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IMPACT OF THE PREP INTERVENTION

Exploring the benefits of applied learning and comprehensive support in alternative high schools

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Executive summary

In 2016 the U.S. Department of Education awarded Portland Public Schools (PPS) a five-year Educational Innovation Research (EIR) grant to implement an intervention—Personalized, Relevant, Engaged for Postsecondary (PREP)— to promote engagement among students in alternative high schools. PREP's goals are to improve students' attendance, persistence, and academic proficiency, consequently raising graduation rates and promoting successful transition to postsecondary careers and education. Throughout the course of the grant, PPS implemented PREP in six schools.

The PREP intervention promotes student engagement by integrating three key components: project-based learning (PBL); career technical education (CTE), including certified CTE programs and career-related learning experiences (CRLEs); and social and emotional learning (SEL). The evaluation also measures a fourth component, engaged leadership, as a key condition for successful implementation. While the schools studied here may have implemented one or more of these components prior to PREP, the intervention theorizes that implementation of all four components will lead to improved student outcomes.

Education Northwest conducted an external evaluation of PREP to measure the fidelity of implementation and to assess the impact of the intervention. The evaluation team developed indicators and thresholds to measure implementation fidelity and applied this framework to data collected during two years of implementation (2020-21 and 2021-22). The evaluation team conducted two studies to examine the impact of PREP using a comparative interrupted time series. The first study (Study 1) compared attendance, retention, and credit accumulation outcomes between four schools participating in PREP and four other alternative schools within the same district during the 2020-21 school year. The second study (Study 2) compared attendance outcomes between six schools participating in PREP and sixteen other alternative schools across Oregon during the 2020-21 and 2021-22 school years. This report describes the findings of the implementation and impact studies, with a deeper focus on the impact study.

Results from the evaluation uncovered the following findings:

- **PREP key components were implemented with adequate fidelity during the 2020-21 school year**. Results from the implementation analysis found that three of the four PREP key components and one of two mediators were implemented with adequate fidelity during the 2020–21 school year. Aside from activities focused on Project Based Learning, teachers participated in PREP activities with adequate fidelity. Students participated in Project Based Learning (PBL) and Career Technical Education (CTE) activities with good fidelity but participated in social and emotional learning activities with low fidelity.

- **PREP key components were *not* implemented with adequate fidelity during the 2021–22 school year**. In the 2021–22 school year, none of the critical components and mediators were implemented with fidelity. PREP staff members and educators described a challenging school environment related to the COVID-19 pandemic that complicated implementation. Staffing shortages made it difficult for teachers to prioritize participation in PREP activities. Multiple PREP sites experienced leadership transitions, which required program staff members to onboard new leaders to the PREP program, ultimately slowing implementation momentum.
- **Results from Study 1 did not identify a statistically significant impact of the PREP intervention on attendance, retention, and credit accumulation**. The study's ability to detect statistically significant effects was severely limited due to the small sample size, as only eight schools were included.
- **Results from Study 2 found promising evidence that PREP may have decreased rates of severe absenteeism; however, the results were not conclusive.**[1] After the first year of the intervention, schools participating in the PREP program had chronic absenteeism and severe absenteeism rates of 2.2 and 16.8 percentage points lower, respectively, relative to comparison schools. In the second year of implementation, chronic and severe absenteeism rates were 8.4 and 22 percentage points lower, respectively. While none of these estimates were statistically significant at the .05 critical value, rates for severe absenteeism after one and two years were marginally significant ($p<.10$).

[1] Chronic absenteeism rate refers to the percentage of students at a school that missed 10 percent or more of school days. Severe absenteeism rate refers to the percentage of students at a school that missed 20 percent or more of school days.

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Background

High school dropout affects thousands of students and their families across the United States every year. Dropout rates are particularly acute among low-income students, students of color, and those who face other forms of adversity (NCES, 2023). There are several factors that can contribute to a student's decision to drop out of school (McDermott et al., 2018). "Pull factors," such as personal or family circumstances, can include financial difficulties, health issues, or the need to work to support themselves or their families. "Push factors," on the other hand, can include the lack of motivation or interest in subjects, feeling disconnected from the school environment, or not feeling supported by teachers and peers. Ultimately, dropping out of school can have significant long-term consequences, such as limiting career opportunities and earning potential. It is critical that school systems address these factors to ensure students have the resources and support they need to succeed academically (Belfield & Levin, 2012; Rouse, 2007; Sum et al., 2009). This requires a multi-faceted approach that involves educators, policymakers, families, and communities working together.

Traditional high schools can be a challenging experience for students who struggle in mainstream classrooms that are not equipped to engage and teach them effectively (Slaten, 2015). Alternative high schools offer a different approach to learning that can be more accommodating to their needs. Recent estimates indicate that nearly half a million students in more than 2,000 school districts across the United States are enrolled in alternative schools and programs, with an overrepresentation of Black and Latinx students and students with disabilities (GAO, 2019). Alternative high schools differ significantly in organizational structure, student population focus, and targeted outcomes. They commonly provide a flexible schedule, project-based learning (PBL), health support, and pathways to career or college (Denton et al., 2022). These supports address the push and pull factors contributing to high school dropout and serve as a lifeline to get students back on track.

However, alternative schools are confronted with financial obstacles that can hinder their ability to provide students with high-quality educational and career opportunities. Despite serving students who require additional support, alternative schools typically receive similar per-pupil funding as traditional schools (Denton et al., 2022). This limits their ability to provide comprehensive services that meet the basic needs of students. Moreover, short-term funding adds a layer of unpredictability and hampers long-term planning and investment (Denton et al., 2022). The mismatch of resources to need creates an uphill battle for improving outcomes; nearly half of alternative schools have graduation rates below 50 percent, compared with just 6 percent of regular high schools (Vogell & Fresques, 2017). While all students must be held to high standards,

these outcomes should be viewed in light of the role alternative schools play in providing a supportive environment for students who are not well served by traditional schools.

Portland Public Schools (PPS) in Oregon has a robust alternative education program dedicated to providing learning environments that better meet the needs of students who are not thriving in traditional school settings. The district's Multiple Pathways to Graduation (MPG) program administers four alternative schools and contracts with community-based organizations to operate eight others. Each school and program provides students with specialized services and support. Students are referred to their "best fit" placement through MPG's Reconnection Services.

To better meet the needs of students in alternative school settings, PPS also developed the Personalized, Relevant, Engaged for Postsecondary (PREP) program, which was funded by the U.S. Department of Education in 2017 through a five-year Education Innovation and Research grant.[2] PREP is a holistic model designed to increase student engagement, high school completion, and college and career readiness, specifically for students in alternative school settings. Following program development and pilot phases, PREP was fully implemented in four alternative high schools in the 2020–21 school year and expanded to six alternative high schools in the 2021–22 school year.

Very little rigorous research has been conducted on the supports and interventions students in alternative high schools receive and the impact of those supports on student outcomes. This study examines the extent to which the PREP intervention impacted student outcomes in the intervention schools in years 4 and 5 of implementation. The study provides new evidence on how a comprehensive set of supports in alternative school settings impacts student engagement.

[2] Award number U411C170253. The district received a subsequent no-cost extension for the 2022–23 school year.

Study description

The PREP intervention was developed and implemented at PPS alternative high schools during the 2017–18 through 2021–22 school years. The first three years focused on developing, piloting, and refining the intervention. Year 1 focused on choosing the components of PREP, while years 2 and 3 were dedicated to piloting and refining the intervention. In year 4 the intervention was implemented at four alternative high schools, and in year 5 it expanded to two more schools. For the impact study, we are examining years 4 and 5, as shown in table 1, which details the program's development and implementation phases. PREP was originally designed to be delivered in person but due to the COVID-19 pandemic, implementation in 2020–21 was remote for much of the school year, and the delivery of the intervention had to be changed to accommodate remote instruction.

Table 1. Grant development and intervention timeline

Year 1 2017–18	Year 2 2018–19	Year 3 2019–20	Year 4 2020–21	Year 5 2021–22
Development Phase				
	Pilot Phase			
			Full Implementation	
			Impact Study 1	Impact Study 2

Source: Education Northwest analysis of program documents.

Since the intervention was implemented differently across years 4 and 5, we have divided the impact study into two parts: Study 1 and Study 2. Both studies use a comparative interrupted time-series (CITS) design, but they differ in terms of treatment and comparison group composition and outcome measures. This is why we discuss them separately. The intervention was implemented at alternative high schools in the district and at community-based organization (CBO) schools that partner with PPS to offer alternative high school education to PPS students. The comparison group for Study 1 consisted solely of alternative schools in Portland, while the comparison group for Study 2 included alternative high schools within and outside of Portland (sampling selection is further detailed in the “Analytic design and measures” section of this report).

Research questions

The impact study is guided by four research questions that examine the impact of PREP on multiple high school outcomes. Research question 1 applies to both Study 1 and Study 2, while research questions 2, 3, and 4 apply to Study 1 only. All four research questions examine outcomes that align with the What Works Clearinghouse Transition to College review protocol.

Study 1 and Study 2 research question

1. What is the effect of PREP on high school chronic and severe absenteeism rates compared to business-as-usual schools?

Study 1-only research questions

2. What is the effect of PREP on high school **rates of students who remained enrolled through the end of the school year** compared to business-as-usual schools?
3. What is the effect of PREP on high school **year-to-year retention rates** compared to business-as-usual schools?
4. What is the effect of PREP on **high school credit accumulation** compared to business-as-usual schools?

The PREP program

The primary objectives of the PREP program are to enhance the attendance, persistence, and academic proficiency of students, resulting in increased graduation rates and successful transition to postsecondary careers and education. The PREP intervention targets students who are continuing their education outside the comprehensive high school system and who face poverty, homelessness, involvement in foster care or the juvenile justice system, have disabilities, or belong to racially underserved communities. PREP is currently implemented in six PPS alternative schools: Alliance High School at Kenton (Kenton), Alliance High School at Meek (Meek), DART School (DART), Metropolitan Learning Center (MLC), and Rosemary Anderson High School's Lents and North campuses.

