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Continuous Improvement in Schools and Districts: **Policy Considerations**

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Policymakers and educators agree that improving the quality of K-12 education in the United States is a priority. However, discussions about improving public education often focus on outcomes—college and career readiness, closing achievement gaps, or increasing graduation rates—without considering how schools and districts can accomplish those outcomes. Although achieving desired outcomes is crucial to improving education, the processes that make those outcomes possible are equally important (Grayson, 2009). Often, evidence-based strategies to improve school performance succeed in one context but fail in another, leaving stakeholders wondering why. That is why improving school and district processes for implementing new strategies is important to their long-term success.

Continuous improvement is one promising approach that public education can use on its path to improved outcomes. Research has shown that such an approach has already proven successful in fields such as healthcare, manufacturing, and technology. In these sectors, continuous improvement has been used to achieve significant advances, ranging from improved technologies to reductions in patient mortality (Grayson, 2009; Institute for Healthcare Improvement [IHI], 2003; Kabcenell, Nolan, Martin, & Gill, 2010; Langley et al., 2009). The organizations that have used this approach have been categorized as "high-reliability organizations," which strive to operate error-free under high risk conditions (Weick & Sutcliffe, 2007).

In education, however, schools and districts have been slower to incorporate continuous improvement into their practices, and few are publicly referred to as "highly reliable" (Park, Hironaka, Carver, & Nordstrum, 2013). Organizations responsible for open-heart surgeries or landing planes on aircraft carriers use continuous improvement processes to ensure near-perfect performance. Nonetheless, public schools, which are responsible for educating the children who will one day perform open-heart surgery and pilot those planes, continue to struggle to meet performance requirements, such as closing achievement gaps or graduating all students college- and career-ready.

Schools and districts that use continuous improvement can achieve impressive results (Flumerfelt & Green, 2013; Park et al., 2013; Wilka & Cohen, 2013). Indeed, educational organizations that have pursued such a path have achieved a range of performance goals, including decreased failure rates, increased homework completion rates, increased Advanced Placement exam participation, increased kindergarten readiness, increased college enrollments, and more efficient use of funds (Flumerfelt & Green, 2013; Park et al., 2013). Such results merit further consideration by education policymakers and practitioners.

This brief provides an introduction to continuous improvement and discusses its relevance to education policymakers. Recommendations appear at the end of the document.

What Is Continuous Improvement?

The term "continuous improvement" is used across industries to describe a process or approach to problem solving that represents an ongoing effort to improve outcomes (American Society for Quality, n.d.). In continuously improving systems, change occurs both quickly and incrementally, as organizations learn from experience while testing and refining strategies to produce better results. In education, continuous improvement can refer to a school, district, or other organization's ongoing commitment to quality improvement efforts that are evidence-based, integrated into the daily work of individuals, contextualized within a system, and iterative (Park et al., 2013). At the classroom level, continuous improvement may refer to using timely, accurate data to regularly inform and improve teacher practice. At a school or district level, continuous improvement may refer to ongoing efforts to improve operational practices and processes related to efficiency, effectiveness, and student outcomes.

In all cases, continuous improvement involves a cyclical approach to problem solving: it allows relevant actors to reflect on their work, identify problem areas, pilot potential solutions to those problems, observe and evaluate interventions, and adapt interventions based on data collected (Flumerfelt & Green, 2013; Schmoker, 2006). There are multiple continuous improvement models built on this same basic cycle, including Plan, Do, Study, Act (PDSA); Sig Sigma (DMAIC); Lean; Results-Oriented-Cycle of Inquiry (ROCI); and Data Wise (Park et al., 2013).

The four stages of PDSA, one longstanding model, usefully illustrate the continuous improvement process:

> **Plan:** A continuous improvement team studies a problem that needs to be solved, collects baseline data on that problem, elaborates potential solutions to that problem, and develops an action plan.
>
> **Do:** The team implements its action plan, collects data on its intervention, and records developments.
>
> **Study:** The team gauges the success of the intervention by comparing baseline and new data, analyzes results, and documents lessons learned.
>
> **Act:** The team determines what to do with its results. Depending on the success of its intervention, the team may choose to adopt, adapt, or abandon its tested solution.
>
> (Gorenflo & Moran, 2010; Langley et al., 2009)

With PDSA, as in other continuous improvement models, the use of an iterative process to rapidly move potential solutions into practice allows for ongoing quality improvement. After completing one cycle, the team begins a new cycle to test different solutions or address new problems.

Summit Public Schools, a California charter school system, has formally adopted a continuous improvement model that uses a "Build—Measure—Learn" cycle to rapidly prototype innovations. Guided by the ultimate goal of college and career readiness for all students, educators propose and implement potential innovations during the "Build" phase; use technology to gather student and teacher feedback and data during the "Measure" phase; and reflect on progress and make necessary changes during the "Learn" phase. Stakeholders used this continuous improvement approach to successfully shift schools to a nationally recognized blended learning model and continue to use this approach to test other innovations (Wilka & Cohen, 2013).

Accounting for Continuous Improvement in Education Policy

Allowing for continuous improvement in schools and districts at the policy level requires consideration of numerous factors, including the following.

