

Personalized, Competency-Based Learning in Arizona: A Preliminary Report on Implementation and Student Outcomes

Karin Gegenheimer, Dae Kim, and Mark Duffy

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Introduction

In 2019, the Center for the Future of Arizona (CFA) partnered with KnowledgeWorks to develop the Arizona Personalized Learning Network (AZPLN), a cohort of four districts that made a five-year commitment to shift to a personalized learning approach. The AZPLN includes Amphitheater Public Schools, Mesa Public Schools, Santa Cruz Valley Unified School District No. 35, and Yuma Union High School District. District leaders in the AZPLN participate in district systems building and school implementation efforts and receive customized support from CFA and KnowledgeWorks.

Research for Action (RFA) has partnered with KnowledgeWorks to analyze and report on the summative implementation and school-level student outcomes in AZPLN member districts. The analyses plan was organized into three strands:

- **Strand 1: Exploratory analyses of personalized, competency-based learning implementation:** Using the student and teacher implementation survey data collected by KnowledgeWorks, RFA conducted descriptive analyses to assess the progress of personalized, competency-based learning implementation in each AZPLN district.
- **Strand 2: Student outcomes analyses:** Using publicly available administrative data from the Arizona Department of Education, RFA conducted a school-level comparative interrupted time series (CITS) analysis to examine the impact of personalized, competency-based learning on select student outcomes, comparing outcome trends pre- and post- implementation in schools in the four AZPLN districts with similar schools in districts that did not implement personalized, competency-based learning.
- **Strand 3: Exploring relationships between implementation and student outcomes:** RFA conducted an exploratory analysis to determine whether and how variation in implementation at the school and district levels (Strand 1) is related to student outcomes (Strand 2).

Strand 1. Exploratory Analyses of Personalized, Competency-Based Learning Implementation Using Student and Teacher Survey Data

Using the student and teacher implementation survey data, RFA conducted a series of descriptive analyses to assess the progress of personalized, competency-based learning implementation over

2022 and 2023.¹ These analyses aim to understand, describe, and assess levels of personalized, competency-based learning implementation in each participating district. Implementation surveys were administered in all schools in the AZPLN. Survey items intended to gauge respondents' perceptions of personalized, competency-based learning implementation, focusing particularly on constructs at the core of the instructional approach. RFA validated the construct structure through factor analysis, generating construct-level items for descriptive trend analysis. All constructs were measured on a four-point Likert scale, where 1 indicates lower levels of perceived implementation and 4 indicates higher levels of perceived implementation. Specifically, implementation levels from the student and teacher survey data are defined as outlined in Table 1.

Table 1. Implementation survey scale (teacher and student survey)

Survey Scale	Implementation Level
0 - 1	No evidence of implementation
>1 - 2	Little to no evidence of implementation
>2 - 3	Moderate to strong evidence of implementation
>3 - 4	Strong evidence of implementation

Student Survey Results: As shown in Table 2 below, sample sizes varied considerably across districts. Yuma Union is a high school district, and so only students in grades 9-12 completed the survey.

Table 2. Student survey sample size across districts: 2022 and 2023

Grade Band	Amphitheater		Mesa		Santa Cruz Valley		Yuma	
	2022	2023	2022	2023	2022	2023	2022	2023
Grades 4-5	431	555	388	748	352	373	-	-
Grades 6-8	1,909	1,009	657	3,446	584	598	-	-
Grades 9-12	824	702	474	1,794	524	822	2,413	982
Total	3,164	2,266	1,519	5,988	1,460	1,793	2,413	982

Of the four districts, only Amphitheater and Santa Cruz Valley received comparable rates of student survey responses across survey years, allowing for valid inferences and comparison of trends over time. We therefore present data only from Amphitheater and Santa Cruz Valley. Table 3 below shows average construct scores over time for these districts.

¹ The implementation survey was administered to all students and staff in years 2021 through 2023. However, due to low sample sizes in 2021 and from non-teacher staff respondents (i.e., school administrators, district administrators, support staff), we report data only from student and teacher respondents in years 2022 and 2023.

Table 3. Student survey construct variation in Amphitheater and Santa Cruz Valley: 2022 and 2023

Constructs	Amphitheater			Santa Cruz Valley		
	2022	2023	Trend	2022	2023	Trend
Career Readiness Skills	2.72	2.75	0.03	2.80	2.88	0.08
Competency Based Education Systems	2.44	2.43	-0.01	2.54	2.63	0.09
Deeper Learning	2.46	2.42	-0.04	2.56	2.60	0.04
Equity of Learning	2.54	2.44	-0.10	2.52	2.53	0.01
Learning Environments	2.70	2.78	0.08	2.70	2.78	0.08
Student Agency	2.06	2.18	0.12	2.10	2.36	0.26
Supportive Relationships	2.74	2.73	-0.01	2.78	2.76	-0.02

Key takeaways from Table 3 include the following:

- **Student survey data from Amphitheater and Santa Cruz Valley show that students perceived moderate to strong implementation of core personalized, competency-based learning constructs.** Average construct scores ranged from 2.10-2.80 in 2022 and 2.18-2.88 in 2023. Average construct scores were generally higher in Santa Cruz Valley than in Amphitheater, suggesting stronger implementation.
- **Student perceptions of implementation changed little from 2022 to 2023.** The direction of change varied across constructs, with some constructs experiencing positive trends in perceived implementation and others experiencing negative trends. In Santa Cruz Valley, students reported improved perceptions of implementation in six out of the seven constructs, whereas in Amphitheater, students perceived stronger implementation over time in only three constructs.
- **While student agency has been an area of focus in AZPLN districts, survey data surprisingly show lower levels of implementation in student agency compared to the other constructs.** During case study interviews, teacher and administrator respondents emphasized that they worked to increase student agency, shifting how students learn and how they demonstrate their learning. Despite this, student survey data show the lowest perceived implementation levels in this construct: in Amphitheater, the average score for student agency was 2.06 in 2022 and 2.18 in 2023, and in Santa Cruz Valley it was 2.10 in 2022 and 2.36 in 2023. It is worth noting, however, that the average score for student agency increased in both districts between 2022 and 2023.