The PREP program has four key components: providing leadership for implementation; integrating project-based learning (PBL) into core instruction; expanding career and technical education (CTE) programming, which includes career-related learning experiences (CRLEs); and addressing student trauma by supporting social and emotional learning (SEL). Table 2 displays the program's logic model, relating key components to mediators, outputs, and outcomes. Although study schools had offered some individual components prior to the project, PREP calls for implementation of all four components simultaneously, with the backing of school leaders.

Table 2. The PREP logic model

Key components (KC)/Inputs	Mediators/Outputs	Outcomes
KC1. Leadership • School administrators participate in scheduled cross-site meetings • School administrators develop and communicate a PREP site plan • School administrators support PREP components **KC2. Project-Based Learning (PBL)** • Teachers participate in PBL training from a certified provider • Teachers participate in PBL coaching from a certified provider • Teachers participate in cross-site PBL-focused professional learning communities (PLCs) **KC3. Career and Technical Education (CTE), including Career-Related Learning Experiences (CRLEs)** • Teachers engage in activities to enhance their CTE offerings **KC4. Social and Emotional Learning (SEL)** • Schools offer advisory • School social workers participate in SEL training and/or coaching from a certified provider • School staff members participate in formal and informal SEL training and/or coaching • School social workers participate in SEL-focused PLCs	**School/staff** • System changes to implement PBL, CTE, and SEL • Increased teacher capacity to use PBL • More CTE courses, programs of study, and CRLEs • Strengthened support for social and emotional wellness, student learning, and transition to postsecondary pursuits **Students** • Participation in/positive attitudes toward PBL, including self-direction, ownership of learning • Participation in/positive attitudes toward career-related learning experiences (CTE pathways and courses and CRLEs) • Enrollment in dual-credit courses • Creation of postsecondary plan informed by career and college learning experiences • Enrollment in advisory course • Increased academic engagement and SEL competencies **Family/community** • Increased number of partnerships with postsecondary community and industry • Family members aware of and equipped to support SEL	**School/staff** • Improved overall school climate and trust • Increased capacity to implement effective prevention, intervention, and postintervention practices • Routine integration of applied and career-connected learning into curriculum and instruction **Students** • Increased attendance • Increased persistence in high school • Increased graduation rates • Increased academic proficiencies • Increased postsecondary preparation (applications for financial aid, scholarships, and visits to college campuses) • Increased postsecondary education enrollment • Increased participation in postsecondary CTE pathways

Source: Education Northwest analysis of program documents.

Leadership. PREP views leaders as an integral part of the intervention and evaluates leadership practices through three key indicators. First, PREP administrators consider communication a key element of implementation. Accordingly, they hold monthly cross-site meetings to engage school administrators. Second, PREP administrators ask school administrators to create an annual site plan to document how PREP activities are integrated into their school's operations. Communicating the site plan to school staff members is an integral feature of successful site plan implementation. Finally, school administrators are expected to engage in activities that support staff members during their PREP implementation. These activities vary across the schools and are expected to support key components of the intervention.

Project-based learning (PBL). PBL is an instructional method that supports learning through the implementation of practical and relevant projects. All teachers in the intervention schools are expected to incorporate high-quality PBL into their coursework. To support their efforts, PREP provides PBL professional development via training, coaching, and professional learning communities (PLCs). All teachers in the intervention schools are expected to participate in PBL training and professional development each year. Formal PBL training was provided via an optional four-day virtual PBL institute held in August each year (and in person in each pilot year). The institutes included whole-group presentations; small-group questions, reflections, and breakouts for school teams; office hours for consultation with trainers; and individual or partnered design time. PREP school staff members also had access to PBL coaching via outside contractors. The COVID-19 pandemic changed coaching plans in both study years, during which consultants used video-conferencing to offer monthly office hours, recorded mini-lessons, and ad hoc coaching. Lastly, PREP anticipated offering cross-site PBL-focused PLC meetings every other month to support the development and implementation of interdisciplinary PBL work. However, due to the pandemic, just two cross-site PBL-focused PLCs were planned during the 2020–21 school year.

Career and technical education (CTE) and career-related learning experiences (CRLEs). PREP seeks to increase the number of CTE and CRLE offerings available to students and improve the rigor and relevance of those offerings. According to conversations with PREP administrators, schools join PREP with the understanding that they will expand their CTE offerings. Over the course of the project, seven teachers across the three pilot schools earned their certification to offer coursework in formal CTE programs of study. Each pilot school had at least one staff member (career coordinator or Careers teacher) who worked with teachers and/or students to support student involvement in CRLEs. Career and College Coordinator positions were added via an Oregon state grant to support the replication at schools operated by community-based organizations. Through partnership with the PPS district CTE department, CTE teachers in PREP sites were further supported with an instructional facilitator, regular training, and cross-site PLCs.

Social and emotional learning (SEL). Of the four PREP components, SEL was the project's largest investment. The grant funded four full-time school social workers, who served sites in 2020–21 and 2021–22. It also funded extensive training and coaching activities to support school social workers in moving beyond traditional social work to embrace and lead more systemic, culturally sustaining, schoolwide support for students and adults.

Before full implementation of PREP, school social workers and staff members participated in professional development and developed resources that supported school staff members during the full implementation in the 2020–21 and 2021–22 school years. During the project planning year, PREP school social workers, building administrators, and teachers received foundational training in "Check & Connect," an evidence-based intervention to increase school completion and reduce dropout rates for secondary students. School social workers also participated in a cross-site PLC that met weekly over the two-year pilot period to further develop the PREP SEL approach using self-assessment tools and frameworks from the Collaborative for Academic, Social, and Emotional Learning and Multi-tiered systems of support. School social workers used the resources developed during the piloting phase to support teachers and career coordinators in a variety of ways. School social workers supported the implementation of an advisory course during the study years, a required course focused on students' social and emotional development and life beyond high school. School social workers also launched affinity groups, student clubs, and "soft spaces" in schools where students could retreat to process and manage their feelings of anxiety or overwhelm.

During the 2020–21 and 2021–22 school years, PREP offered virtual training and coaching to school social workers and SEL teams consisting of administrators, counselors, and lead teachers. These sessions were led by national and local experts and aimed to enhance schoolwide SEL and address complex issues surrounding culture, equity, and interpersonal and systemic racism. Although the opportunities were available to staff members, PREP continued to focus on providing essential support to students and staff members during the pandemic-affected years.

Implementation of PREP

The study team conducted an implementation evaluation of the PREP program during the 2020–21 and 2021–22 school years. Results of the evaluation indicate that three of the four PREP key components and one of two mediators were implemented with adequate fidelity during the 2020–21 school year. In the 2021–22 school year, none of the key components and mediators were implemented with fidelity. It is worth highlighting that the initial implementation study occurred in the middle of the COVID-19 pandemic, which necessitated a switch to remote and hybrid instruction during the implementation period. The pandemic introduced a host of challenges that complicated full implementation of the grant in the first year; however, adaptations by the team allowed for greater success in the second year of implementation, which also occurred after the

return to in-person instruction. Challenges in the school environment, such as staffing shortages, made it difficult for teachers to prioritize participation in PREP activities. Leadership transitions also occurred at multiple PREP sites, which required program staff members to onboard new leaders to the PREP program. This ultimately impacted implementation momentum in the second year of the grant. Table 3 summarizes fidelity of implementation of the key components and mediators across the two years.[3]

Table 3. Fidelity of implementation of the PREP program

Key components and indicators	Level of implementation at the program level: 2020–21	Level of implementation at the program level: 2021–22
Key components of the intervention		
Leadership		
School administrators participate in virtual cross-site meetings	Adequate	Low
School administrators develop and communicate a PREP site plan	Adequate	Adequate
School administrators support PBL, CTE, and SEL	Adequate	Low
Component-level implementation	**Adequate**	**Low**
Project-based learning (PBL)		
Teachers participate in virtual PBL training from a certified provider	Low	Low
Teachers participate in virtual PBL coaching with a certified provider	Low	Low
Teachers participate in virtual cross-site PBL-focused PLCs	Adequate	Low
Component-level implementation	**Low**	**Low**
Career and technical education (CTE)		
Teachers engage in activities to enhance their CTE offerings	Adequate	Low
Component-level implementation	**Adequate**	**Low**
Social and emotional learning (SEL)		
Schools offer advisory	Adequate	Adequate

[3] A more detailed report focused on the implementation of the PREP program is available for review upon request.

Key components and indicators	Level of implementation at the program level: 2020–21	Level of implementation at the program level: 2021–22
School social workers participate in SEL training and/or coaching from a certified provider	Low	Low
School social workers participate in virtual SEL-focused PLCs	Adequate	Low
School staff members participate in formal and informal SEL training and coaching	Adequate	Low
Component-level implementation	**Adequate**	**Low**
Mediators		
Schools/teachers implement PREP		
Teachers implement PBL units	Adequate	Low
Teachers implement high-quality PBL units	Indeterminate	Indeterminate
Schools offer expanded CTE programs	Adequate	Low
Teachers teach advisory	Adequate	Low
Component-level implementation	**Adequate**	**Low**
Students participate in PREP		
Students complete PBL units annually	Adequate	Adequate
Students participate in CTE annually	Adequate	Low
Students participate in advisory	Low	Low
Students participate in SEL activities	Low	Low
Component-level implementation	**Low**	**Low**

Source: Education Northwest review of program documents, survey data, and student administrative data.

Comparison condition

The study team drew comparison schools from PPS and other districts across Oregon, including schools in both urban and rural settings. Alternative high schools in the comparison condition appeared to implement some of the key components of the PREP intervention. For example, review of the relevant high school websites revealed that eight schools in the comparison condition offered CTE programming, three offered PBL, and three offered SEL supports. However, none of the schools appeared to offer all three integrated services. Table 4 provides a list of schools included in the comparison condition and the PREP-related services they offered.

Table 4. PREP-related services offered to students at comparison condition

School name	PBL	CTE	SEL
Comparison schools in Study 1			
Mt. Scott Learning Center	X		X
NAYA Many Nations Academy	X		X
Rosemary Anderson High School – New Columbia		X	
Rosemary Anderson–North		X	
Comparison schools in Study 2			
Bridges High School		X	
Cascade Opportunity Center		X	
Community School		X	
Creekside Community High School (formerly Durham Center)	X		
Destinations Academy		X	
Dillard Alternative High School			
Eugene Education Options			
Hawthorne Alternative High School			
Kalapuya High School		X	
Pioneer Secondary Alternative High School			
Plymouth High School			X
Samuel Brown Academy		X	
Upper Rogue Center for Education Options		X	
Rosemary Anderson High School – New Columbia		X	

CTE = career and technical education.

