



ENGAGEMENT

Evidence in Action

A K20 Center Research Brief

Professional Learning Communities and Student Outcomes: A Quantitative Analysis of the PLC at Work Model in Arkansas Schools

Kate Barnes and Sarah McKenzie
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Introduction

Professional Learning Communities (PLCs) are collaborative educator teams focused on improving student outcomes through ongoing, job-embedded learning. In Arkansas, the PLC at Work model was implemented statewide through a partnership with Solution Tree, supported by Act 427 (2017). This study evaluates the model's effectiveness across six cohorts of schools, contributing to the limited body of quantitative research on PLCs and their impact on student achievement.

Methodology

Research Design

The study used a quasi-experimental design, combining a two-stage matching process with a difference-in-differences (DiD), and event study framework. This enabled researchers to compare PLC schools with similar non-PLC schools over time.

Sample

Ninety Arkansas schools were selected to participate in the PLC at Work program through a competitive application process. These schools were matched with comparison schools based on demographics, achievement levels, and other relevant characteristics.

Data Analysis

Researchers analyzed longitudinal data from 2016-2023, focusing on the following:

- Weighted achievement scores in ELA and math.
- Value-added growth scores to measure student progress over time.
- Subgroup analysis for economically disadvantaged students.

Dosage

Recommended dosage is up to 50 days of professional development annually.

Results

The study found no statistically significant improvements in student achievement or growth due to PLC at Work participation. In fact, economically disadvantaged students showed



consistent negative trends, especially in math. While some cohorts experienced temporary gains in ELA, these effects did not persist. The findings suggest that the current implementation may not be effectively supporting student learning, particularly for vulnerable populations.

Implications for Practice:

- PLCs may require stronger implementation fidelity and targeted support.
 - Schools should monitor subgroup performance closely.
 - Additional interventions may be needed to support math achievement.
 - Ongoing evaluation and adaptation are essential to ensure effectiveness.
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Application into Practice

Schools considering PLC should follow a structured implementation process to maximize impact:

- **Conduct Needs Assessment**
 - Review school-level data to identify strengths, gaps, and areas for growth.
 - Use formative and summative assessments to guide planning.
- **Develop a Customized Plan**
 - Collaborate with a certified PLC coach to tailor the implementation strategy.
 - Align goals with school improvement plans and student needs.
- **Deliver Professional Development**
 - Provide up to 50 days/year of on-site training, coaching, and support.
 - Focus on leadership development, assessment literacy, and instructional strategies.
 - Include job-embedded learning and collaborative team structures.
- **Provide Resources**
 - Ensure access to digital and print materials.
- **Ensure Ongoing Support**
 - Maintain regular communication with Site Coaches.
 - Use formative assessments to monitor progress and adjust strategies.
 - Engage in cycles of inquiry and reflection.
- **Use Data to Drive Decisions**
 - Analyze school-level and subgroup data to inform instructional practices.
 - Monitor performance of economically disadvantaged students and other priority groups.
 - Adjust PLC focus areas based on student outcome trends.
- **Ensure High-Fidelity Implementation**
 - Secure leadership commitment and staff buy-in.
 - Establish clear expectations for collaboration and accountability.



- Use implementation rubrics or fidelity checklists to monitor progress.
 - Supplement PLCs with Targeted Interventions
 - Integrate additional support in math and literacy where needed.
 - Use evidence-based instructional practices alongside PLC structures.
 - Engage in Regular Program Audits
 - Evaluate effectiveness through internal reviews and external evaluations.
 - Align resource allocation with student needs and school context.
 - Use feedback to refine implementation and improve outcomes.
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