Teacher Survey Results: As shown in Table 4 below, sample sizes in the teacher survey varied considerably across districts. Again, Yuma Union is a high school district, and so only high school teachers completed the survey.

Table 4. Teacher survey sample size across districts: 2022 and 2023

Grade Band	Amphitheater		Mesa		Santa Cruz Valley		Yuma	
	2022	2023	2022	2023	2022	2023	2022	2023
Elementary	204	199	163	165	106	50	-	-
MS/JHS	91	58	31	138	26	16	-	-
HS	125	90	88	132	22	25	401	156
Total	420	347	282	435	154	91	401	156

Of the four districts, Amphitheater, Mesa, and Santa Cruz Valley received comparable rates of teacher survey responses across survey years, allowing for valid inferences and comparison of trends over time. Table 5 below displays construct-level averages and trends from the teacher survey for those districts.

Table 5. Teacher survey construct variation in Amphitheater, Mesa, and Santa Cruz Valley: 2022 and 2023

Constructs	Amphitheater			Mesa			Santa Cruz Valley		
	2022	2023	Trend	2022	2023	Trend	2022	2023	Trend
Career: Real World Connection	3.46	3.64	0.18	3.46	3.58	0.12	3.34	3.65	0.31
Career: Portrait of a Graduate	3.28	3.27	-0.01	3.26	3.31	0.05	3.08	3.55	0.47
Competency: Individualized Learning	2.78	2.90	0.12	2.82	2.72	-0.10	2.72	3.03	0.31
Competency: Learning Targets	3.32	3.38	0.06	3.32	3.30	-0.02	3.26	3.45	0.19
Competency: District Initiative	2.60	2.68	0.08	2.78	2.75	-0.03	2.82	3.11	0.29
Deeper Learning	3.30	3.37	0.07	3.32	3.24	-0.08	3.26	3.38	0.12
Equity of Learning	2.84	3.30	0.46	2.84	3.17	0.33	2.80	3.40	0.60
Learning Environments	2.84	2.83	-0.01	2.94	2.84	-0.10	2.90	3.12	0.22
Agency: Student Empowerment	2.62	2.77	0.15	2.58	2.59	0.01	2.58	2.81	0.23
Agency: Teacher Empowerment	2.70	2.78	0.08	2.76	2.84	0.08	2.84	3.19	0.35
Supportive Relationships	3.80	3.80	0.00	3.74	3.76	0.02	3.66	3.78	0.12

Note: Multiple sub-constructs emerged from the teacher survey, including sub-constructs within Career Readiness (Career), Competency-Based Education Systems (Competency), and Student Agency (Agency).

Key takeaways from Table 5 include the following:

- **Implementation was strong based on teacher perceptions.** In participating districts with comparable teacher survey data in both 2022 and 2023, respondents perceived stronger

personalized, competency-based learning implementation as compared to students. Average construct scores were higher in the teacher survey than the student survey, showing moderate to strong and strong evidence of implementation across constructs (average construct scores ranged from 2.58-3.74 in 2022 and from 2.58-3.78 in 2023). In addition, trends over time were larger in magnitude (relative to the student survey) and generally positive.

- **Teachers perceived improved implementation from 2022 to 2023.** In all three districts, teachers reported improved perceptions over time in the majority of constructs. This was particularly true in Amphitheater, where teachers perceived improved implementation in all but two constructs, and in Santa Cruz Valley, where teachers reported that implementation improved across all constructs.
- **Teacher perceptions of building supportive relationships with students were especially strong.** Building supportive relationships between teachers and students is foundational to building student agency, and teacher survey data indicate that supportive relationships was the strongest area across districts. In all districts, average construct scores fell above 3.6 in both 2022 and 2023, indicating strong evidence of implementation.

District Implementation Spotlight: Santa Cruz Valley

Data from the student and teacher surveys suggest that Santa Cruz Valley is a positive outlier in terms of personalized, competency-based learning implementation. Relative to other districts with valid survey data, Santa Cruz Valley showed the strongest perceptions of implementation by students and teachers, both in terms of average perceptions and changes in perceptions over time, with particularly positive implementation trends reported in the teacher survey data.

Qualitative data also points to Santa Cruz Valley as a strong implementation district. The district was chosen as one of the two leading districts to have a school included as a case study site. The district has been the host for multiple Inquiry Labs, in which teachers and administrators from other districts can come in and observe their classrooms implementing personalized, competency-based learning. Interview and focus group participants reported that student agency has increased in the classroom and that students were monitoring their own progress to make sure they meet the learning standards.

Strand 2. Student Outcomes Analyses Using School-Level Administrative Data

Using publicly available school-level, longitudinal datasets, RFA conducted a school-level comparative interrupted time series (CITS) analysis to examine the impact of personalized, competency-based learning on select student outcomes. This approach compared school-level trends in student outcomes in the four AZPLN districts (treatment schools) to trends in outcomes in similar schools in districts where personalized, competency-based learning has not been implemented (comparison schools).

As Table 6 below shows, the treatment schools (schools implementing personalized, competency-based learning) included in the CITS analysis consisted of a total of 70 elementary, middle, and high schools in the four AZPLN districts. The comparison schools (schools that did not implement personalized, competency-based learning) included the same number of elementary, middle, and high schools.