PBL = project-based learning.

SEL = social and emotional learning.

Source: Education Northwest analysis of school's websites.

Study participants and data sources

The impact studies included some (not all) of the alternative high schools within the PPS Multiple Pathways to Graduation program and—for Study 2 only—a sample of alternative schools from across Oregon, which were included solely as comparisons and were not provided with an option to participate in the study.

The primary data used for this study came from PPS and the Oregon Department of Education (ODE). Both entities shared student-level data for the 2014–15 to 2021–22 school years. PPS shared student demographic, attendance, course participation, and credit accumulation data. ODE shared

more limited data including demographic and attendance data. This student-level data was aggregated to the school level.

Study 1 participants

Study 1 includes only alternative high schools within the PPS Multiple Pathways to Graduation program and examines outcomes in the 2020–21 school year. Four high schools implemented PREP in this school year: Metropolitan Learning Center, Alliance at Benson, Alliance at Meek, and the Rosemary Anderson–Lents. These schools were recruited by members of the PREP intervention team early in the first year of the grant. As such, the intervention study participants self-selected to participate in the PREP intervention.

To provide a fair comparison, we selected four schools within the Multiple Pathways to Graduation program: Mt. Scott Learning Center, NAYA Many Nations Academy, Rosemary Anderson–New Columbia, and Rosemary Anderson–North. They were chosen because they collected similar data throughout the study period and operated as comprehensive high schools, similar to the PREP schools being analyzed.

Study 2 participants

Study 2 includes the four implementation schools from Study 1 (referred to as cohort 1) as well as two additional implementation sites, Rosemary Anderson–New Columbia and DART schools (referred to as cohort 2). Hence, cohort 1 had received the treatment for a total of two years and cohort 2 had received the treatment for one year. The implementation team also recruited the two additional sites during the 2021–22 school year, so these schools also self-selected to participate in the study.

For Study 2, we drew comparison schools from PPS and from other alternative schools in Oregon. We extended the selection of comparison schools to the entire state to address one significant limitation of Study 1: sample size. Our sample size for Study 1 included only eight schools. This small sample size limited our ability to detect significant effects; if effects existed. However, we were not able to examine more outcomes using this larger sample of schools because ODE does not collect outcome measures of interest such as credit accumulation. Thus, we were only able to focus on measures of engagement (i.e., attendance). In total, 16 alternative high schools were selected in the comparison group. More information on the selection process is described in the following section.

Analytic design and measures

Independence of the impact evaluation and preregistration

The impact study was an external evaluation conducted solely by researchers at Education Northwest. Education Northwest is not affiliated with PPS, and members of the evaluation team did not play a role in the implementation of the PREP intervention and recruitment of the intervention sites. Education Northwest researchers were responsible for collecting key outcome data, executing impact analysis, and reporting study findings.

This study was pre-registered at the Registry of Efficacy and Effectiveness Studies on March 4, 2021 (number 500.1 for Study 1 and 500.2 for Study 2). The research questions listed in this report were all included in the pre-registration. The pre-registration included additional questions that the evaluation team was not able to address due to data collection limitations imposed by the COVID-19 pandemic and the switch to remote instruction. The following question was not addressed due to data collection limitations: What is the effect of PREP on discipline incidences compared to business-as-usual schools?

Data

Data for this study came from PPS and the Oregon Department of Education. PPS shared student-level data from the 2014–15 to 2021–22 school years. The data included all students who attended schools in the Multiple Pathways to Graduation program and contained enrollment, attendance, course participation, credit accumulation, and high school completion information. This data was aggregated at the school level to create the analytic data set. Study 1 used PPS data exclusively.

ODE also shared student-level data from the 2014–15 to 2021–22 school years. The data set included enrollment and attendance information for all students across Oregon. To identify students who attended alternative high schools, we engaged in a three-step process. First, we reviewed the state's list of designated alternative education programs and flagged those that were alternative high schools. Next, we accessed publicly available data from the Civil Rights Data Collection for all schools in Oregon. The Civil Rights Data Collection flags schools that have alternative programs, and we used this flag to identify additional alternative high schools. Lastly, we reviewed each school's website to confirm that they are described as alternative programs. Schools that were identified in this step were eligible for inclusion in the study sample. In total, we identified 22 eligible schools. None of the schools included in Study 1 and Study 2 had missing data.

Limitations of the data due to the COVID-19 pandemic

As in other school settings across the United States, the COVID-19 outbreak caused PPS to switch to comprehensive distance learning beginning in mid-March 2020 and continuing through the end of the 2020–21 school year. These drastic changes in school setting altered data collection for particular outcome measures in this study, such as attendance. For example, the ODE guidance to school districts expanded the definition of attendance to include different forms of interaction, such as email communication with teachers (ODE, 2020). Because this broader definition of attendance gave schools more discretion in collecting and reporting data, it likely introduced measurement bias into the data collection across the schools. When interpreting this information, it is important to keep in mind that adaptations to the pandemic may have changed the meaning of some of this data.

Outcome measures

This study examined five unique outcomes. Study 1 examined all five outcomes within PPS and Study 2 examined two of the five outcomes across a sample of alternative high schools in Oregon. The only outcomes common to both Study 1 and Study 2 are school rate of chronic absenteeism and school rate of severe absenteeism. The school rate of chronic absenteeism is a continuous variable representing the percentage of students who missed 10 percent or more of school days, and the school rate of severe absenteeism is the percentage of students who missed 20 percent or more of school days. Attendance is calculated at the end of spring in each school year.

Study 1 included two outcome measures focused on students' progress in school: school rate of annual retention and school rate of year-to-year retention. School rate of annual retention is a continuous measure that represents the percentage of retained students from the point of enrollment to the end of the school year. The year-to-year retention rate is a continuous variable representing the percentage of non-graduating students enrolled in the spring and re-enrolled in the same school in the fall of the following school year. High school credit accumulation is a continuous variable that represents the percentage of students who meet targets for the number of credits earned for the length of enrollment or earn their maximum required credits while enrolled in school. Table 5 summarizes the outcome measures for both Study 1 and Study 2 and when the data for each measure was collected.

Table 5. Definition and timing of outcome measures included in the impact study

			Study 1		Study 2	
School-level outcome	**Outcome description**	**Reliability/validity**	**Timing of baseline measure**	**Timing of outcome measure**	**Timing of baseline measure**	**Timing of outcome measure**
Attendance						
Chronic absenteeism rate	Continuous variable that represents the percentage of students deemed chronically absent (Oregon Department of Education calculates a dichotomous indicator, chronically absent or not, based on whether a student attends 90% or fewer of their enrolled days)	Standard education measure	Spring 2020	End of spring 2021	Cohort 1 February 2020 Cohort 2 End of spring 2021	End of spring 2022
Severe absenteeism rate	Continuous variable that represents the percentage of students deemed severely absent (a student who attends 80% or fewer of their enrolled days)	Standard education measure	Spring 2020	End of spring 2021	Cohort 1 February 2020 Cohort 2 End of spring 2021	End of spring 2022
Staying in school						
Annual retention	Continuous variable that represents the percentage of students who are retained from the point of enrollment to the end of the year for each school	Standard education measure derived using administrative data	Spring 2020	End of spring 2021	NA	NA

			Study 1		Study 2	
School-level outcome	**Outcome description**	**Reliability/validity**	**Timing of baseline measure**	**Timing of outcome measure**	**Timing of baseline measure**	**Timing of outcome measure**
Year-to-year retention	Continuous variable that represents the percentage of non-graduating students enrolled at the end of the previous school year who re-enroll by the first quarter of the next school year	Standard education measure derived using administrative data	Fall 2020	Fall 2021	NA	NA
Progressing in school						
High school credit accumulation	Continuous variable that represents the percentage of students who met targets for the number of credits earned for length of enrollment or earned their maximum required credits while enrolled in school	Standard education measure	End of spring 2020	End of spring 2021	NA	NA

Source: Education Northwest description of the impact study.

Sample size and attrition

This study included six schools that implemented the PREP program and 16 unique comparison schools derived from a sample of schools from PPS and across Oregon. Four of the six schools began implementing PREP in the first year of full implementation (2020–21 school year) and two schools began implementing PREP in the second year of full implementation (2021–22 school year). All six schools that received the PREP intervention are included in the analysis.

Comparison selection for Study 1

The unit of analysis for Study 1 was PPS alternative high schools participating in the Multiple Pathways to Graduation program. Because of the limited number of alternative high schools within PPS, there were few schools to choose from for the comparison group. In addition, some of these schools are designed to serve a specific group of students, widening the demographic differences between the schools. This made it difficult to create a comparison group that was similar enough to the PREP schools in key characteristics. As a result, student demographics in the intervention and comparison schools varied significantly at baseline. For example, in the 2019–20 school year, PREP schools had lower attendance rates and higher chronic and severe absenteeism rates compared to PPS alternative schools that did not implement PREP.

To create more comparable intervention and comparison groups that could meet WWC evidence requirements, we selected four comparison schools that operated as comprehensive schools and used a statistical method to create observation-level weights. To meet the evidence requirements, PREP and comparison schools were expected to be similar in student composition and in pre-intervention outcome measures, such as attendance rates.

The initial samples did not meet baseline equivalence, as the magnitudes of these differences were all outside the established WWC guidelines. To create the weights, we implemented entropy balance using the WeightIt package available for the RStudio. We modeled the prep intervention as the outcome and included outcomes of interest (e.g., attendance rate, annual retention rate) and student demographic information as predictors. We repeated this procedure separately for each outcome measure because each outcome could include a slightly different student sample. For example, the attendance analysis included all students at the school, whereas the year-to-year retention only included students who did not graduate. Using this method to adjust group means helped create a more comparable sample of PREP schools and comparison schools and reduced mean differences. The final analytic sample for Study 1 was four intervention schools that began implementing PREP during the 2020–21 school year and four comparison schools within PPS. However, the composition of each school varied slightly depending on the outcome.

