether children or adults.

> **PDE Vision Statement:** Pennsylvania learners will be prepared for meaningful engagement in postsecondary education, in workforce training, in career pathways, and as responsible, involved citizens.

## PURPOSE

The Pennsylvania Department of Education (PDE) developed this Research Agenda in collaboration with internal and external stakeholders as part of a Statewide Longitudinal Data Systems (SLDS) grant received in September 2015. As part of this project, the agency identified topics and questions that are aligned with the agency's goals and priorities. While this Research Agenda outlines areas of interest, the Department does not have resources committed to answering each question; as such, PDE would welcome proposals from independent, non-partisan researchers interested in addressing these questions and topic areas.

## PK-20 POLICY

*Questions:*                                                                 *Method:*

1. How has enrollment in Head Start and Pre-K Counts changed, by location, provider availability, enrollment, and student demographics, during and following the Covid-19 pandemic?          *Research*

2. How did COVID - 19 impact postsecondary outcomes (enrollment in postsecondary, military enlistment, entering the workforce) for students who graduated in the class of 2020, 2021, and/or 2022, by student's home location/school, student demographics, postsecondary institution, major/career choice, etc.?          *Research*

3. How did COVID-19 impact college enrollment of high school students who were supposed to graduate in 2020 or 2021 but did not receive a HS diploma or equivalency? How did enrollment vary by race, ethnicity, gender, income, and geography?      *Research*

4. Does enrollment in algebra for 8$^{th}$ or 11$^{th}$ Grade math predict postsecondary enrollment?      *Research*

5. How do educational attainment rates differ by race, ethnicity, gender, income, and geography (B.A., A.A., 2-year certificate, 1-year certificate, Industry Credential)?      *Data Pull*

6. How are Pennsylvania schools and districts implementing career pathways for students? What are the most common career planning and exploration activities implemented in elementary, middle, and high schools? What is the quality of these pathways? How do these career pathways programs impact student K-12 and postsecondary outcomes?      *Research*

7. How do the educational and labor market outcomes for students who completed career and technical education coursework and programs of study in high school compare with students who did not complete CTE coursework in high school?      *Research*

## EARLY CHILDHOOD EDUCATION

**Access**

*Questions:*        *Method:*

1. What are the differences between the needs of certain geographic areas (e.g. high percent of low poverty) versus the needs of other areas? How does the actual capacity of child care providers change based on those needs?      *Research*

2. What are the differences between desired outcomes of families who reside in at-risk communities, and how can further expansion of home visiting programs help to achieve those outcomes?      *Research*

**Dosage**

*Questions:*        *Method:*

1. Is there a positive developmental trajectory for children who participate in Pennsylvania's early childhood programs? What is the association between early childhood program dosage and positive outcomes for children in elementary school (such as decreased use of special education or decreased rates of retention)? What is the impact of the elementary school environment? Does the effect of dosage vary based on elementary school environmental factors or characteristics (physical, academic, or social dimensions)?      *Research*

*Questions:*                                                                                    *Method:*

   a. Does participation in multiple OCDEL programs decrease the likelihood of being placed in special education or not advancing from grade to grade?

   b. Does the effect of dosage vary for children who are economically disadvantaged?

   c. Are there gender differences and racial ethnic differences?

   d. Does the association vary based on measurable early childhood program characteristics?

   e. As compared to peers, who at school enrollment were in similar socio-economic status, do PKC or HSSAP alumni have lower high school truancy, higher graduation, higher post-secondary enrollment?

**School Readiness**

   *Questions:*                                                                              *Method:*

                                                                        *Research*

1. To what extent does Pennsylvania Pre-K Counts (PA PKC) reduce educational disparities and positively impact school readiness skills for children in PA? What is the association between participation in PA PKC and children's academic, social skills, and executive functioning at kindergarten entry, compared to children with no prior preschool experience?

   a. Does the association vary based on attendance at a half-day versus full-day program, the number of years attending PA PKC, student demographics, program characteristics, teacher characteristics, or location?

   b. Does a measure of executive function in kindergarten, utilizing varied formal assessment measures, and observations and information provided by parents and teachers (possibly utilizing behavior checklists such as the *Behavior Rating Inventory of Executive Function or Behavior Rating Inventory of Executive Function – Preschool Version)* show positive effects of PA PKC?

   c. What instructional approaches used in PA PKC classrooms are associated with the development of more positive outcomes and a higher level of school readiness skills for children in PA?

