DATA-DRIVEN DECISION-MAKING

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Data-driven decision-making is a continuous process centered on the use of data, numerical and written, to reach evidence-based conclusions (Bowers & Krumm, 2021; Love et al., 2008). This process should focus on student learning and closing the achievement gap through teacher action rather than student accountability (Bowers & Krumm, 2021; Love et al., 2008; Mandinach & Schildkamp, 2021). Schools that implement data-based practices show improved student achievement and student engagement (Albiladi et al., 2020; Debnam et al., 2022).

Components of Data-Driven Decision-Making

Data must first be processed to identify needs and inform instructional practices. When data-driven decision-making frameworks are properly followed, they facilitate the creation of goals based on data analysis. This then informs the implementation of evidence-based interventions to improve and adjust instruction and curriculum. In tandem with implementation, the framework facilitates the monitoring of progress to ensure targeted goals are achieved. When analyzing data, the focus should not be on holding teachers accountable, but on holistic student learning with an equity-based mindset (Mandinach & Schildkamp, 2021; Schildkamp & Datnow, 2022). Multiple types of data from a variety of sources—both formal and informal—should be used to reach sound conclusions and assure equity when considering student learning (Love et al., 2008; Romer et al., 2023). While teachers may tend to distrust formal data and administrators may tend to distrust informal data (Albiladi et al., 2020; Barnes et al., 2022), both forms of data are important to include when making decisions (Mandinach & Schildkamp, 2021). Further, data must connect to the targeted standard where improvement is needed the most (Barnes et al., 2022). This assures outcomes reflect the goals set from the outset.

Build a Team and Set Shared Norms

- Each data team should include administrators, teachers, counselors, students, families, and other internal and external stakeholders (Abrams et al., 2021; Baharav & Newman, 2019; Love et al., 2008).
- Set norms around data and build a data team that is focused on finding solutions for student learning (Boudett et al., 2020). When norms are created early in the process, those norms provide support for tough conversations as they arise (Love et al., 2008; Romer et al., 2023).

Use Data to Identify Needs

- Focus on areas of greatest concern that can be addressed, are measurable, and can be accomplished by the school to provide results (Baharav & Newman, 2019; Geiger & Oehrtman, 2020).

Define Rationale and Set Goals

- Create SMART goals that positively impact student learning (Love et al., 2008; Mandinach & Schildkamp, 2021). Data-driven decision-making requires clear, specific, and measurable goals (Mandinach & Schildkamp, 2021; Romer et al., 2023).

Identify Evidence-Based Resources

- Research quality, evidence-based practices to decide what interventions should be implemented in the classroom to achieve desired outcomes (Geiger & Oehrtman, 2020; Love et al., 2008).

Monitoring and Achieving Results

- Actively collect data to determine the effectiveness of interventions in terms of improving student learning (Buffum et al., 2012; Lane et al., 2014).

Data-Driven Decision-Making and Professional Learning Communities

Professional learning communities (PLCs) have data-driven decision-making at the foundation of their work in improving student learning (Abrams et al., 2021; DiMarco & Guastello, 2021). PLCs provide a space for teachers to collaborate as they analyze data and work toward the improvement of student learning through adjustments to instructional practices (DiMarco & Guastello, 2021; DuFour et al., 2021; DuFour & DuFour, 2009). Like other data-driven frameworks, professional learning communities have shared visions and goals, use data to make informed decisions about student learning, and adjust instruction to improve upon that learning (Abrams et al., 2021; DiMarco & Guastello, 2021; Espin et al., 2021). Through this process, PLCs offer continuous professional development and practice for data analysis (DiMarco & Guastello, 2021).

Data-Driven Decision-Making in Practice

Leadership Practices

Administrators must take the lead in creating a schoolwide culture that views data analysis as a positive process and as an impactful initiative (Lasater et al., 2021). Before implementing changes, administrators need to create a shared vision and goals, show support for teachers, and focus conversations on student learning—instead of simply improving test scores—in order to create trust between administrators and teachers (Buffum et al., 2012; Lasater et al., 2020; Love et al., 2008). Further administrator practices to help drive a data-driven decision-making culture are listed below.