Comparison selection for Study 2

The unit of analysis for Study 2 was alternative high schools across Oregon. To identify comparison schools for Study 2, we leveraged ODE school longitudinal data. Using the eligible alternative high schools, we used coarsened exact matching to identify a well-matched comparison group of schools across the state to improve comparability. We used the following school-level variables to match PREP schools with other alternative high schools:

1. Baseline rates of chronic absenteeism (binned into eight)
2. Percentage of students of color
3. Percentage of English learner (EL)-classified students
4. Percentage of male students

Schools were matched using data from the baseline year or the year before the first year of implementation. First, schools that were part of cohort 1 were matched to comparison schools using data from the end of the 2019–20 school year. In this first step 14 schools were identified as comparison schools. In the second step, we discarded matched schools and matched the remaining schools from cohort 2. This yielded an additional two comparison schools. The final analytic sample for Study 2 was six intervention schools and 16 comparison schools.

Analytic design

The overarching analytic approach to both Study 1 and Study 2 was a comparative interrupted time series (CITS). CITS is a quasi-experimental approach that evaluates whether a treatment group has significantly different changes in the post-intervention period relative to a comparison group. CITS leverages pre-intervention years by computing trends in outcomes before intervention to project future outcomes. This allows us to project what would have happened to the treatment group without the intervention. The deviation from the pre-intervention projection for both treatment and comparison groups allows us to estimate the causal impact of the intervention (Somers et al., 2013). In the case of PREP, we analyzed whether there were changes in outcome for intervention schools after the implementation of PREP and if those changes significantly differed compared to the post-intervention outcomes of a comparison group of alternative schools that did not receive PREP. Table 6 describes the years included in the analysis for Study 1 and Study 2 and how treatment status was coded in each year.

Table 6. description of years included in the study

Outcome measures	Type of school		2015	2016	2017	2018	2019	2020	2021	2022
Study 1										
Chronic and severe absenteeism, annual and year-to-year retention, high school credit accumulation	Treatment (n = 4)	*Treat status*			X	X	X	X	T	
		TYear coded as:			0	0	0	0	1	
	Comparison (n = 4)	*Treat status*:			X	X	X	X	t	
		TYear coded as:			0	0	0	0	0	
		Time coded as:			-3	-2	-1	0	1	
Study 2										
Chronic and severe absenteeism rates	Cohort 1 - Treatment (n = 4)	*Treat status*:	X	X	X	X	X	X	T	T
		TYear coded as:	0	0	0	0	0	0	1	1
	Cohort 1 - Comparison (n = 14)	*Treat status*:	X	X	X	X	X	X	T	T
		TYear coded as:	0	0	0	0	0	0	0	0
		Time coded as:	-5	-4	-3	-2	-1	0	1	2
	Cohort 2 - delayed treatment (n = 2)	*Treat status*:	X	X	X	X	X	X	X	T
		TYear coded as:	0	0	0	0	0	0	0	1
	Cohort 2 – Comparison (n = 2)	*Treat status*	X	X	X	X	X	X	X	t
		TYear coded as:	0	0	0	0	0	0	0	0
		Time coded as:	-5	-4	-3	-2	-1	0	1	2

"X" = Indicates a pre-treatment year in which a school-level baseline were obtained.

"T" = For treatment schools, T indicates a treatment year.

"t" = For comparison schools, "t" indicates a year in which the schools' treatment group counterparts have received treatment.

Note: The first year of pilot implementation at three schools was 2019–20. Year columns highlighted in green indicate the year of analysis. Study 1 did not include year 2014–15 and 2016-17 in the analysis because some comparison schools were not yet operating.

Source: Education Northwest description of the impact study.

The core assumption to using CITS is that we can project what would have happened to PREP schools without PREP implementation. This means that proper modeling of pre-intervention trends is critical (Bloom, 2003; Somers et al., 2013). After visually examining the pre-treatment trends, a linear specification of the pre-treatment trend seemed appropriate. The linear trend model below represents the equation used for Study 2.

$$Y_{tj} = \beta_0 + \beta_1 PREP_j + \beta_2 TYear1_t + \beta_3 TYear2_t + \beta_4 Time_t + \beta_5 PREP_j * TYear1_t + \beta_6 PREP_j * TYear2_t + \beta_7 PREP_j * Time_t + \chi_{tj} + MatchingBlock_m + \alpha_{0j} + \alpha_{1j} + \varepsilon_{tj}$$

Where j denotes school and t represents the years included in the study. The model for Study 1 is identical to this model except it does not have the matching block, TYear2 term, and the PREP*TYear2 interaction term. Study 1 also includes entropy balance weights. The variables in this model are defined as follows:

Y_{tj} = Outcome for school j in time period t. This will include each of the outcome measures described above.

PREP_j = Dichotomous indicator (0,1) that indicates whether school j is an intervention school.

TYear1_t = Dichotomous indicator (0,1) that indicates whether the time period is the first year of the implementation of PREP.

TYear2_t = Dichotomous indicator (0,1) indicates whether the time period is the second year of the implementation of PREP.

Time_t = A continuous variable that represents the time until the implementation of the intervention. Time is centered at one at the first year of intervention.

MatchingBlock_m = A categorical variable that takes the value 1 if the school was in the mth of M matching blocks, and 0 otherwise.

X_{tj} = Time-varying school characteristics that include percentage of students of color, current English learners, students in special education, male students, and school size.

The coefficients represented in the model are defined as follows:

β_1 = Difference between treatment and comparison schools during the baseline year.

β_2 = Deviation from baseline mean for the comparison school after the implementation of PREP in the first year.

β_3 = Deviation from baseline mean for the comparison school after the implementation of PREP in the second year.

β_4 = The relationship between time and outcome for comparison schools.

β_5 = The estimated effect of PREP on the study outcome in year 1 of the intervention.

β_6 = The estimated effect of PREP on the study outcome in year 2 of the intervention.

β_7 = The difference in relationship between time and outcome between PREP and comparison schools.

α_{0j} = Random intercept for schools, represents the deviation of school j's intercept from the mean intercept.

α_{1j} = Random time slope for schools, represents the deviation of school j's time slope from the mean time slope, conditional on model covariates.

ε_{jt} = The residual represents the difference in outcome for school j in time from the predicted score.

Coefficient β_5 estimates the impact after one year of the PREP intervention and β_6 after two years of the intervention. To calculate the main average effects across years for Study 2, we calculated the precision weighted average of the impact estimates. The precision weights are calculated to be inversely proportional to the variance of the impact estimates at each time point (Price, 2022). The overall impact estimate is calculated as follows:

$$OverallImpact = \left(\hat{\beta}_5 * Weight5\right) + \left(\hat{\beta}_6 * Weight6\right)$$

To implement this calculation, we used the lincom command in Stata.

Baseline equivalence

To meet the WWC Evidence Review Protocol for Dropout Prevention, studies for which the unit of assignment is the school must demonstrate baseline equivalence in three key pre-intervention variables (WWC, 2014). First, groups must be equivalent in terms of outcomes measured before intervention. Second, groups must show equivalence in race/ethnicity. Lastly, groups must be equivalent in at least one measure of disadvantage, such as qualification for EL services or special education services, which may signal an academic disadvantaged. To meet WWC standards, differences between groups must be smaller than .05 standardized units. Groups are also equivalent with statistical adjustment when effect sizes are between 0.05 and 0.25.

To test baseline equivalence, we calculated the difference between intervention and comparison schools during the year before the implementation of the PREP intervention for each outcome separately. We used a linear regression approach to calculate the difference between groups. Baseline equivalence testing for intervention schools is represented by the equation below.

$$Y_j = \beta_0 + \beta_1 PREP_j + +\mu_j$$

Where Y_j represents the baseline measure for school j, PREP is a dichotomous variable that represents if a school is part of the PREP intervention, and the β_1 coefficient is the difference between comparison and intervention schools. This model includes the matching block generated during the matching step. To test baseline equivalence for Study 1, we excluded the matching block term but included the weights developed after implementing entropy balance using the WeightIt package available for the RStudio.

Based on the WWC review protocol for dropout prevention, we demonstrate baseline equivalence on each outcome in the year before the intervention as well as race/ethnicity, and a measure of disadvantage (e.g., qualification for free or reduced-price lunch, EL, or special education services). We calculated standardized differences using Hedges' g for continuous measures. Baseline differences less than or equal to .05 are acceptable according to WWC. If baseline measures have differences greater than .05 but less than 0.25, we included it as a covariate in the final regression model to adjust for differences.

Study 1 baseline equivalence

We calculated baseline equivalence for each of the four outcome measures, the percentage of students of color, and the percentage of students who were EL classified. This was done separately for each outcome measure because the student composition of the sample varied depending on the outcome measure. For example, the attendance analysis includes all students at the school, whereas the year-to-year retention only includes students who did not graduate.

For three of the four outcomes, the differences were lower than .25 in the key measures: all outcome measures, rates of students of color, and rates of EL student classification (table 7). However, differences were not reduced enough to meet WWC standards for the annual retention outcome. While annual retention rates and enrollment of students of color had standardized differences below .25, EL student classification rates did not meet this threshold.

Table 7. Demographic information of PREP and comparison schools at baseline (2019–20 school year) for Study 1 school

		PREP schools (N = 4)		Comparison schools (N = 4)				
Analysis	Predictors	Mean	SD	Mean	SD	Difference in means	Effect size	Meets WWC?
Attendance	Prior attendance rates	73.97	13.65	76.97	7.57	2.23	.18	With adjustment
	Prior chronic absenteeism rates	73.53	23.48	75.56	4.40	-2.02	-.10	With adjustment
	Students of color (%)	77.39	19.58	73.34	22.7	4.05	.17	With adjustment
	Prior severe absenteeism rate	46.08	33.27	46.81	10.9	-.73	-.03	Yes
	EL classified (%)	4.37	1.42	4.34	2.66	.03	.01	Yes
Year-to-year retention	Prior district retention rates	80.74	7.59	80.74	9.05	.00	.00	Yes
	Students of color (%)	74.39	21.59	74.32	29.5	.00	.00	Yes
	EL classified (%)	5.16	2.32	4.95	2.95	.211	.07	With adjustment
Annual retention	Prior annual retention	74.13	10.08	74.13	11.0	.00	.00	Yes
	Students of color (%)	73.24	19.77	73.24	22.2	.00	.00	Yes
	EL classified (%)	3.19	1.42	4.34	2.71	-1.16	-.46	No
Met credit	Rate that met credit goal	42.62	24.66	42.62	19.0	.00	.00	Yes
	Students of color (%)	73.34	19.58	73.34	22.7	.00	.00	Yes
	EL classified (%)	3.83	1.42	4.34	2.66	-.51	-.21	With adjustment

EL = English learner.

