Research Agenda

April 2024

> **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 their initial 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 identifies 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. PDE's Research Agenda includes general topic areas and questions of interest to PDE. The department is open to discussion, interpretation, and refinement with interested researchers.

Pk-20 Policy

1. 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.?

2. 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?

3. Does enrollment in algebra for 8th or 11th Grade math predict postsecondary enrollment?

4. 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)?

5. 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?

6. 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?

7. By embedding evaluation of the implementation and effectiveness of education grants in the grant development and administration process to ensure responsible and informed grantmaking in Pennsylvania, what insights can we gain regarding positive and negative impacts? How can we maximize the beneficial effects? (This may include, but may not be limited to process evaluations, summative and/or formative impact evaluations, outcome evaluations, and cost-benefit evaluations.)

    a. What positive or negative effects (short or long-term) can be attributed to grant programs? How are the grant activities and goals connected to these effects? To what extent are the goals and/or objectives of the grant being achieved?
    b. What are the disparities between the state's conceptualized outcomes/program and what grantees accomplished?
    c. What strategies were used to bring about change? What was the process or pathway of change?
    d. How can the state and/or grantees improve implementation?
    e. What are the measures or indicators of success?
    f. What are the impacts on the grant entity (i.e., school, college, education program, library, etc.) and learner outcomes or performance?

Early Childhood Education

Pennsylvania Institutes of Higher Education (IHEs) and Early Childhood Education (ECE) Workforce

1. Which IHEs offer ECE programs and what types?

    a. How many students are served? Where are they located?
    b. What are the career and workforce outcomes for students?

2. What are the qualifications of faculty who are teaching ECE courses at IHEs? Do they have experience in the ECE field?

3. To what extent are relevant experiences offered at IHEs that showcase connections to the ECE field? Are there processes for credit for prior learning and how are they instituted?

4. To what extent do IHE programs of study align with PK-4 guideline and/or the Pennsylvania Professional Standards?

School Readiness

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?

K-12 Education

Accountability and School Supports

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?

Career Readiness

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

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

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?

4. Where do career and technical education students participate in programs of study, by region and by career cluster? How does this compare to regional projections of workforce need, according to state and national sources (i.e., U.S. Department of Labor, PA Department of Labor & Industry, etc.) and the availability of postsecondary programs?

5. What is the status of Pennsylvania's CTE educator workforce (i.e., recruitment, enrollment/retention in educator preparation programs, hiring/retention in schools)? What factors influence CTE educator recruitment, preparation, and retention?

6. What proportion of students who enroll in a postsecondary Perkins program are employed within four to six months after completing the program, according to the Perkins Postsecondary CTE Follow-up Survey?

7. How likely are students enrolled in postsecondary CTE programs at 2-year postsecondary institutions to enroll in and complete a bachelor's degree?

8. How do CTE credentialling outcomes compare among CTE-students and non-CTE graduates who enroll in 2-year postsecondary institutions?

Charter Schools and School Choice

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.)?

2. What are the differences between students who participate in different education choice options (intra- and inter-district)?

3. What factors increase the likelihood of a student exiting a school for a charter or other school option versus traditional district school.

4. What proportion of students who exit their intra-district school for a charter school, magnet school or inter-district school, later return to their intra-district school?

   a. Does academic achievement and credentialing differ among "returners" and "non-returners?
   b. Do return rates differ by background characteristic?

English Learner (EL) Education

1. Is there an association between EL students' Language Instruction Educational Program (LIEP) type and ACCESS assessment scores, high-school graduation, and postsecondary enrollment?

2. How does a school district's responses to the [LIEP survey](#) (Excel) correlate to districts' outcomes for EL students, including on-time high school graduation and postsecondary enrollment?

Enrollment and Attendance

1. What are the differences in outcomes for students who attend kindergarten compared to students who did not attend kindergarten (i.e. academic, attendance, career readiness)?

2. What are the differences in outcomes for students who attend full-day kindergarten compared to those who attend half-day kindergarten (i.e. academic, attendance, career readiness)?

3. How has kindergarten enrollment, by location and student demographics, changed since the 2020-21 school year when the age of compulsory attendance was lowered to age 6 and since the pandemic?

4. How do current regular attendance rates compare to regular attendance prior to and during the pandemic? Do rates vary by region or urbanicity?

5. What is the association between the implementation of the first universal free breakfast program in October 2022 and attendance rates, suspension rates, school climate, and other student outcomes? Does it vary based on student, school, or district level demographics?