Table 6. Number of treatment schools by grade level

District	Elementary Schools	Middle/Junior High Schools	High Schools
Amphitheater Public Schools	8	2	2
Mesa Public Schools	35	11	6
Santa Cruz Valley Unified School	2	1	0
Yuma Union High School District	0	0	3
Total	45	14	11

To identify a group of comparison schools that did not implement personalized, competency-based learning, RFA used a two-stage propensity score matching approach. In the first stage, RFA identified comparison districts that were similar to treatment districts in terms of aggregated student outcomes and demographic characteristics. In the second stage, RFA conducted school-level propensity score matching to identify one matched comparison school for each treatment school in different grade bands. Schools were matched on baseline measures of aggregated state assessment outcomes and school-level student composition (e.g., student race/ethnicity, English language learners, grade level, etc.).

The CITS analysis used publicly available longitudinal school-level datasets downloadable from the Arizona Department of Education (ADE) website. Table 7 reports school-level outcome measures available from the ADE’s public datasets used in the analysis.

Table 7. Outcome measures by grade and years available

Outcome Measure	Available Grades	Available Years
Percent Passing Math	3rd - 8th	2015 - 2023, except for 2020
Percent Passing ELA	3rd - 8th	2015 - 2023, except for 2020
Four Year Graduation Rate	12th	2010 - 2023
Dropout Rate	7th-12th	2010 - 2023

The CITS analysis estimated the impact of personalized, competency-based learning on student outcomes by comparing trends in school-level academic outcomes from the years after personalized, competency-based learning was implemented (2021 through 2023) to trends in the pre-implementation period (2015 through 2019) between observably similar treatment and comparison schools (e.g., schools with similar pre-treatment levels of academic performance, school size, and student composition). The CITS analysis estimates the magnitude and statistical

significance of the impact of personalized, competency-based learning by comparing the rate of gains (or losses) in student outcomes made by treatment schools in the post-implementation years relative to pre-implementation trends, to the rate of gains (or losses) made by similar comparison schools again relative to the comparison schools' pre-implementation trends.

Figures 1 and 2 below show descriptive trends in English/language arts (ELA) and math outcome measures over time; all figures reference personalized, competency-based learning as PCBL.

Figure 1. Percent passing state ELA assessment by year and school level: PCBL (treatment) vs. non-PCBL (comparison) schools, 2018 through 2023

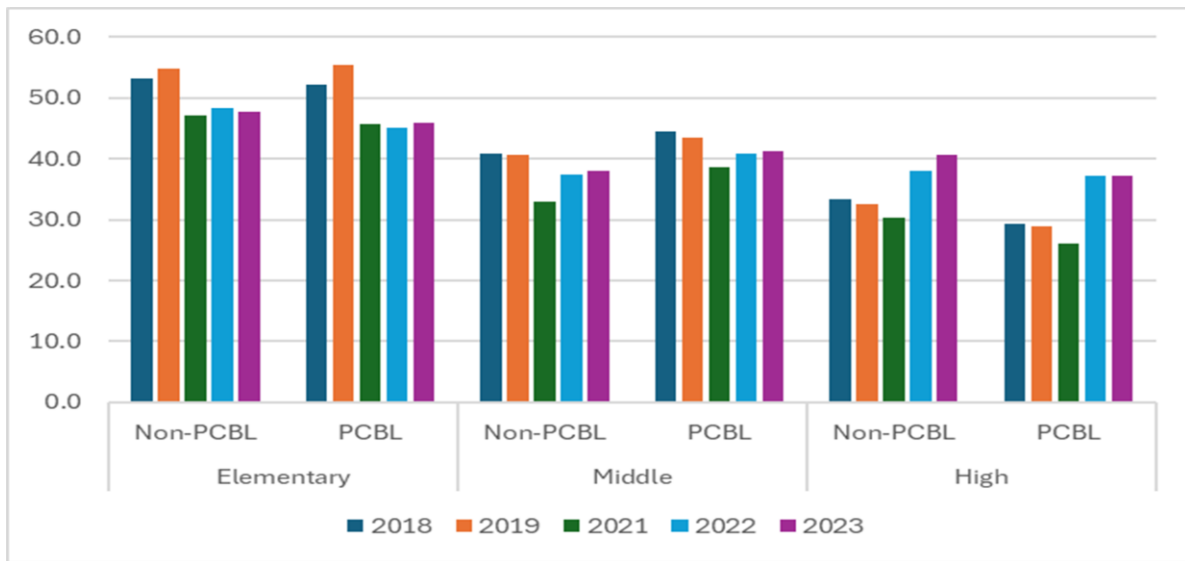
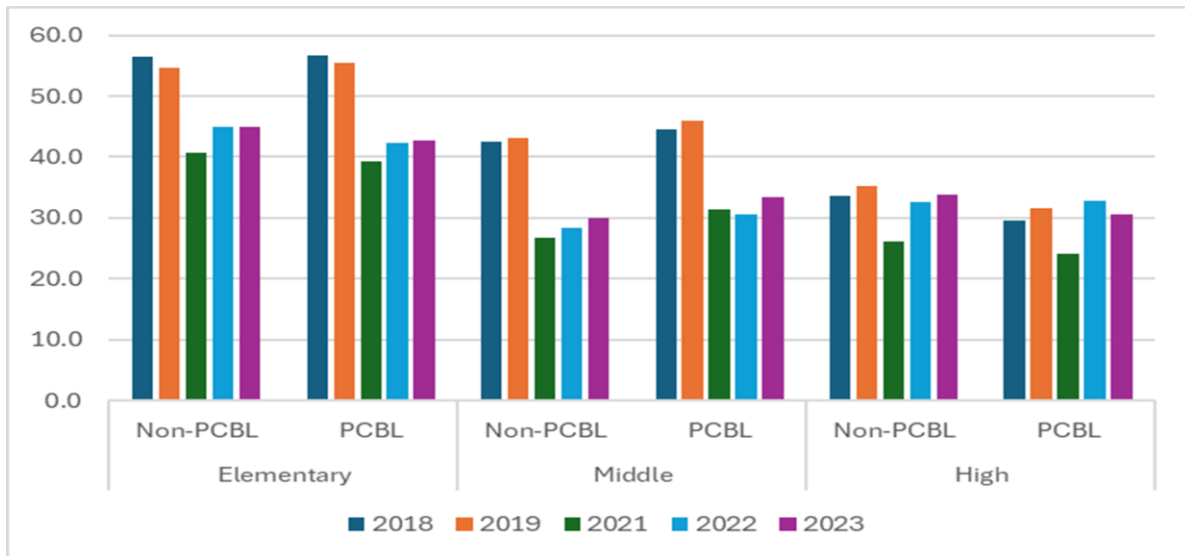