SD = standard deviation.

Source: Education Northwest analysis of PPS data.

Study 2 baseline equivalence

Study 2 only examined attendance measures and included only one analytic sample of schools. As with Study 1, we checked for baseline equivalence in the outcome measures (chronic and severe absenteeism rates), percentage of students in school who are students of color, and percentage who are EL classified. Table 8 reports baseline equivalence for Study 2 for both samples included in the analysis. Baseline equivalence was established for the outcome measures (chronic absenteeism rate and severe absenteeism rate), but not for other important characteristics, including the rate of students of color and the percentage of students who are currently EL classified.

Table 8. Demographic information of PREP and comparison schools at baseline for Study 2 schools

Analysis and sample	Predictors	Mean	SD	Mean	SD	Difference in means	Standard difference (Effect size)	Meets WWC?
Chronic and severe absenteeism 1 year after (PREP sample = 6; Comparison sample = 16)	Prior attendance rates	74.45	18.63	75.98	11.29	-1.52	-0.11	With adjustments
	Prior chronic absenteeism rates	66.77	33.67	70.16	18.08	-3.39	-0.14	With adjustments
	Prior severe absenteeism rates	52.11	38.80	46.10	19.80	6.01	0.22	With adjustments
	Students of color (%)	53.92	19.63	44.67	24.99	9.25	0.37	No
	English learner classified (%)	1.90	2.06	3.84	6.00	-1.93	-0.35	No
Chronic and severe absenteeism 2 years after (PREP sample = 4; Comparison sample = 14)	Prior attendance rates	75.73	13.65	75.06	11.72	.66	.05	With adjustments
	Prior chronic absenteeism rates	71.57	23.49	70.82	18.02	.74	.03	Yes
	Prior severe absenteeism rates	52.47	33.27	46.08	20.45	6.38	.25	With adjustments
	Students of color (%)	49.82	19.58	43.48	24.79	6.34	.25	With adjustments
	English learner classified (%)	.92	1.42	3.98	6.33	-3.06	-.51	No

SD = standard deviation.

Source: Education Northwest analysis of PPS and ODE data.

Study 1 results

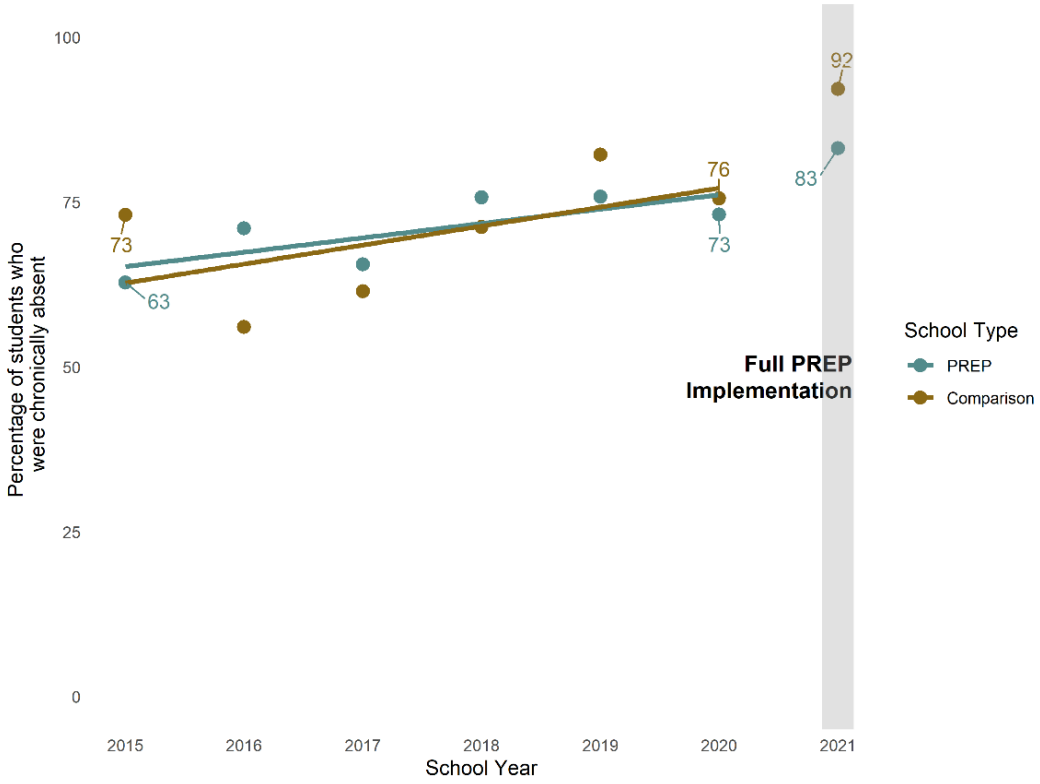
Descriptive findings

Before turning to the impact result findings, we provide some descriptive information on historical trends in attendance, retention, and credit accumulation among the analytic samples in Study 1.

Attendance

During the 2020–21 academic year, both PREP and comparison schools witnessed significant rises in chronic absenteeism rates. Before the implementation of PREP, in the 2014–15 school year, the average chronic absenteeism rate was 63 percent in PREP schools and 73 percent in comparison schools (figure 1). From 2014–15 until the year before PREP was implemented (2019–20 school year), chronic absenteeism rates increased steadily in both PREP and comparison schools. In the first year of PREP implementation (2020–21 school year), both types of schools saw a dramatic increase in chronic absenteeism rates. These significant increases in chronic absenteeism rates were likely due to the challenges that arose during the COVID-19 pandemic, including changes in instructional delivery. PPS high schools adopted comprehensive distance learning from the beginning of the academic year until April 2021, after which students could attend hybrid instruction. These trends in chronic absenteeism rates are similar to those observed in other contexts during the COVID-19 pandemic (Gee et al., 2022).

Figure 1. Annual chronic absenteeism rates over time for PREP and comparison schools in Study 1



Source: Education Northwest analysis of Portland Public Schools data.

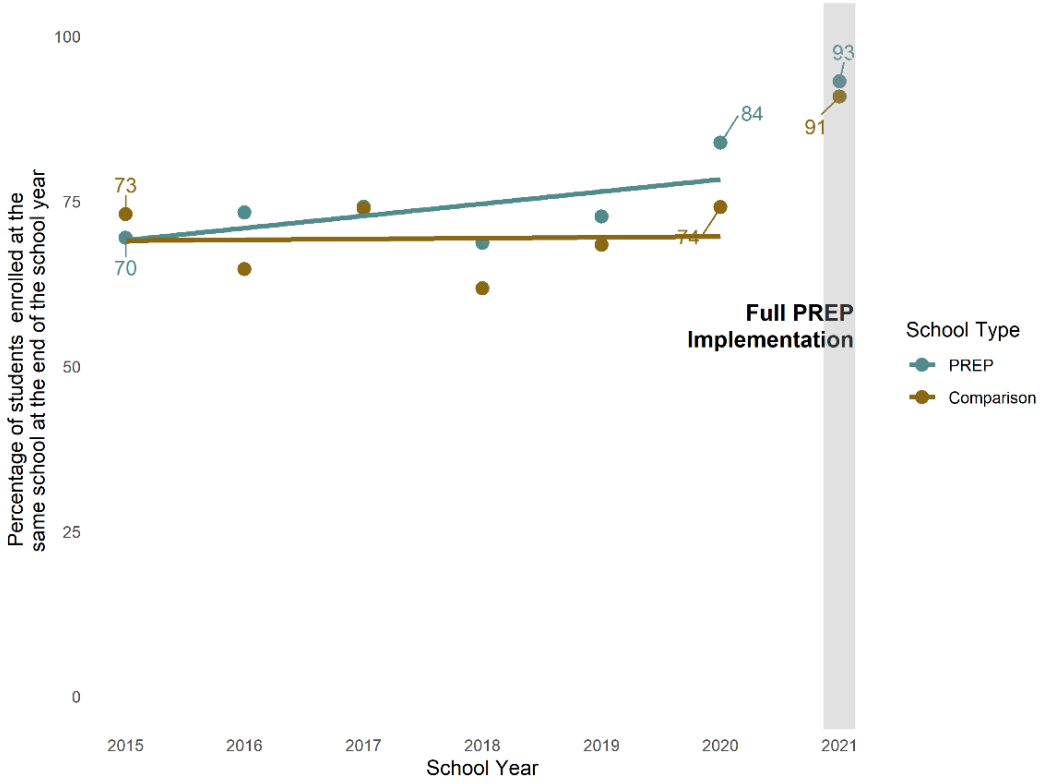
During the first year of implementation, chronic absenteeism rates increased at PREP schools compared to the 2019–20 school year. However, the increase was smaller than that observed at comparison schools, with PREP's rates increasing by 10 percentage points and comparison schools' rates increasing by 16 percentage points. This indicates that the effects of the pandemic on chronic absenteeism rates may have been less severe at PREP schools. Similar patterns were also seen in rates of severe absenteeism (see figure A1 in appendix A).

Annual retention

During the 2020–21 school year, there was an increase in the percentage of students retained until the end of the year in both PREP and comparison schools, after years of steady rates (figure 2). In the 2014–15 school year, both types of schools had similar annual retention rates: 70 percent in PREP schools and 73 percent in comparison schools. In subsequent years, retention rates in PREP schools slightly increased. In the year before full PREP implementation, 2019–20, annual retention was 84 percent for PREP schools, while retention rates in comparison schools remained largely

unchanged from 2014–15 levels. In the 2020–21 school year, there was a noticeable increase in annual retention rates for both PREP and comparison schools, with rates rising from 84 to 93 percent for PREP schools and 74 to 91 percent for comparison schools. Although the percentage point change in retention rates appears to be larger for comparison schools, both types of schools ended up with similar rates.

