Introduction

Inquiry is an important part of any educational setting. In the past, *inquiry* has been defined as a cyclical process where learning communities use data to inform instruction and generate new knowledge. The result of this process is improvement in learner engagement, empowerment, and achievement.[1] Recent research has redefined inquiry as a process in which a phenomenon (problem) is observed, questions are developed, and guidance is given for the design of appropriate interventions that will help to solve the problem. Interventions are put in place, and then the process and product of those interventions are analyzed.[2] In this new approach, the inquiry process continues and evolves rather than becoming stagnant once the initial problem is solved.

Components of Inquiry

Professional learning communities. The development of effective professional learning communities (PLCs) promotes safe and supportive environments that encourage collaboration between teachers and leaders.[3] Instructional leaders (principals, instructional coaches, grade- or team-level leads) should work to develop a sense of trust to ensure that collaborative decision-making can occur.[4] When teachers are empowered to take on leadership roles that focus on student data and achievement, the PLC provides an avenue for continuous improvement and growth.[5]

Data-based decision-making. One critical component of the inquiry process is the ability to make data-driven decisions. When working with students, teachers experiment every day to determine which methods of instruction work best. However, the difference between experimenting and following a process such as data-based decision-making (DBDM) is the teacher's data literacy. Not unlike the ability to read and comprehend a text, data literacy is the ability to read and interpret data, to use the data to inform instruction, and to clearly communicate what the data is saying.[6]

Positive data culture. Ensuring that teachers have supportive systems with adequate resources is a key factor in developing and sustaining the inquiry process.[7] To have an effective system, teachers must feel they can openly share, discuss, and respond to data in a safe environment.[8] This requires the following:

- A sense of trust,[9]
- Collaboration among teachers and leaders,[10]
- Shared responsibility for school improvement,[11]
- A clear vision that articulates what types of data must be collected,[12]
- Consistency when using student data to guide decisions related to teaching and learning.[13]

Research-to-practice partnerships. Once a school begins to understand its data and how to set goals and make decisions with it, establishing relationships with external partners can further enhance progress by intervening in ways that contribute to the larger discussion of best practices. In a research-to-practice partnership (RPP), university researchers or representatives from agencies or educational organizations lend their expertise to test evidence-based practices within the school setting to promote sustainable student achievement through a shared commitment to working together.[14] This commitment develops the trust needed for the partnership to effect change and be long-lasting.[15] RPPs are flexible and adjust to the needs of the school setting while providing coaching and mentoring to improve teacher practice.[16] Teachers and researchers are partners in interpreting data and determining how the data influences next steps.[17] The benefits of these partnerships include:

- Interventions that reach all learners[18];
- Decision-making at the point of need[19];
- Long-term, sustainable change.[20]

As a result of these mutually beneficial partnerships, norms are established for continued collaborative success.[21]

Improvement over accountability. Successful processes depend on continuous improvement rather than accountability.[22] When a school uses data as a tool to support continuous growth instead of focusing on accountability, the school is one step closer to creating a positive data culture.[23] It is imperative to ensure that the data collected for analysis is authentic and diverse and presents a clear, accurate picture of who and where the students are in relation to a set goal. To provide a well-rounded view of each student and their progress toward established goals, the data should include formal and informal observations and qualitative and quantitative data that looks at student performance. Having explicit expectations about why data is being collected, which data is collected, how it is collected, how it is used, and methods for data analysis is key.[24]

It is not enough to approach PLCs and data team meetings with a list of expectations and a positive intent for well-balanced inquiry within the school. A change in mindset is required to encourage self-efficacy related to data collection, analysis, and interpretation. Having supportive trainers facilitate professional development experiences that are directly relevant to teachers' needs can help to increase teachers' self-efficacy when they engage in the DBDM process.[25] In addition to improving teachers' self-efficacy, interventions low in cost and intensity can improve teachers' attitudes about, understanding of, and comfort level with data.

Inquiry in Practice

Fostering positive teacher attitudes. A persistent theme of the literature is that assembling a PLC focused on DBDM is a complex, ongoing process centered on improvement.[26] A few key takeaways include the following:

- Collaborating to set clear, measurable, and attainable goals aimed at increasing student achievement;
- Engaging in DBDM to ensure the maintenance and sustainability of programmatic activities[27];
- Before engaging in any DBDM process, clearly defining roles and put support structures in place. This is key to encouraging the development of a positive data culture;
- Getting to the heart of what is preventing students from reaching the desired measures, and then determining interventions that support students, teachers, and the school[28];
- Sharing knowledge and interventions that can support students and teachers[29];
- Frequently and repeatedly measuring students' progress toward the established instructional goals.[30]

Building a PLC to encourage trust, data-informed decision making, and pedagogy. An effective PLC incorporates teacher leadership, which fosters a sense of trust and enables collaborative decision-making.[31] Providing support structures and frequent feedback is necessary. One of these support structures is ongoing professional development for both instructional leaders and teachers that includes guidance through the inquiry process and the data analysis process. This training should include an overview that clearly identifies the purpose of data research and a structure that aligns with teachers' existing practices.[32] Showing teachers how the training connects to what they are already doing ensures sufficient buy-in. To reinforce buy-in, training should be centered on developing teachers' confidence, self-efficacy, and ability to understand, appreciate, and interpret data.[33] Through consistently shaping decision-making with a focus on teaching and learning, PLCs are positioned to blend pedagogical improvement and a commitment to data.

Growing a school culture to embrace inquiry. Professional development that includes data literacy, teacher inquiry, and culturally responsive pedagogy should be integrated into everyday practice.[34] It is critical to ensure the momentum is present to develop practices that meet the diverse needs of students as well as the broader community of stakeholders and to continue improving those practices. This means considering the many factors that impact learning and access to information. If educators continue to ignore factors that affect students and approach data in color-neutral ways[35] that confirm assumptions about students or their

families,[36] disregard students' cultural identities, or reinforce harmful tracking practices,[37] they run the risk of perpetuating the same inequalities that have plagued past student achievement initiatives.[38] When school leaders begin the inquiry process, it is imperative that they do so as a whole-school initiative with the goal of looking at the whole child when analyzing data.[39]

Conclusion

Inquiry can be initiated and sustained in schools where professional learning communities are incorporated and nurtured. It is important to provide training related to data collection and analysis and to establish partnerships that result in mutually beneficial research. This training should promote a culture of data collection and research intended to serve all students rather than perpetuating existing inequities. The resulting environment will improve both policies and practices and will produce high-quality instructional materials that lead to better student outcomes. By ensuring that teachers have supportive systems with adequate resources to develop and sustain the inquiry process, schools engender a sense of trust, collaboration among teachers and leaders, and shared responsibility for school improvement.

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