6. How does the availability of a school-based health center impact school attendance and student outcomes?

Instructional Time Flexibility

1. Beginning in school year 2022-23, school districts, intermediate units and career and technology centers may configure the school year based on 180 instructional days or on 900 hours of instruction for full-time elementary (PK-6), and 990 hours of instruction for full-time secondary (grades 7-12) grades. (24 P.S. § 1-133)

    a. What is the number and proportion of school entities using days versus hours to meet the minimum instructional requirements?

    b. How are school entities using this flexibility?

    c. What issues may LEAs in Pennsylvania be dealing with that may prevent or make it more difficult to implement changes to instructional time? Related to:

        • Professional employee contracts?
        • Contracted services provided by school districts (i.e. IU's, transportation, food services)?
        • Guaranteed or expected number of days of service?
        • Career and technical education?
        • Vocational and dual enrollment instruction?
        • Special education and IEPs?

    d. What is the impact on student achievement? Staff morale? Reportable disciplinary rates and school climate?

    e. What can Pennsylvania learn from other states regarding the use of instructional time flexibility to provide guidance as school entities move forward in consideration of the new law and related to improvement in student outcomes?

STEM Education

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?

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)?

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?

4. Are students of color who receive STEM instruction from a teacher of color more likely to graduate high school on-time, enroll in postsecondary, and graduate college with a STEM degree when compared to students of color who do not?

5. Do students of color who receive STEM instruction from a teacher of color enroll in more STEM courses (including advanced STEM courses) during high school than students of color who do not?

6. Are female students who receive STEM instruction from a female teacher more likely to graduate high school on-time, enroll in postsecondary, and graduate college with a STEM degree when compared with female students who do not?

School Climate

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?

    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?

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?")

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?

5. What is the relationship between teacher turnover and school disciplinary reports (in-school and out-of-school suspensions, expulsions, or referrals to law enforcement, arrests) or the presence of school resource officers, school police officers and school security?

6. What is the association between K-12 school mental health support services (i.e. school based health centers, partnering with community resources/agencies, counseling, health services, psychological services, home and school visitor services, support groups, mental health education, other social and emotional supports) and school climate, truancy, disciplinary actions, and/or academic outcomes?

School Libraries

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)?

Educator Preparation, Retention and Supports

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?

2. What are the projected educator shortage areas and subjects in the upcoming three to five years and how could these shortages be addressed?

3. What percentage of certified teachers are employed in Pennsylvania?

4. 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?

5. How does the availability of professional development opportunities impact staff retention?

6. What are the overall and disaggregated trends in educator retention, including recommendations for improving retention?

7. Identify trends in Pennsylvania's educator supply and educator preparation provider effectiveness, including recommendations for attracting more high-quality and diverse teacher candidates and improving the quality of educator preparation in this Commonwealth.

8. 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?

9. Have rates of educator preparation program completion and credentialing increased in light of recent policy changes, such as shortened wait times for PDE to approve certifications and new investments like PHEAA's PA HELPS and Student Teacher Stipend Programs?

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

11. *The Foundation of Our Economy: Pennsylvania Educator Workforce Strategy 2022 – 2025* suggests newly hired teachers are driving the increase in teacher turnover. Are newly hired teachers leaving the educator workforce at higher rates than their more senior counterparts?

12. 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)?

13. 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.).

14. 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?

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

16. How likely are student teachers to be hired by the schools in which they student teach?

Postsecondary Education

Adult Basic Education

1. What are the postsecondary enrollment and completion rates for commonwealth residents who earn a HS equivalency certificate?

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

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

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

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

College Affordability

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?

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

Access to Postsecondary Education

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

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?

3. To what extent is county-level access to community college locations associated with student enrollments in associate degree programs and credentials that require less than two years of education, aggregated to the county level?

4. How does access to a community college or state-owned university impact college-going rates, persistence and completion of Pennsylvania high school graduates?

5. How did postsecondary enrollment of PA high school graduates change pre- and post-COVID-19?

    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?

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

7. 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)

Access: Perkins

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?

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

3. Are there racial or ethnic differences between secondary CTE completers and non-completers? Are there racial or ethnic differences in CTE program completion between or within programs of study?

Postsecondary Progression

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

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?

    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)

1. How did COVID-19 influence adult learners going back to IHEs? Any differences by race, ethnicity, gender, and income?

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

Completion

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?

2. What are the measurable education achievements (earning a credential, transferring to a baccalaureate program) for different populations in Pennsylvania?

    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?

Transfer and Articulation

1. What percentage of students transfer to a different institutional type (two year, four year) in the commonwealth?

    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?

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?

    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?

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

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

Workforce

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?

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?

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.?

4. How do postsecondary enrollment and credentialing in Pennsylvania align with state and regional workforce needs?

Public Libraries

1. 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?

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

3. 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.)

4. 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?

5. 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?

6. What is the total population of Pennsylvanians [eligible for the services of the National Library Service for the Blind and Print Disabled](#) and how is that population reflected in the current users of the [Library of Accessible Media for Pennsylvanians](#)?