2. PKC and HSSAP are funded to support at-risk children 1 or 2 years prior to kindergarten. Do the most vulnerable communities (highest unemployment, highest poverty) have provider capacity to serve expansion slots when funding opportunities are available?                                                    *Research*

3. How is the Kindergarten Entry Inventory (KEI) perceived and used by teachers to support early learning and kindergarten classrooms in Pennsylvania?

   a. Are teachers using the KEI to support their teaching, to guide their instructional practices, and provide individualized learning opportunities for kindergarten students in Pennsylvania?

       ▪ Identifying gaps in children's knowledge and skills.

*Questions:* *Method:*

- Providing valuable information regarding the overall strengths and weaknesses of students at kindergarten entry.
- Providing information to teachers that can be used to close gaps in student learning.

b. How well does the information obtained from administration of the KEI inform teachers' instructional practices?

c. Are teachers able to easily integrate the KEI into existing practices?

d. Are the professional development and resources provided (Kindergarten Entry Inventory Resource Kits), to enhance and support KEI implementation, beneficial and effective to promote optimal use by teachers?

e. Does use of data obtained from administration of the KEI lead to improvements in teaching practices and students' learning?

f. How does the KEI support early learning in kindergarten classrooms in Pennsylvania, both whole class and individual students' learning needs?

g. To what extent have the intended goals of the KEI (benefits to teachers, engagement of families, focused professional development, school and early childhood program alignment, and use of data by policymakers to maximize student achievement) been achieved?

## Quality

*Questions:* *Method:*

1. What economic gains are realized from investing resources in early childhood? Return on investment?    *Research*
   a. Decreased use of Special Education
   b. Decrease in students being retained
   c. Greater Graduation Rate
   d. Decrease in involvement with the criminal justice system
   e. Postsecondary access and persistence
   f. Employment
   g. Military

2. What is the status of health, safety, and quality standards being implemented in early intervention classrooms in Pennsylvania?    *Research*
   a. Developmentally appropriate practices
   b. Orderly classroom/school environments
   c. Procedures
   d. Clearly defined behavioral management, and crisis intervention practices
   e. Physical safety of students/Child well-being
   f. Carefully defined and well-enforced school discipline codes of conduct
   g. Measures of positive school climate

| *Questions:* | *Method:* |
|---|---|

3. To what extent are early intervention classrooms in Pennsylvania implementing effective and developmentally appropriate intervention approaches and practices?      *Research*
    a. Successful integration of instructional techniques and effective daily routines eliciting:
        - Behavioral expectations
        - Classroom social skills training
        - Ability to cope with and prevent problematic behavior
        - Effective classroom management strategies
        - Academic effectiveness
    b. Use of measures to assess program effectiveness
    c. Use of strategies to cope with and prevent problematic behavior
    d. Use of strategies that reflect universal as well as individualized interventions
    e. Access to and use of research-based information, instructional practices, and professional development

## K-12 EDUCATION

### Accountability and School Supports

| *Questions:* | *Method:* |
|---|---|

1. How does integrating student supports through community partnerships – such as through a community schools initiative – impact district- and school-level improvement efforts? What impact do these initiatives have on student-level outcomes, including academic achievement, engagement, and other outcomes?      *Research*

### Career Readiness

| *Questions:* | *Method:* |
|---|---|

1. Are students who engage in work-based learning opportunities more likely to enroll in postsecondary education and earn a credential or degree?      *Research*

2. What career pathways are more likely to have work-based learning opportunities associated with them?      *Research*

3. Which schools across the state offer work-based learning opportunities and how many students are participating in those opportunities, broken down by student subgroup?      *Research*