Figure 2. Percent passing state math assessment by year and school level: PCBL (treatment) vs. non-PCBL (comparison) schools, 2018 through 2023.



The bars represent the percent of students who passed the ELA (Figure 1) and math (Figure 2) state assessments across years 2018 and 2023, with 2020 excluded due to the disruption of assessment systems during the pandemic.

Key takeaways from Figures 1 and 2 include the following:

- In the wake of COVID-19, ELA and math state assessment outcomes dropped considerably from 2019 to 2021 across all school levels and across both treatment and comparison schools.
- Among elementary and middle schools, both treatment and comparison schools experienced gains in ELA and math outcomes in 2022 and 2023, though passing rates were still below the pre-COVID levels.
- Among high schools, however, treatment and comparison schools both experienced a relatively small drop in ELA and math passing rates from 2019 to 2021 that has been fully recovered in subsequent years.

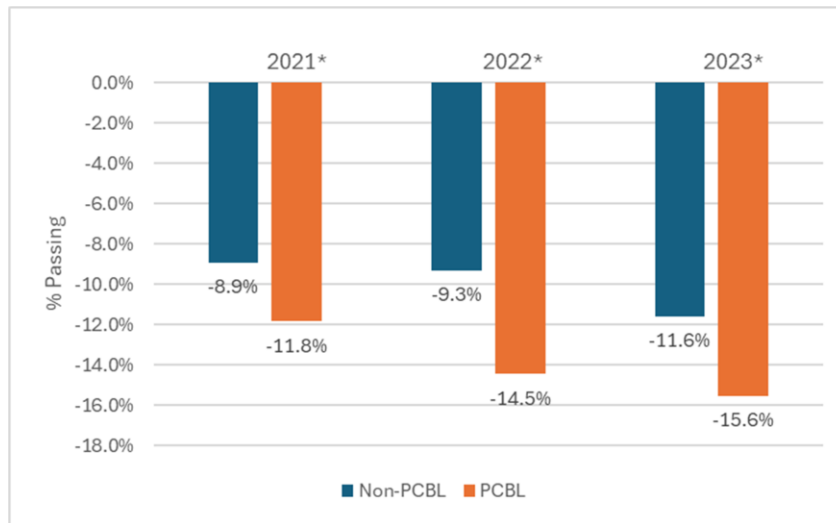
In addition to achievement outcomes, high schools saw dips in graduation rates and paralleled increases in dropout rates. Across both treatment and comparison high schools, graduation rates declined by an average of three to four percentage points between 2019 and 2021, and dropout rates increased from an average of two percent in 2019 to over three percent in 2021.

Given the overlap of personalized, competency-based learning implementation with the COVID-19 pandemic, results from our CITS analysis represent differences between treatment and comparison schools in the gains and losses made in years following the implementation of personalized, competency-based learning (coinciding with COVID-19) relative to pre-existing trends. **CITS results can be interpreted, therefore, as the differential rate at which personalized, competency-based learning schools recouped COVID-19 losses, relative to schools that did not implement personalized, competency-based learning.**

Student Outcomes on State Assessments

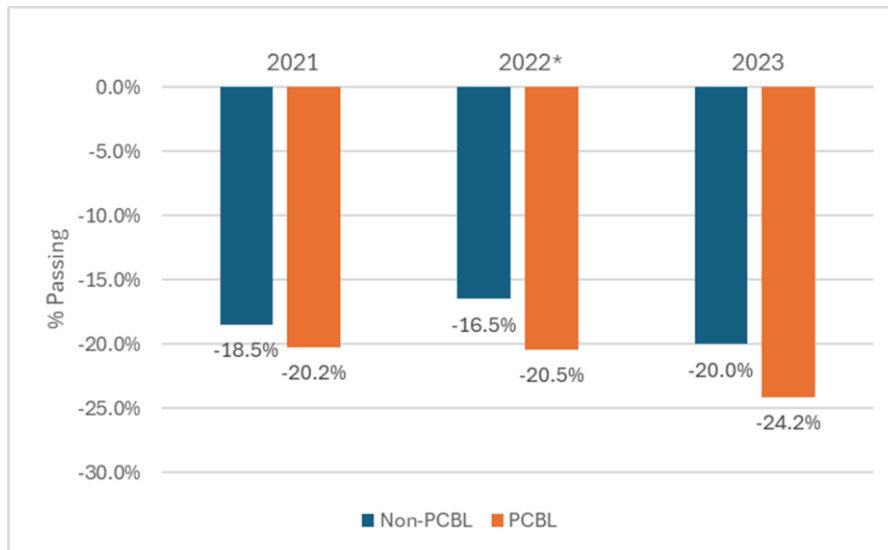
Figures 3 and 4 below show CITS results for **elementary schools**. Figure 3 displays results from the CITS analysis for ELA and Figure 4 displays results for math. In each figure, the bars represent the changes in school-level academic outcomes measured as the percentage of students passing the ELA state standardized assessment following implementation of personalized, competency-based learning, relative to pre-implementation trends, for both treatment and comparison schools. **In both ELA and math, there is suggestive evidence that treatment elementary schools experienced greater losses in post-implementation years than comparison elementary schools.**

Figure 3. Difference in the percentage of students passing state ELA assessment in PCBL (treatment) vs. non-PCBL (comparison) elementary schools relative to pre-implementation trends.