- Improve teacher self-efficacy and trust through professional development on data literacy, including how to collect and interpret data to make instructional decisions (Abrams et al., 2021; Baharav & Newman, 2019; Barnes et al., 2022; Bowers & Krumm, 2021; DuFour & DuFour, 2009; Gesel et al., 2021; Love et al., 2008; Oslund et al., 2021; Washburn et al., 2022; Wilcox et al., 2021). This should be scaffolded with a focus on skills and processes, and broken down into small chunks that build on each other (Oslund et al., 2021; Washburn et al., 2022).
- Communicate continuously with teachers, being transparent and sharing what is happening throughout the process to promote teacher buy-in (Lane et al., 2014).
- Connect the initiatives implemented in school to help teachers see how data-driven decision-making can support what you are already doing (Love et al., 2008).
- Build a data team that includes multiple perspectives and members who each serve a specific purpose. This can include administrators, school counselors, teachers from content or grade levels, special education teachers, research partners, and even students or families (Abrams et al., 2021; Baharav & Newman, 2019; Geiger & Oehrtman, 2020; Lane et al., 2014; Love et al., 2008).
- Set clear expectations and norms relevant to the data collection and analysis process (Abrams et al., 2021; Boudett et al., 2020).
- Determine when meetings will occur, how they are structured, and how they will be made routine (Beck & Nunnaley, 2021). Schedule meetings as protected time.
- Attend data team meetings to serve as a data coach, to facilitate conversations around data, to help find solutions for problems, and to identify needed training for the team (Abrams et al., 2021; Garry, 2021). Keep in mind that it is important to work alongside teachers, but give them the space and support to make their own evidence-based instructional decisions (Abrams et al., 2021; Beck & Nunnaley, 2021).
- Support teachers by providing protected time for recurring data meetings in order to allow time for evaluating and discussing the data (DiMarco & Guastello, 2021; Love et al., 2008). Teachers may otherwise lack time not only to complete data analysis, but also to attend professional developments on the process (Albiladi et al., 2020; Bengtson et al., 2020; Bowers & Krumm, 2021).

Teacher and Counselor Practices:

- Attend professional development sessions on data-driven decision-making and data literacy. This can increase self-efficacy and confidence in data-informed decision-making (Abraham et al., 2014).
- Work collaboratively with your data team, as this allows for effective data analysis through multiple points of view and sets up a positive data culture (Abrams et al., 2021; Lasater et al., 2020).
- Create a strong team with a shared purpose and use norms to help the team focus on instructional improvement (Boudett et al., 2020; Love et al., 2008).
- Compare multiple forms of data, including engagement and student environment data, and be deliberate and consistent in how you use data (Beck & Nunnaley, 2021; Reeves et al., 2022). Types of data might include standardized tests, demographic data, behavioral data, attendance data, classroom-level assessments, student surveys, and observations (Albiladi et al., 2020; Love et al., 2008; Schildkamp & Datnow, 2022). Data broken down into standards, objectives, and skills is called strand data (Love et al., 2008). This data can be overwhelming, but is important as it can pinpoint specific areas where improvement is needed (Love et al., 2008).
- Focus on student improvement by emphasizing the use of evidence-based curriculum and instructional practices while also building on the school's strengths to balance the areas that need improvement (Abrams et al., 2021; Love et al., 2008).

Root Cause Analysis in Data-Driven Decision-Making

Root cause analysis (RCA) is a structured process used to identify the deepest underlying causes of a problem, rather than addressing surface-level symptoms (Preuss, 2003). In a school, RCA helps teams move beyond assumptions and quick fixes to uncover systemic issues that, if addressed, can lead to meaningful and lasting change (James-Ward et al., 2012; Slameto, 2016).

One effective tool for conducting RCA is the fishbone diagram, also known as the Ishikawa or cause-and-effect diagram. This visual tool helps categorize potential causes of a problem into key domains such as instruction, curriculum, student factors, organizational structure, and school culture (James-Ward et al., 2012). By brainstorming and organizing causes within these categories, teams can identify patterns and prioritize areas within their spheres of influence.

To be effective, RCA should be collaborative, data-informed, and hypothesis-driven. Teams should use both quantitative and qualitative data—such as assessment results, attendance records, classroom observations, and stakeholder feedback—to explore possible causes. Root causes should be framed as hypotheses that can be tested and refined over time, rather than definitive conclusions (Meyers & VanGronigen, 2021).

RCA encourages a systems-level perspective that considers how leadership practices, structures, and supports may be contributing to the problem (Meyers & VanGronigen, 2021). Incorporating RCA into the data-driven decision-making process ensures that planning and decisions are grounded in a clear understanding of the problem. This leads to more targeted interventions, better alignment with school goals, and increased likelihood of sustainable improvement.

Conclusion

Data-driven decision-making isn't solely about focusing on areas of weaknesses; it's also about balancing needs with strengths and celebrating areas of growth (Abrams et al., 2021). Create a positive data culture within the school to emphasize the importance of using student data to drive improvement. Data-driven decision-making is a whole-school approach where all stakeholders share in the responsibility for student learning (DuFour et al., 2021; DuFour & DuFour, 2009).

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