## Charter Schools and School Choice

*Questions:*          *Method:*

1. What is the impact of Pennsylvania's charter schools on students' academic achievement and postsecondary outcomes? Does the impact vary for different groups of students (i.e., students with disabilities, English learners, etc.)? — *Research*

2. What are the differences between students who participate in different education choice options (intra- and inter-district)? — *Research*
3. What factors increase the likelihood of a student exiting a school for a charter or other school option versus traditional district schools? — *Research*

## STEM Education

*Questions:*          *Method:*

1. What is the impact of students' STEM course-taking patterns in middle and high school on their postsecondary trajectory (i.e., postsecondary major, employment outcomes)? How does it differ by race/ethnicity? — *Research*

2. What factors influence the availability of high-quality STEM education in Pennsylvania public schools (i.e., teacher qualifications and credentials, school funding, STEM employers in community/region)? — *Research*

3. How do state policies or changes in academic requirements (such as flexibility to substitute math or science graduation requirements with a computer science or information technology course credits) influence STEM course availability, students' course-taking patterns, and/or postsecondary pathways? — *Research*

## School Climate

*Questions:*          *Method:*

1. What is the relationship between presence of a school resource officer and/or school police officer in a school and schools' reportable disciplinary rates and school climate? — *Research*
   a. How frequently are schools using remedial programs and how does this relate to disciplinary rates and school climate?
   b. Determine if there is a disproportionate number of disciplinary reports (in-school and out-of-school suspensions, expulsions, or referrals to law enforcement, arrests) on student subgroups (race, gender, grade level, ethnicity, IEP, sexual orientation).

2. What is the state of bullying and bullying reporting statewide (based upon existing statewide datasets - OSS data, PA Youth Survey, and Safe2SaySomething)? What factors are associated with bullying reports and under-reporting? — *Research*

|  | *Questions:* | *Method:* |
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3. To what extent are PA educators prepared to recognize and respond to students impacted by trauma or distress, including trauma/distress related to COVID-19?  (modified PA replication of Kognito white paper: "Are teachers and staff ready to apply trauma informed practices?")  *Research*

4. What do school climate data/index scores, OSS data, SAP and disciplinary data reveal about the nature of school climate and student support needs in PA schools?  *Research*

## School Libraries
### *Questions:*        *Method:*

1. Does greater availability of school libraries and Library Science K-12 certified librarians correlate with improved student academic achievement and outcomes (including postsecondary education)?  *Research*

## Educator Preparation, Retention and Supports
### *Questions:*        *Method:*

1. Did (How did) Act 91 of 2021 address the substitute teacher shortage? Did expanding the pool of substitute teachers lead to increased enrollment in education prep programs and ultimately certification?  *Research*

2. What are the trends in the issuing of certifications and emergency permits?  *Research*

3. What proportion of educator prep program graduates do not seek certification or are unable to satisfy certification requirements?  *Research*

4. What percentage of certified teachers are employed in Pennsylvania?  *Data Pull*

5. What is the average length of time a teacher is employed in the same school?  *Research*

6. What is the relationship between professional development and teacher and school leader retention? Principal retention? What other factors lead to increased retention for teachers and school leaders?  *Research*

7. Which PA Institutions of Higher Education (IHE)s and alternative educator preparation programs enroll and graduate the highest number/percentage of teacher candidates of color?  What are best practices for recruitment of students of color? Can it be replicated at other institutions?  *Research*

8. How are teacher candidates recruited?  What strategies are educator preparation programs using to successfully recruit, retain/support and graduate higher percentages of teacher candidates of color (besides geography)?  *Research*

| *Questions:* | *Method:* |
|---|---|

9. How do IHEs strategies to recruit and support students of color impact outcomes? (i.e. mentoring, additional resources and supports needed for retention and completion, etc.).   *Research*

10. How do induction programs impact the retention of educators of color? What elements of an induction program correlate with higher retention rates of educators of color?   *Research*