Figure 2. Annual retention rates over time for PREP and comparison schools



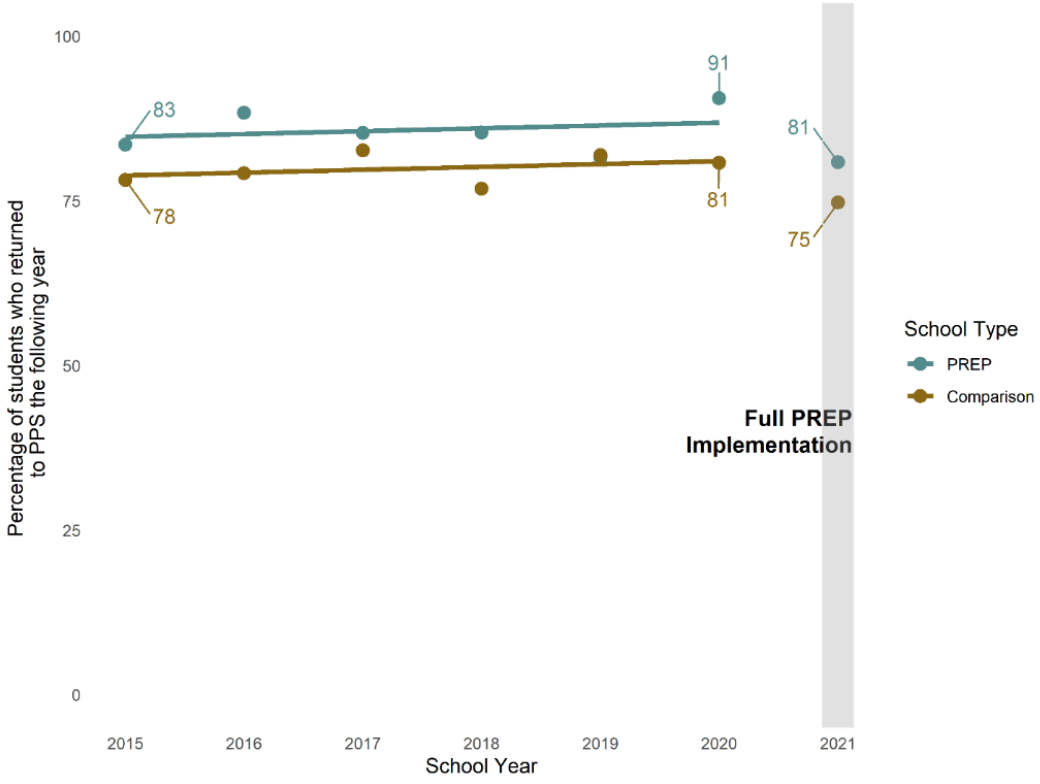
Source: Education Northwest analysis of Portland Public Schools data.

Year-to-year retention

The percentage of students who returned to the district decreased during the 2021–22 school year for both PREP and comparison schools (figure 3). Over the last seven school years, PREP schools had a higher proportion of students in grades 9–11 return to the same school or district in a given year relative to comparison schools. For example, the district retention rate for PREP schools remained relatively flat over the last six years, hovering around 80 to 85 percent, and was 91 percent during the 2019–20 school year, the year before PREP implementation. During the same period, district retention rates for comparison schools slightly trended upwards, but were still below PREP schools. During the 2019–20 school year, district retention rates for comparison schools was 81 percent.

District retention rates dropped noticeably for both the PREP and comparison schools in the first year of PREP implementation, which overlapped with a full year of remote instruction due to the COVID-19 pandemic. The mean district retention rate dropped from 91 to 81 percent for PREP schools and from 81 to 75 percent for comparison schools.

Figure 3. District retention rates over time for PREP and comparison schools in Study 1



Source: Education Northwest analysis of Portland Public Schools data.

Credit completion

PREP schools averaged higher rates of credit completion relative to the comparison schools. During the 2014–15 school year, about 38 percent of students at PREP schools met their credit goal for their time of enrollment, about 8 percentage points higher than in comparison schools. Since then, both PREP and comparison schools have steadily increased the rate at which students meet their credit goals. In 2019–20, the year prior to the PREP intervention, 59 percent of students at PREP schools and 43 percent of students at comparison schools met their credit goals. During the 2020–21 school year, the rate at which students met their credit goals dropped by 22 percentage points for PREP schools and 18 percentage points for comparison schools.

Impact findings from CITS

The size of a study's sample plays a role in its ability to detect significant results. Unfortunately, Study 1 only included eight schools in its sample, which made it challenging to identify any statistically significant impact. Results from the analysis did not uncover any significant impact of the PREP intervention on the study's outcomes (see table A2 in the appendix for full results). Nonetheless, it's still worth examining the direction and magnitude of the estimates, even if they are not statistically significant.

The study's estimate suggests that PREP mitigated a larger increase in chronic and severe absenteeism during the pandemic. The model estimation results are consistent with descriptive studies, indicating that chronic and severe absenteeism rates rose in the first year of the PREP intervention. The Treatment Year 1 variable coefficient estimate was positive for both chronic and severe absenteeism rates, indicating that the chronic and severe absenteeism rates rose by additional amounts during the first year of the PREP intervention. However, the implementation of PREP in schools resulted in lower-than-expected increases in chronic and severe absenteeism. The study's estimates demonstrate that the PREP intervention led to a 7.49 percentage point decrease in chronic absenteeism and a 6.60 percentage point decrease in severe absenteeism (see table A1 in appendix A). In summary, while chronic and severe absenteeism rates increased in both groups of schools, PREP schools experienced smaller increases in comparison.

According to the impact analysis results, the implementation of PREP did not have a significant effect on the number of students who stayed enrolled in school until the end of the year, nor did it have a positive impact on the rate of students who maintained enrollment until the end of the year. The impact study estimates showed that the impact of PREP on annual retention rates was minimal, as it increased the annual retention rate of students by less than 1 percentage point. Moreover, the estimate was less promising for year-to-year retention rates. The results indicate that the year-to-year retention rates for both PREP and comparison schools decreased, but the decrease was 4.73 percentage points higher for PREP schools.

Lastly, PREP appeared to decrease the rate of students who met credit completion goals. While the rate at which students met their credit goals decreased for both groups overall, model estimates suggest that they increased by 9.2 percentage points more at PREP schools. It is important to note, however, that the number of credits attempted in PREP schools during the 2020–21 school year was similar to that of previous years. This means that the decrease in credits completed at PREP schools is likely because students are not successfully earning credit for some of the classes they are enrolled in, and not because students were attempting fewer credits overall.

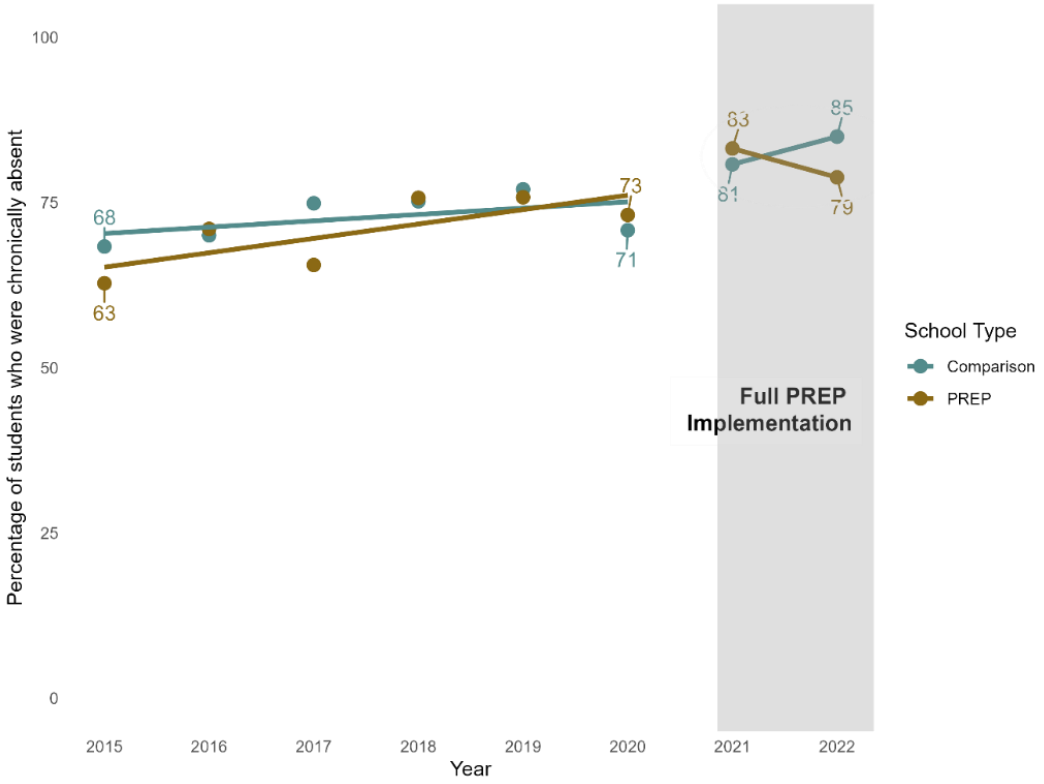
Study 2 results

Descriptive findings

As with Study 1 results, we first present descriptive findings on attendance trends for the study sample. The analytic sample for this second study differs from the analytic sample in Study 1 in two main ways. First, the comparison group comprises a matched sample of alternative high schools across Oregon (including PPS). Second, the treatment sample includes a second cohort of schools that implemented PREP in the 2021–22 school year. In the descriptive results, we present trends separately by cohort for PREP schools and their matched sample. Cohort 1 includes four PREP schools and 14 comparison schools and cohort 2 includes two PREP schools and two comparison schools.

Similar to the trends observed in the analytic sample in Study 1, cohort 1 PREP and comparison schools had increases in chronic absenteeism rates after the first full year of remote instruction (figure 4). For cohort 1 schools, this coincides with the first year of PREP intervention. For both PREP and comparison schools in cohort 1, rates increased by 10 percentage points from 2019–20 to 2020–21 school years. In the second year of full PREP implementation, rates of chronic absenteeism decreased for PREP schools but increased for comparison schools. Patterns for rates of severe absenteeism were similar (see figure A1 in appendix A).