Notes: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning.

Figure 4. Difference in the percentage of students passing state math assessment in PCBL (treatment) vs. non-PCBL (comparison) elementary schools relative to pre-implementation trends.



Note: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning.

Key takeaways from Figures 3 and 4 include the following:

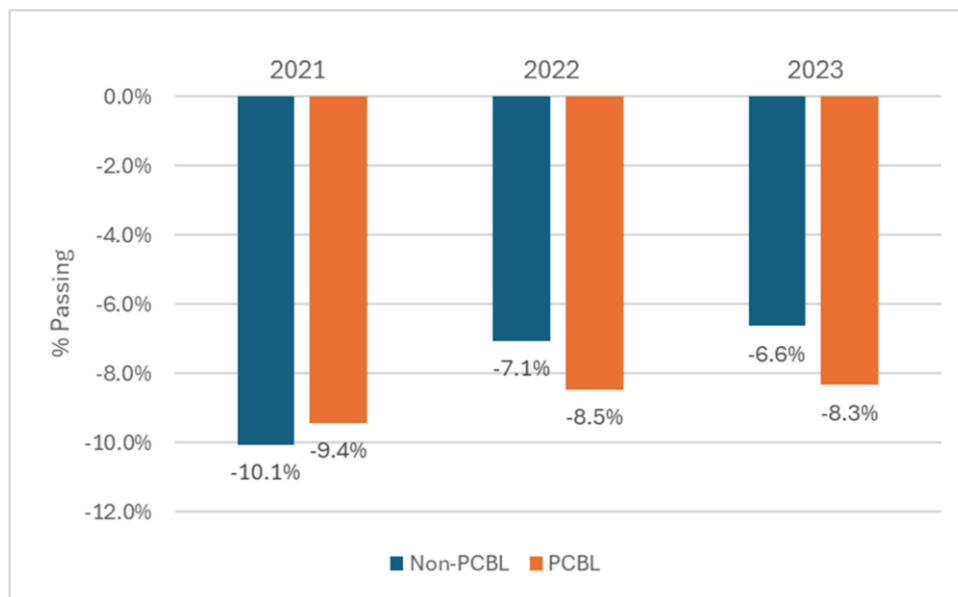
- **English/language arts (ELA) passing rates were consistently lower among treatment schools than comparison schools, and the differences were statistically significant in all**

years. In ELA, results indicate negative treatment effects, as passing rates on state ELA assessments in schools implementing personalized, competency-based learning were lower compared to similar schools that did not implement personalized, competency-based learning. In treatment schools, passing rates following the implementation of personalized, competency-based learning ranged from 1.7 – 5.2 percentage points lower than in comparison schools – relative to pre-implementation trends – and these differences were statistically significant in all post-implementation years.

- **Math passing rates were also lower in treatment than comparison schools, though differences only reached statistical significance in one year.** Data also show negative treatment effects in math, as passing rates on state math assessments in schools implementing personalized, competency-based learning were lower than those in similar elementary schools that did not implement personalized, competency-based learning, across all years. However, 2022 was the only year where the difference between treatment and comparison schools was statistically significant (with a difference of 4.1 percentage points).

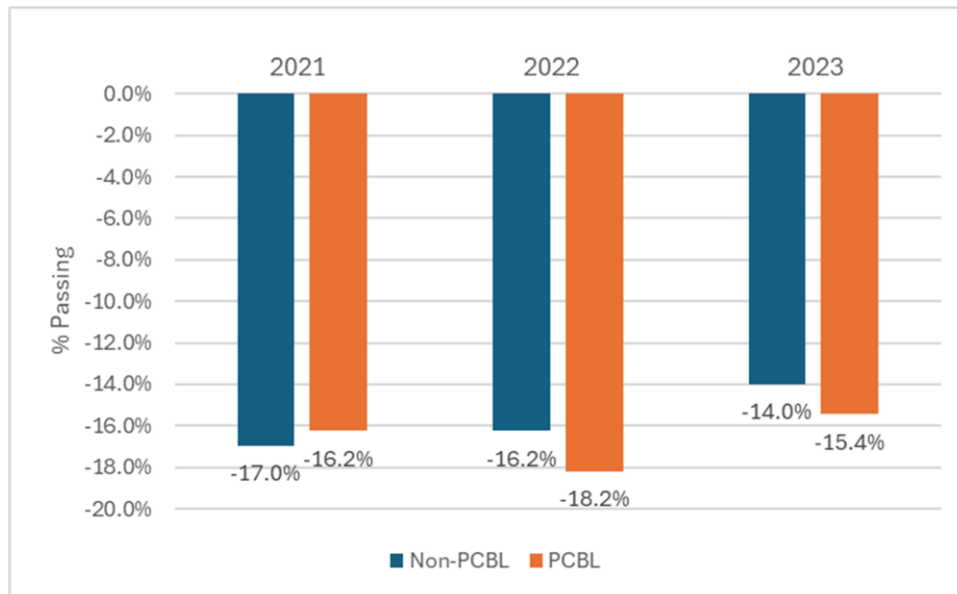
Results for **middle schools** are shown in Figures 5 and 6 below. Treatment and comparison schools experienced similar drops in student outcomes in 2021 relative to pre-personalized, competency-based learning implementation (and pre-COVID) years. However, differences between treatment and comparison schools widened in subsequent years, with treatment schools experiencing lower passing rates in 2022 and 2023. **However, these differences were not statistically significant.**

Figure 5. Difference in the percentage of students passing state ELA assessment in PCBL (treatment) vs. non-PCBL (comparison) middle schools relative to pre-implementation trends.