11. What is the impact of A2E or Pittsburgh Promise programs on recruiting teachers of color?   *Research*

## POSTSECONDARY EDUCATION

### Adult Basic Education

| *Questions:* | *Method:* |
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1. What are the postsecondary enrollment and completion rates for commonwealth residents who earn a HS equivalency certificate?   *Data Pull*

2. How do adult education program completers and those that do not complete differ by race, ethnicity, age, gender, and English-language status?   *Data Pull*

3. What percentages of students who begin Adult basic services earn HS equivalency, enroll in postsecondary, persist, earn a degree/credential and are employed?   *Data Pull*

4. Which integrated education and training activities lead to the highest earning for completers?   *Data Pull*

5. How does the training offered by the Professional Development System (PDS) for Adult Education impact teacher practice and student outcomes?   *Research*

### College Affordability

| *Questions:* | *Method:* |
|---|---|

1. To what extent does the Pennsylvania State Grant, the Pell grant, and other gift aid impact the resulting student debt of graduates at public and private institutions of higher education?   *Research*

2. How does cost of attendance impact student postsecondary enrollment, progression/retention, and completion?   *Research*

**Access to Postsecondary Education**

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|---|---|
| *Questions:* | *Method:* |

1. Does math course taking, score on PSSA or Keystone passage increase the likelihood of enrolling, persisting and graduating from a postsecondary institution?    *Research*

2. Does enrollment in honors or AP courses or participation in dual enrollment increase the likelihood of postsecondary enrollment and how does this differ by race, ethnicity, age, gender, socio-economic status, and other demographics?    Postsecondary success?    *Research*

3. Are there regional differences between students' access to postsecondary education, including community colleges, four-year institutions, and private licensed school (PLS)?    *Data Pull*

4. How did postsecondary enrollment of PA high school graduates change pre- and post-COVID-19?    *Research*
   a. How does this compare to previous years?
   b. Are there differences based on institution type and sector (2 year/4 year, private/public), or attendance in-state versus out-of-state?
   c. Are there differences based on race, ethnicity, age, gender, socio-economic status, geography?

5. How do college readiness innovations advanced by postsecondary institutions impact postsecondary enrollment, need for remediation, progression/retention, and graduation of PA high school graduates?    *Research*

6. Higher education is becoming predominantly female. What are the post high school pathways for males? For students enrolled in a postsecondary institution, did male students leave higher education and not return at a higher rate than female students, or are male students entering postsecondary opportunities at a lower rate? (Fall 2019 v. Fall 2020 v. Fall 2021)    *Research*


**Access:  Perkins**

| | |
|---|---|
| *Questions:* | *Method:* |

1. What percent of secondary CTE participants or concentrators enroll in postsecondary, are retained, and earn a credential? Do postsecondary outcomes for CTE participants or concentrators differ by institutional type or student demographic characteristics?    *Research* and *Data Pull*

2. Are there institutional differences between secondary CTE completers and non-completers?    *Data Pull*

|                                                                                                                                                                          | *Method:*    |
| ------------------------------------------------------------------------------------------------------------------------------------------------------------------------ | ------------ |
| 3. Are there racial or ethnic differences between secondary CTE completers and non-completers? Are there racial or ethnic differences in CTE program completion <u>between or within programs of study?</u> | *Data Pull*  |

## Postsecondary Progression

| *Questions:* | *Method:* |
| --- | --- |

1. What are the progression/retention rates for students attending Pennsylvania colleges? Are there differences by sector (public, private, two-year, etc.)? — *Research*

2. Using NSC data, what are the 2-year/4-year postsecondary progression/retention rates for 2017 (or most recent class available) PA high school graduates from entry into postsecondary through fall 2020 (last 4 years)? For 2018 and 2019 PA high school graduates through fall 2020? Postsecondary enrollment for 2020 PA high school graduates? — *Research*
   a. How do the numbers differ by socio-economic status, race and ethnicity, and first-generation students?
   b. How do the rates vary pre-COVID versus post-COVID?