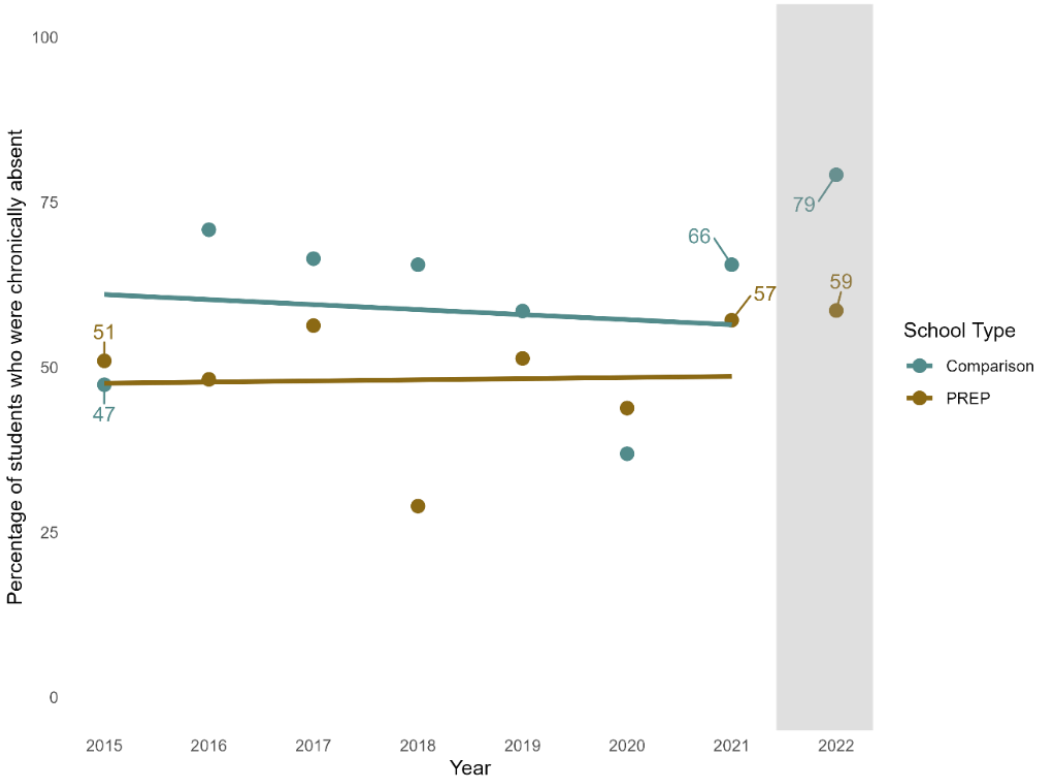
Figure 4. Annual chronic absenteeism rates over time for cohort 1 PREP and comparison schools in Study 2



Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.

Cohort 2 PREP schools implemented PREP for the first time in the 2021–22 school year. During this time, instruction was being conducted fully in person after a year of predominantly hybrid instruction. For cohort 2 PREP schools, chronic absenteeism rates increased by 2 percentage points from the 2020–21 to 2021–22 school years (figure 5). For the comparison group, rates increased by 13 percentage points during this same period.

Figure 5. Annual chronic absenteeism rates over time for cohort 2 PREP and comparison schools in Study 2



Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.

Impact findings from CITS

Results from the CITS analysis did not identify statistically significant impacts of PREP on the school-level rate of chronic absenteeism, and we find marginally significant impacts on rates of severe absenteeism. After one year of the intervention, the model estimate suggests that PREP lowered chronic absenteeism rates by 2.2 percentage points. After two years of intervention, PREP lowered chronic absenteeism rates by 8.4 percentage points. Across the two years, the average effect of PREP suggests that it decreased chronic absenteeism rates by 4.2 percentage points. The direction of these results aligns with what we observe descriptively. However, none of these estimates were statistically significant.

We observed positive and marginally statistically significant impacts of PREP on severe absenteeism rates. After one year of PREP intervention, the model estimates PREP decreased rates of severe absenteeism by 16.8 percentage points. After two years of the intervention, PREP lowered severe absenteeism rates by 22 percentage points. Both results were approaching statistical significance at

a conventional .05 threshold (p = .054 and p = .075, respectively). Across the two years, the average impact of PREP on severe absenteeism was 18.58, and this estimate was statistically significant (p= .04). However, the estimate was imprecise and could range from a 1 percentage point to a 36 percentage point decrease.

In summary, estimates from the model suggest that PREP may have mitigated increases in severe absenteeism more than chronic absenteeism. During the pandemic, many students attending traditional and alternative schools missed a significant amount of classroom time. Although PREP schools may have helped to decrease the decline in attendance, it was not enough to bring many students above a 90 percent attendance rate. However, the protective factors may have been enough to bring many students above an 80 percent attendance rate.

Table 9. Study 2 regression results

	Outcome	
Variable	**Chronic absenteeism**	**Severe absenteeism**
Time	0.98	-0.03
	(1.22)	(1.31)
PREP school	-2.09	2.33
	(6.79)	(7.28)
PREP school X Time	0.95	2.47
	(2.25)	(2.40)
Year 1 of intervention	7.87	20.36***
	(4.06)	(4.53)
Year 2 of intervention	9.44	21.01***
	(5.73)	(6.32)
PREP school X Year 1 of intervention	**-2.21**	**-16.84~**
	(7.85)	**(8.74)**
PREP School X Year 2 of intervention	**-8.42**	**-22.08~**
	(11.22)	**(12.38)**
Students qualifying for special education services (%)	-0.13	-0.12
	(0.17)	(0.18)
Students classified as English learners (%)	-0.27	-0.46
	(0.39)	(0.42)

	Outcome	
Variable	**Chronic absenteeism**	**Severe absenteeism**
Students of color (%)	0.05	0.09
	(0.12)	(0.13)
Number of students in school	-0.02	-0.03
	(0.03)	(0.04)
Male students (%)	-0.11	-0.10
	(0.18)	(0.19)
Constant	56.79***	31.61*
	(13.44)	(14.59)
Matching block	X	X
Variance components		
School random intercept	11.51	10.51
	(18.16)	(18.95)
Time random slope	6.74	7.06
	(5.11)	(5.77)
Observations	22	22
School-year observations	168	168

* p<0.05 ** p<0.01 *** p<0.001.

Note: Standard errors in parentheses.

Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.

Conclusion and discussion

The PREP program increased the availability of real-world applicable curriculum, career-related opportunities, and social and emotional support at six alternative high schools in PPS. Through the availability of this combination of supports, PREP aimed to improve school engagement, progression through high school, and eventual high school completion and postsecondary access. Using a CITS approach, this impact study examined how PREP impacts a range of outcomes, including rates of chronic and severe absenteeism, annual and year-to-year retention, and credit accumulation. While the study did not find statistically significant results on any of the measured outcomes, it did show promising signs that the PREP program mitigated drops in attendance and severe absenteeism.

There are multiple reasons why PREP may not have had significant impacts on measured outcomes. First, this may be due to the low sample size. Study 1 was severely limited in this regard by only including eight schools in the analysis. Study 2 had a larger analytic sample of 22 schools, and this may have contributed to the identification of marginally significant results. However, the analytic sample size in Study 2 was still limited, and the marginally significant estimates were very imprecise.

Second, the PREP intervention's implementation was severely challenged by the conditions following the COVID-19 pandemic, and many key components were not implemented with adequate fidelity in the second year of full implementation. Teacher burnout, staffing shortages, leadership transitions, competing priorities, and the changes in instruction delivery complicated the implementation of key intervention components, such as participation in professional development, expansion of CTE options, and development of new PBL-focused lessons. Consequently, students may not have experienced the full suite of services that PREP intended to deliver, and the difference between what students in PREP schools received compared to what students in comparison schools received may have been minimized. Implementation under school conditions not impacted by a global pandemic may have led to positive impacts.

Additionally, the PREP program may be influencing factors for which there are currently no data. This study relied on state-level data for Study 2, which limited the type of relevant outcomes we could examine, such as credit accumulation. Moreover, some measures that are much more relevant for an alternative school setting were not an option. For example, students' sense of belonging and self-efficacy may have been better measures of engagement, but they are not currently part of ODE's data collection. This highlights the need for more relevant measures of success for alternative high school programs.

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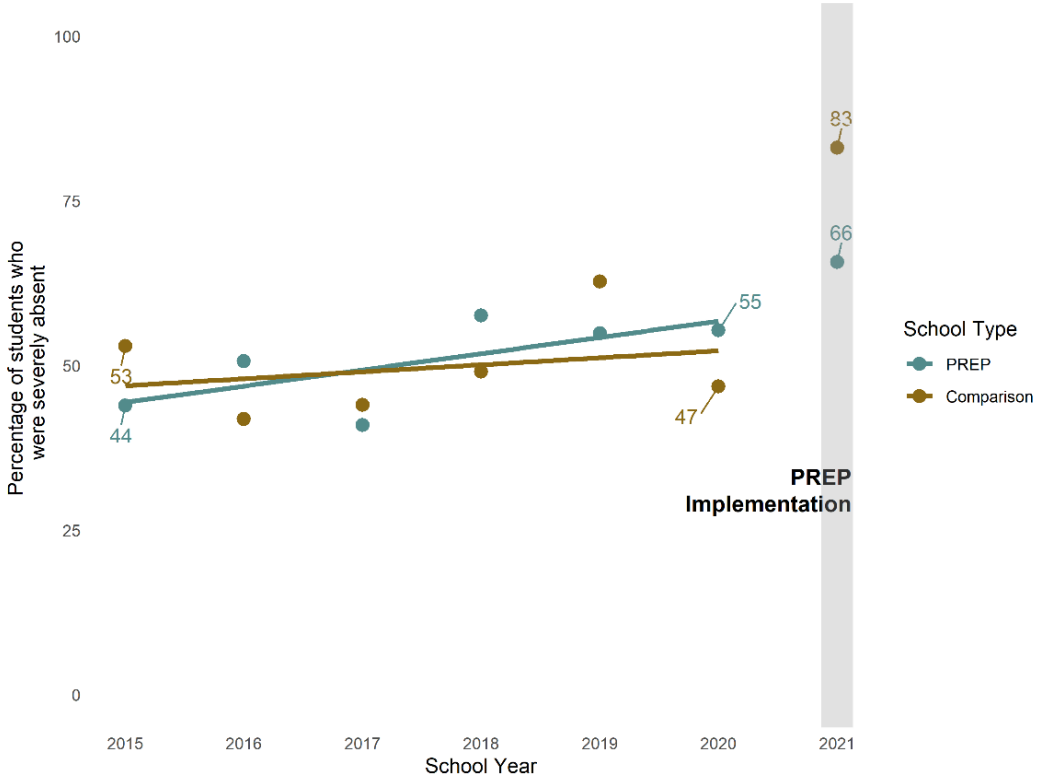
Appendix A. Additional tables and figures

Figure A1. Severe absenteeism rates over time for PREP and comparison schools in Study 1



Source: Education Northwest analysis of Portland Public Schools data.