Note: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning.

Figure 6. Difference in the percentage of students passing state math assessment in PCBL (treatment) vs. non-PCBL (comparison) middle schools relative to pre-implementation trends.



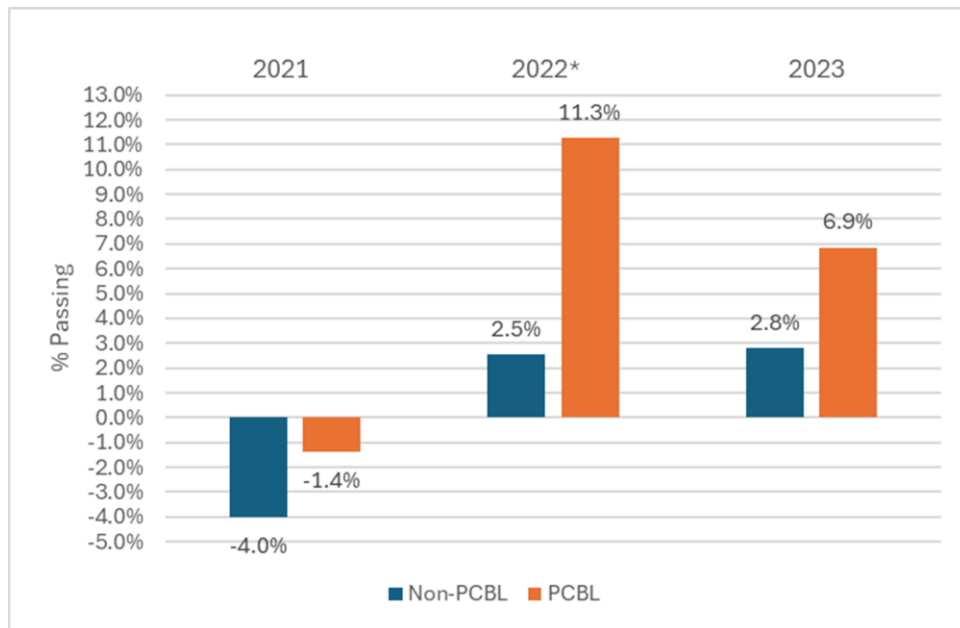
Note: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning.

Key takeaways from Figures 5 and 6 include the following:

- English/language arts (ELA) results were not statistically significant.** In ELA, treatment schools initially outperformed comparison schools in 2021, with smaller decreases in the percentage of students passing the state assessment (difference of 0.7 percentage points). In subsequent years, however, passing rates in treatment schools were lower than in comparison schools by 1.4 percentage points in 2022 and 1.7 percentage points in 2023. However, across all years, the differences were not statistically significant.
- Math results were not statistically significant.** Treatment schools outperformed comparison schools in math in 2021, with smaller decreases in the percentage of students passing the math state assessment (difference of 0.8 percentage points). In subsequent years, however, passing rates in treatment schools were lower than in comparison schools by 2 percentage points in 2022 and 1.4 percentage points in 2023. However, across all years, the differences were not statistically significant.

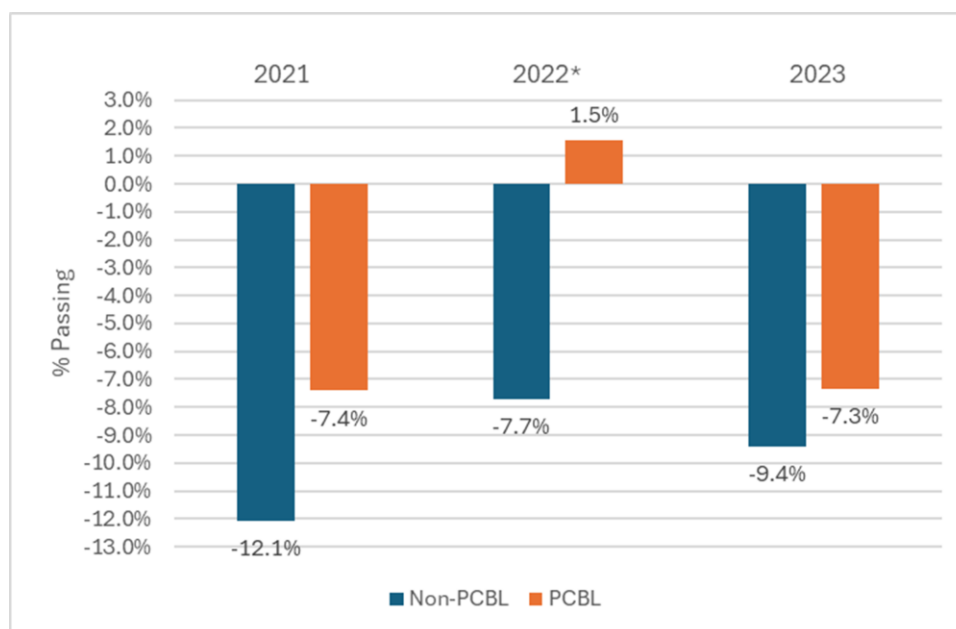
Figures 7 and 8 below show the impact of personalized, competency-based learning implementation on **high school** academic outcomes. There is suggestive evidence that the implementation of personalized, competency-based learning contributed to improved passing rates in ELA and math, with smaller losses in treatment schools relative to comparison schools in 2021, and greater gains in years 2022 and 2023 (all relative to passing rates in the pre-implementation period). **However, only in 2022 was the difference between treatment and comparison schools statistically significant.**

Figure 7. Difference in the percentage of students passing state ELA assessment in PCBL (treatment) vs. non-PCBL (comparison) high schools relative to pre-implementation trends.