### Adult Learners in Postsecondary Education (25+ years old)

| *Questions:* | *Method:* |
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**1.** How did COVID-19 influence adult learners going back to IHEs? Any differences by race, ethnicity, gender, and income? — *Research*

**2.** What are the enrollment, progression/retention, and graduation rates of adult students compared to students under 25 years old by sector? — *Research*

## Completion

| *Questions:* | *Method:* |
| --- | --- |

1. How does postsecondary completion differ by age, family status, working status, race/ethnicity, income, educational history, zip code, urban/suburban/rural, proximity to postsecondary institutions, access to stable internet, access to non-academic resources, basic needs security? — *Research*

2. What are the measurable education achievements (earning a credential, transferring to a baccalaureate program) for different populations in Pennsylvania? — *Research*
   a. Is it different by sector (public, private, two-year, etc.)?

3. What are the postsecondary completion rates of PA by high school attended? What is the time to degree? — *Research*

**Transfer and Articulation**

*Questions:* *Method:*

1. What percentage of students transfer to a different institutional type (two year, four year) in the commonwealth? *Data Pull*
   a. How has the rate and number of students transferring to four-year institutions changed since the implementation of the transfer and articulation system?
   b. Has the educational pipeline from the community college changed since implementation of the transfer and articulation system with respect to the kinds of students transferring? (race/gender/age/income/SES)

2. How many students transfer with an associate degree to a 4-year institution and how does this affect the length of time it takes for students to earn a bachelor's degree? How does it vary by race, ethnicity, age, gender, income, and geography? *Research*

3. For 2017 through 2019 PA high school graduates, did students who were attending college out-of-state return to in-state status for fall 2020? *Research*

   a. For these cohorts of students, did the distance from home change within PA? (If they were attending a PA institution, did they transfer to an institution that is closer to home for fall 2020).

4. What are the postsecondary transfer trends for PA high school graduates based on institution type (2-year/4-year), sector (public/private) and attendance in-state versus out-of-state? *Research*

5. How does college transfer in Pennsylvania impact college affordability and the total cost of a transfer student's degree? *Research*

6. How have reverse transfer policies impacted student success and degree attainment? *Research*


# WORKFORCE

*Questions:* *Method:*

1. How do students' postsecondary education pathways (i.e., what type of institution they started at, where they transferred, and the amount of time to completion) impact employment outcomes? *Research*

2. How do the educational and labor market outcomes for students who completed career and technical education coursework and programs of study in high school compare with students who did not complete CTE coursework in high school? *Research*

|  | *Questions:* | *Method:* |
|---|---|---|

3. How does participation in a pre-apprenticeship program impact an individual's credential attainment and/or employment outcomes? How does the impact vary by age, demographics, etc.?    *Research*


## PUBLIC LIBRARIES

|  | *Questions:* | *Method:* |
|---|---|---|

2. What effect does participation in public library early learning classes and programs (e.g., story times) have on kindergarten readiness and reading/literacy skills in early grades?    *Research*

3. How does participation in public library summer reading programs affect students' reading and literacy skills in the short- and long-term?    *Research*

4. What is the impact of public library broadband access in communities that lack high-speed access? (especially in light of FCC's stated goals of:  Internet access for libraries that serve fewer than 50,000 people of at least 100 Mbps and at least 1 Gbps for libraries that serve 50,000 people or more and for libraries connected by a WAN, the measure will be the total number of libraries that have a connection capable of providing a data service scalable to at least 10 Gbps.)    *Research*

5. How does the demographic profile of the staff of state-aided public libraries compare to that of their service areas?  How closely do library staff members actually reflect the communities they serve?    *Research*

6. How do job seekers use the resources and services in public libraries? Alternately, how do state-aided public libraries plan, track and evaluate services to job seekers?    *Research*

7. What is the total population of Pennsylvanians <u>eligible for the services of the National Library Service for the Blind and Print Disabled</u> and how is that population reflected in the current users of the <u>Library of Accessible Media for Pennsylvanians</u>?    *Research*