Table A1. Regression results of the impact of the PREP intervention on attendance, retention, and credit measures

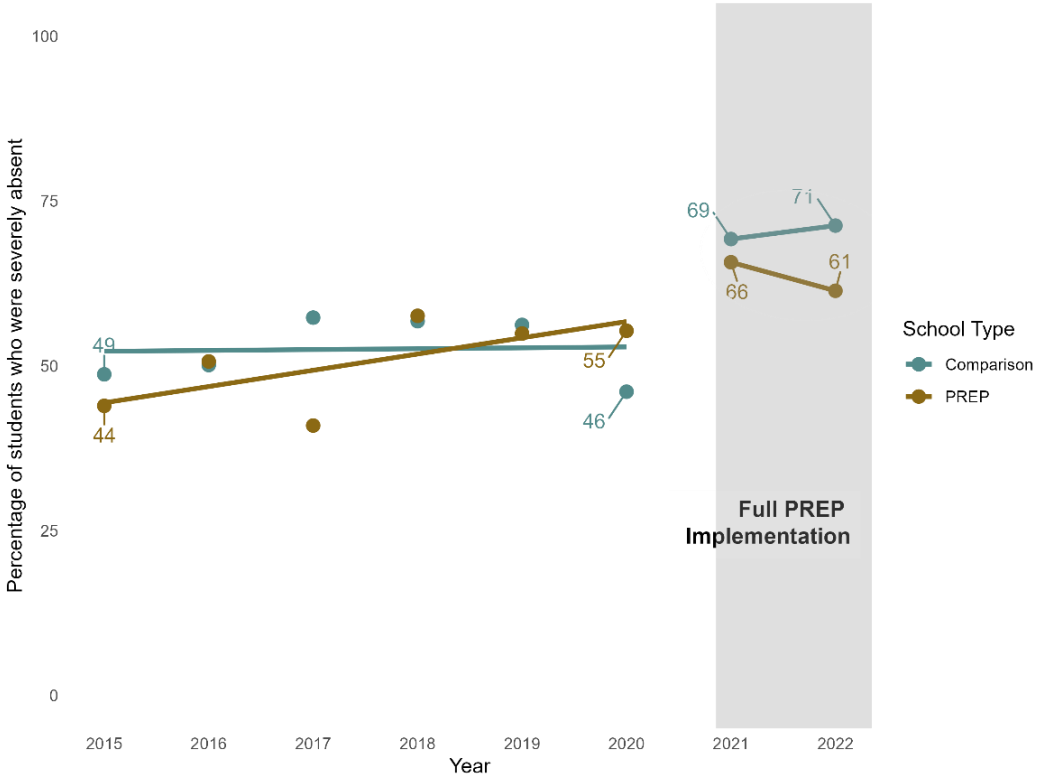
	Attendance rate	Chronically absent	Severely absent	Annual retention	Year-to-year retention	Met credit
Predictors						
% EL classified	-1.83 (1.05)	-1.28 (2.30)	0.16 (2.88)	-0.12 (1.11)	0.74 (0.43)	0.09 (1.30)
PREP school	3.41 (10.25)	6.77 (18.84)	8.10 (21.83)	2.72 (7.82)	7.30 (9.10)	9.14 (13.43)
Year of PREP implementation	-9.52 ** (3.39)	4.93 (8.34)	10.61 (9.62)	15.96 * (6.71)	-8.88 * (3.48)	-16.11 * (6.38)
% special education	0.22 (0.28)	-0.23 (0.72)	-0.09 (0.81)	0.30 (0.27)	0.10 (0.16)	0.23 (0.35)
Time	2.06 (3.09)	-5.02 (2.91)	-5.24 (4.41)	1.01 (2.06)	0.26 (2.01)	0.35 (2.94)
% female	-10.48 (20.09)	1.11 * (.41)	1.00 (.49)	-.14 (.23)	-.04 (.15)	-.17 (.26)
% students of color	-0.07 (0.10)	-0.23 (0.72)	0.39 (0.28)	-0.11 (0.16)	-0.13 (0.08)	-0.43 * (0.18)
PREP school and school year interaction	-3.03 (4.38)	12.63 ** (4.07)	12.71 (6.25)	1.07 (2.73)	1.48 (2.74)	3.20 (4.08)
PREP school and year of PREP interaction	**2.51 (4.89)**	**-7.50 (11.71)**	**-6.60 (13.69)**	**0.05 (9.55)**	**-4.73 (4.82)**	**-9.24 (9.15)**
Observations	8	8	8	8	8	8
School-year observations	40	40	40	40	40	40
Marginal R^2	0.865	0.726	0.746	0.551	0.531	0.504

* p<0.05 ** p<0.01 *** p<0.001.

Note: Standard errors are in parentheses.

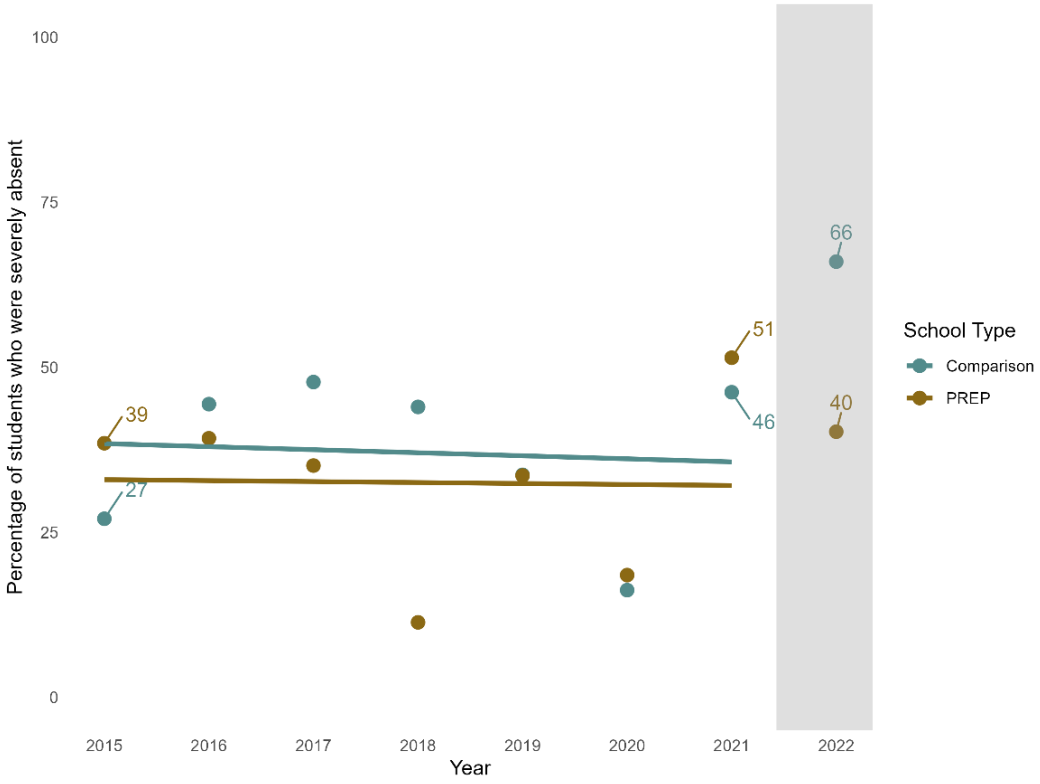
Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.

Figure A2. Annual severe absenteeism rates over time for cohort 1 PREP and comparison schools in Study 2



Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.

Figure A3. Annual severe absenteeism rates over time for cohort 2 PREP and comparison schools in Study 2



Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.

Table A2. Standardized impact estimate for Study 1

	Comparison Group			Treatment Group					
Outcome measure	**Sample size**	**Model adjusted Mean**	**Standard deviation**	**Sample size**	**Model-adjusted mean**	**Standard deviation**	**Treatment – control difference**	**Standardized difference**	**Model estimated p-value**
Attendance rate	4	70.621	7.191	4	73.133	21.305	2.512	0.058	0.611
Chronic absenteeism	4	71.628	6.461	4	64.129	16.042	-7.499	-0.230	0.527
Severe absenteeism	4	52.081	12.413	4	45.478	33.316	-6.603	-0.098	0.634
Annual retention	4	76.435	3.831	4	76.486	3.134	0.051	0.007	0.996
Year to year retention	4	82.831	8.599	4	78.099	14.077	-4.732	-0.161	0.335
Met credit goals	4	44.409	16.235	4	35.168	27.759	-9.241	-0.160	0.322

Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.

Table A3. Standardized impact estimate for Study 2

	Comparison Group			Treatment Group					
Outcome measure	**Sample size**	**Model adjusted mean**	**Standard deviation**	**Sample size**	**Model-adjusted mean**	**Standard deviation**	**Treatment – control difference**	**Standardized difference**	**Model estimated p-value**
Chronic absenteeism – Year 1	16	70.567	16.526	6	68.359	20.741	-2.208	-0.043	0.778
Chronic absenteeism – Year 2	14	70.689	9.750	4	62.271	10.005	-8.418	-0.406	0.453
Severe absenteeism – Year 1	16	52.557	19.954	6	35.719	32.578	-16.838	-0.215	0.054
Severe absenteeism – Year 2	14	52.482	13.585	4	30.399	13.971	-22.083	-0.763	0.075

Source: Education Northwest analysis of Portland Public Schools and Oregon Department of Education data.