

## Districts Helping Districts: Facilitating a Community of District Leaders to Develop Computing Pathways

Kelly Mills, Merijke Coenraad, Pati Ruiz, Quinn Burke  
kmills@digitalpromise.org, mcoenraad@digitalpromise.org, pruiiz@digitalpromise.org,  
qburke@digitalpromise.org  
Digital Promise Global

**Abstract:** We explore how to best facilitate a community of district leaders from six districts across the United States as part of a research practice partnership to design and implement K-12 computing learning opportunities. We found that developing a shared vision, conducting a needs assessment, and encouraging follow up interactions were helpful in facilitating a community of collaborative learning for district leaders.

### Introduction

Educational systems are working diligently to adopt policies and practices to increase offerings for computing education in order to equip all learners with essential skillsets to succeed in our increasingly technological world and workforce. In the United States, district leaders have been uniquely challenged to restructure K-12 systems to provide computing learning opportunities for all learners. While states have adopted standards and frameworks as a guide to design and implement computing learning opportunities, district leaders must adapt these resources to be used within the unique contexts of their school communities, considering their students and families, available resources, competing priorities and ongoing initiatives. In previous work, our team has partnered with districts to develop inclusive computing pathways (Mills et al., 2021). As this work scales, we seek to understand how collaboration between school districts in unique contexts can support them to design and implement K-12 computing learning opportunities, which may also inform supports for other shared problems of practice.

We conceptualize the group as a community of practice (CoP; Lave & Wenger, 1991) where all districts learn from each other. Indeed, in our prior project, we led an RPP that interconnected districts in three states and we were consistently surprised at how helpful districts were to each other despite varied locales. While CoPs have been successfully facilitated for many geographically dispersed professional groups, we seek to expand knowledge about these collaborative learning networks between educational district leaders focused on computing pathways. In this study, we explore how to best facilitate a community of district leaders from six districts across the United States as part of a research practice partnership. Specifically, we ask “What practices support district leaders to productively collaborate as part of a community of practice to design and implement inclusive computing pathways?”

### Methods

We engaged in a research-practice partnership (Coburn et al., 2013) between 2018-2021 to develop computing pathways in districts from three states (“core districts”). Collaboratively, we developed a toolkit articulating a shared process, best practices, and useful resources for districts to develop computing pathways (Mills et al., 2021). In 2021, we piloted this toolkit in four additional districts (“pilot districts”). In November 2021, all districts attended an in person convening to share processes and strategies for their computing pathways. All districts indicated that they learned significantly from other districts and would benefit from continued connection. Therefore, they began participating in a CoP with 2-3 members of each leadership team to address problems of practice at the leadership level, such as scaling implementation, generating buy-in, and securing continued funding. Researchers adopted a design-based research approach, entailing iterative cycles of design and analysis, to adopt best practices to facilitate the community of district leaders.

Districts attend bi-annual, in-person convenings (three to date: November 2021, June 2022 and November 2022) and participate in regular virtual calls. Participants (N=21) include district leaders (n=6), curriculum/instructional specialists (n=6), building leaders (n=3) and practicing teachers (n=6). We used qualitative research methods (Miles, Huberman, & Saldana, 2014) to analyze project artifacts, meeting notes and field note observations from each of our meetings within the networks including the collection of design and planning documentation, identifying features of the peer-collaborative networks and supports that they provided.

### Findings

We describe how three facilitation practices of the district leader CoP contributed to collaborative learning related to developing computing pathways. One practice that contributed to community building was developing a shared

vision among district leaders. Given the nature of this project as an RPP, district leaders were included in the proposal process and helped to develop short-term and long-term goals of what they sought to get out of the CoP, management practices, and the expertise they brought to and wanted to receive from the CoP. This established a shared purpose amongst the group to disrupt patterns of inequity in computing education in all districts and share resources and best practices – particularly around professional development, teacher recruitment and retention, and computational thinking integration. Another facilitation practice that enhanced collaborative learning was co-designing and conducting an assessment of the current district landscape and needs. Discussing specific indicators across districts enabled them to provide consultancy to each other as they develop strategies and processes to scale their computing pathways and disrupt inequity within them. Finally, districts indicated that they learned from connecting with other districts about specific issues outside of the cadence of regularly scheduled virtual and in-person convenings. We attribute these interactions to the facilitation practice of encouraging follow up activities (e.g. email communication, meetings, resource sharing) between districts that are addressing similar challenges and creating shared platforms for interactions that were not moderated by the research team.

**Table 1**  
*Demographics of Each District and What They Hope to Share and Learn in CoP*

District	Context	Demographics	Hope to Share in CoP	Hope to Learn in CoP
Core 1	Urban	Title I: 37%	-Equity-focused data analytics	-Navigate competing initiatives
	28 schools	Black: 19%		
	14,000 students	Latinx: 12%		
Core 2	Suburban	Title I: 17%	-Shared leadership with school/classroom	-Teacher professional development
	34 schools	Black 9%		
	28,000 students	Latinx: 12%		
Core 3	Rural	Title I: 71%	-Teacher buy-in -Content integration	-Assessment of implementation
	18 schools	Black: 33%		
	7,000 students	Latinx: 2%		
Pilot 1	Large Urban	Title I: 58%	-Teacher support for existing CS/CT initiatives	-Evaluation/observation tools -Alignment with industry certification
	329 schools	Black: 39%		
	269,098 students	Latinx: 35%		
Pilot 2	Suburban	Title I: 13%	-Elementary integration	-Middle and high school integration
	5 schools	Black: 3%		
	3,606 students	Latinx: 31%		
Pilot 3	Rural	Title I: 3.9%	-Alignment with existing initiatives -Teacher buy-in	-Teacher resources for integration -Professional learning
	2 schools	Latinx: 7%		
	1,019 students			

## Conclusion and implications

Although each district made many different choices about their computing pathway, we discovered many commonalities in best practices for pathways development that were invaluable and warranted fostering for future district-to-districts connections. Specifically, we found that developing a shared vision, conducting a needs assessment, and encouraging follow up interactions were helpful in facilitating a community of collaborative learning for district leaders. In future iterations of our CoP, we will facilitate “on the ground” learning among district leaders, traveling to one district for classroom visits and student/teacher conversations in order to experience an existing computing pathway and collectively consider where their own goals and plans may overlap or differ. Through our ongoing process of design and refinement, we plan to use our learning to develop empirically-supported resources, tools, and measures to support a growing network of school districts nationwide to engage in sustained, regular conversation and collaborative problem solving about computing pathways.

## References

- Coburn, C. E., Penuel, W. R., & Geil, K. E. (2013). Research-practice partnerships: A strategy for leveraging research for educational improvement in school districts. *William T. Grant Foundation*.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge university.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2013). *Qualitative data analysis*. Sage.
- Mills, K., Ruiz, P., Coenraad, M., Burke, Q., Roschelle, J. (2021). Deciphering Inclusivity for the Design of K-12 Computing Pathways. In Proceedings of the 52<sup>nd</sup> ACM Technical Symposium on Computer Science Education (SIGCSE '21). <https://doi.org/10.1145/3408877.3439626>