Note: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning

Figure 8. Difference in the percentage of students passing state math assessment in PCBL (treatment) vs. non-PCBL (comparison) high schools relative to pre-implementation trends.



Note: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning.

Key takeaways from Figures 7 and 8 include the following:

- Treatment schools saw larger gains than comparison schools in English/language arts results, but the difference was only statistically significant in 2022.** In ELA, compared to similar high schools that did not implement personalized, competency-based learning, the decrease in passing rates for implementing high schools was smaller by 2.6 percentage points in 2021, though the difference was not statistically significant. In 2022 and 2023, however, both treatment and comparison schools saw increases in ELA achievement relative to the pre-implementation period, with treatment schools seeing larger gains in both years (a difference of 8.8 in 2022, and a difference of 4.1 in 2023), though the difference was only statistically significant in 2022.
- Treatment schools saw larger gains than comparison schools in math, but the difference was only statistically significant in 2022.** In math, compared to similar high schools that did not implement personalized, competency-based learning, implementing high schools' decrease in the percentage of students passing the state math assessment was smaller by 4.7 percentage points in 2021. However, this difference was not statistically significant. In 2022, both treatment and comparison high schools improved in their math assessment results, but treatment schools improved to a greater extent such that passing rates in treatment schools exceeded those in the pre-implementation period. The difference between treatment and comparison schools in 2022 was statistically significant, with a magnitude of 9.2 percentage points. In 2023, both treatment and comparison schools saw a dip in math achievement, though treatment schools saw smaller

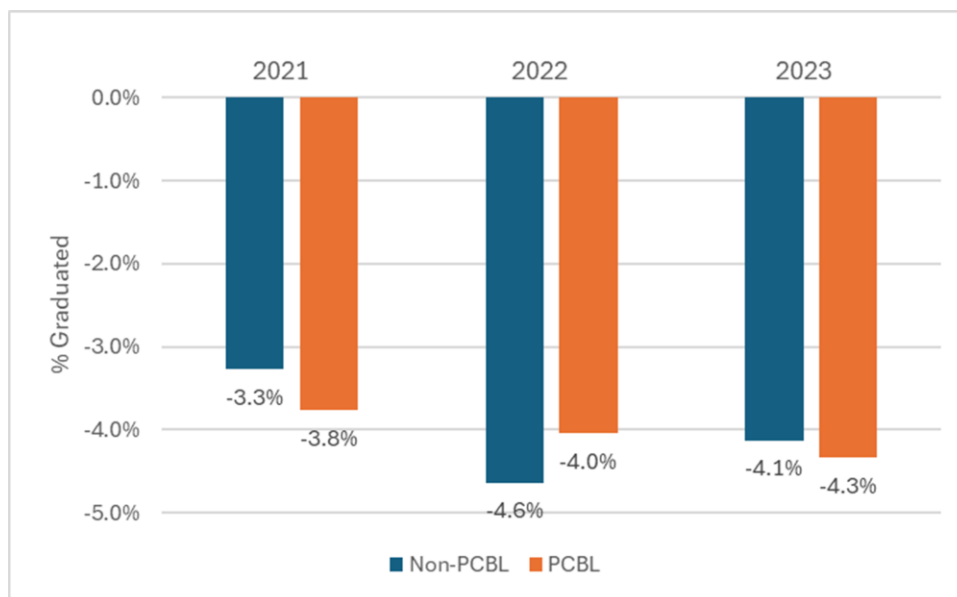
- but not statistically significant - decreases than comparison schools (difference of 2.1 percentage points).

Graduation and Dropout Rates

Figures 9 and 10 below show the impact of personalized, competency-based learning implementation on high school four-year graduation (Figure 9) and dropout (Figure 10) rates. The figures display the change in outcomes following implementation of personalized, competency-based learning, relative to pre-implementation trends, for both treatment and comparison schools.

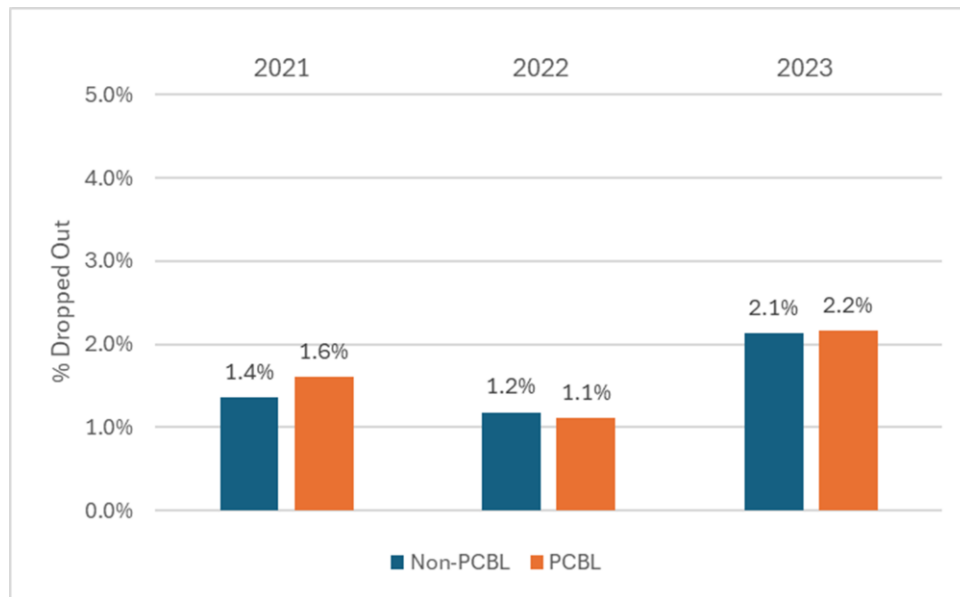
While treatment and comparison saw differences in graduation and dropout rates in the post-implementation period, these differences did not reach levels of statistical significance in any year.

Figure 9. Difference in the percentage of students graduating within 4 years in PCBL (treatment) vs. non-PCBL (comparison) high schools, relative to pre-implementation trends.



Note: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning.

Figure 10. Difference in the percentage of students who dropped out in PCBL (treatment) vs. non-PCBL (comparison) high schools, relative to pre-implementation trends.



Note: * indicates that the difference in percentage passing between non-PCBL and PCBL schools is statistically significant at the 95% confidence level. PCBL = personalized, competency-based learning.

Key takeaways from Figures 9 and 10 include the following:

- **Differences in graduation rates between treatment and comparison schools varied across years, but were not statistically significant.** Following the implementation of personalized, competency-based learning, the drop in graduation rates was slightly larger in treatment high schools relative to comparison high schools in 2021 (0.5 percentage points), slightly smaller in 2022 (0.6 percentage points), and slightly larger in 2023 (0.2 percentage points). However, these differences were not statistically significant.
- **Differences in dropout rates varied as well, but again were not statistically significant.** Following the implementation of personalized, competency-based learning, the increase in dropout rates was slightly larger in treatment schools relative to comparison schools in 2021 (0.2 percentage points), slightly smaller in 2022 (0.1 percentage points), and slightly larger in 2023 (0.1 percentage points). These differences were not statistically significant.

Strand 3. Exploring the Relationship between Implementation and Student Outcomes

RFA conducted exploratory analyses to determine whether and how variation in implementation at the school and district levels (Strand 1) is related to student outcomes (Strand 2). Leveraging data from two school years (2022 and 2023), the analysis aggregated the survey data to the school level and examined correlations between core constructs measured on the implementation survey and school-level outcomes data in math and ELA. The analysis examined relationships both within years and across years by examining correlations between survey constructs and academic outcomes

measured in the same year as well as correlations between year-over-year differences in survey constructs and year-over-year differences in academic outcomes. **Across all analyses, correlations varied in direction (both negative and positive) and were quite small in magnitude (generally less than a tenth of a point), suggesting a weak relationship between personalized, competency-based learning implementation and student outcomes.**

However, we caution against over-interpreting these results due to important limitations. First, analysis of survey data shows low response rates at the school level. Low school-level response rates weaken the validity and reliability of the school-level survey measures because the data only represent individuals who responded to the survey instead of all individuals in the school (and with limited population-level data we were unable to assess the generalizability of the survey data). In addition, because survey sample sizes change considerably across years (and school level response rates remain low), it is likely that the sample of respondents look different across years, further complicating the extent to which the survey measures represent valid and reliable constructs of personalized, competency-based learning implementation at the school level. Second, it may be simply too early in implementation to observe a relationship between levels of implementation and student outcomes. AZPLN districts began implementation in 2019, which – even without the unique challenges of the COVID-19 pandemic that considerably slowed implementation – is considered still early in implementation especially given the organic nature of personalized, competency-based learning implementation in the initial years of the work.

Conclusion

This report summarized the implementation and outcomes of personalized, competency-based learning in Arizona's AZPLN districts. Leveraging individual-level student and teacher survey data and publicly available school-level outcomes data, this analysis examined descriptive trends in implementation levels (Strand 1), estimated effects of personalized, competency-based learning implementation on student outcomes (Strand 2), and conducted exploratory analyses of the relationship between personalized, competency-based learning implementation and student outcomes (Strand 3).

We found that students and teachers perceived moderate to strong levels of implementation as reported in the survey data, with teachers perceiving stronger levels of implementation compared to students. In addition, teachers reported improved implementation over time, whereas student perceptions of implementation remained largely unchanged across survey years. The effects of personalized, competency-based learning implementation on student outcomes were largely mixed and likely inconclusive. We found some evidence of negative effects on achievement outcomes in elementary schools, no evidence of achievement effects in middle schools, some evidence of positive effects on achievement outcomes in high schools, and no evidence of effects on graduation or dropout rates in high schools. Similarly, we do not find evidence of a relationship between students' and teachers' perceived implementation levels and student outcomes.

It is important to note that the overlap of COVID-19 with the introduction of personalized, competency-based learning in AZPLN districts may have affected its implementation. The implementation of personalized, competency-based learning began in AZPLN districts in 2019, and thus implementation is still considered in the early stages. Additionally, it may be particularly early in the implementation process to observe changes in student outcomes associated with personalized, competency-based learning due to 1) the deceleration of implementation due to COVID-19 and 2) the moderate level of implementation resulting, at least in part, from the organic nature of implementation in the initial years of the work. We thus recommend continued study of personalized, competency-based learning and its effects on student outcomes as school- and district-level implementation progresses.

About Research for Action

Research for Action (RFA) is a Philadelphia-based nonprofit education research organization. We seek to use research to improve equity, opportunity, and outcomes for students and families. Our work is designed to strengthen early education, public schools, and postsecondary institutions; provide research-based recommendations to policymakers, practitioners, and the public; and enrich civic and community dialogue. For more information, please visit our website at www.researchforaction.org.

Acknowledgements

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