Fewer, Specific, and Measurable Goals

Schools undertaking improvement projects frequently include more goals and action items in their improvement plans than can be realistically implemented (Goodwin, 2011). A continuous improvement approach involves addressing fewer problems more effectively by systematically testing potential solutions against specific, measurable goals (Bernhardt & Hebert, 2010; Cicchinelli, Dean, Galvin, Goodwin, & Parsley, 2006; "How to Improve," 2014; Loeb & Plank, 2008). Because the continuous improvement process is iterative and cyclical, schools and districts can work toward many goals over time. However, allowing schools and districts to focus on fewer goals at a time and later concentrate on others may help them achieve better results in the long term. The challenge with reducing the number of goals that schools must reach, of course, is the high number of competing demands that schools currently manage. Nonetheless, ensuring that goals are clear, measurable, and actionable, while reducing their number as feasible, can support continuous improvement efforts.

Flexibility

A continuous improvement approach to problem solving requires using rapid prototyping to test evidence- and context-based solutions. Participants must research evidence-based solutions; select one to implement; and adapt, adopt, or abandon that solution based on evaluation results. Such a process requires that schools and districts have the flexibility to take risks, test various possible solutions, and adjust programs midcourse (Bryk, 2009; Loeb & Plank, 2008). Providing this flexibility at the policy level allows schools and districts to customize evidence-based solutions to meet the needs of their individual contexts.

Time

The continuous improvement process requires time—principals may need to research and introduce new instructional strategies, teachers may need to collaborate with and observe other educators, and others may need to monitor progress and collect data (Bernhardt & Hebert, 2010; Loeb & Plank, 2008). Allowing schools and districts the time necessary to implement programs using a continuous improvement approach may increase the likelihood of successful implementation.

Data Use and Capacity

Participants in continuous improvement processes must collect and use data to evaluate the efficacy of interventions, make midterm corrections, and plan future actions. Such data must be timely, useful, reliable, and easily available (Loeb & Plank, 2008; Park et al., 2013). Further, educators and others involved must have the capacity to understand and use data (Park et al., 2013). Policy that allows for the creation of reliable data collection systems and training for relevant parties on how to use data can help schools and districts integrate continuous improvement into regular operations (Loeb & Plank, 2008; Park et al., 2013).

Enacted in 2012, KRS 156.108 and 160.107 allow Kentucky public school districts to apply to the Kentucky Board of Education to become Districts of Innovation. Such districts receive flexibility from certain regulations, allowing them to test innovative models. Applicants must describe how they will use continuous improvement and reward risk taking to achieve 21st century learning goals. The flexibility provided by this program has allowed districts to test and improve various innovations ranging from competency-based advancement to personalized learning based on a postsecondary model ("Innovation," 2014; Pace, 2013).

Evaluation

Evaluation plays a key role in continuous improvement because participants must regularly evaluate the efficacy of their interventions. Although current policy may include provisions for program evaluation, these evaluations often occur after a program has been completed (Loeb & Plank, 2008). Continuous improvement requires that evaluation occurs throughout a program and allows for midcourse corrections and changes. Designing policy to provide for evaluation from the beginning of a program, the collection of baseline data, and the flexibility to implement midcourse corrections based on evaluation results can help make interventions in schools and districts more effective (Loeb & Plank, 2008).

Leadership

Research on continuous improvement has shown that leaders play a crucial role in successful continuous improvement efforts (Langley, 2009; Marzano, Waters, & McNulty, 2005; Park et al., 2013). Successful leaders use a formal improvement methodology, create a vision for improvement, enable others to pursue that vision, and monitor progress toward goals (Park et al., 2013). Policy that provides for the training of school and district leaders in continuous improvement may help those leaders successfully incorporate continuous improvement into their work.

Knowledge Sharing

Successful continuous improvement efforts require that knowledge is shared across different parts of organizations (IHI, 2003; Loeb & Plank, 2008; Park et al., 2013). Teachers in continuously improving systems share best practices with their peers and leaders, leaders share with their teachers and educators in other schools, and districts share with their schools and other districts. Knowledge-sharing policies, both those that focus within and across schools and districts, help support continuous improvement efforts.

The Nebraska Department of Education requires that schools engage in formal continuous school improvement as a condition of accreditation. School improvement plans provide staff time and training to reflect on priorities, set specific goals (one of which must be tied to student achievement), research effective practices, develop and implement action plans (which must include aligned professional development), collect and analyze data, and evaluate the success of interventions (Nebraska Department of Education, 2012).

Capacity Building and Stakeholder Investment

Introducing continuous improvement to schools and districts may require a major cultural shift. New practices must be incorporated into all participants' daily work, and organizational structures may need to change (Park et al., 2013). Further, stakeholder investment in continuous improvement—fostered by the inclusion of student, educator, and community input—increases the likelihood that interventions will succeed (Wilka & Cohen, 2013). Policies that allow education leaders to manage change via staff training and promote stakeholder investment via shared decision making can help ensure the successful integration of continuous improvement into schools and districts (Park et al., 2013).

Policy Issue	Questions to Consider
Allowing schools and districts to use continuous improvement processes	1. What are the goals for schools and districts in my region? Are these goals appropriate, specific, and measurable? 2. How much flexibility do schools and districts in my region have with regard to improving practices? Can schools and districts design their own interventions? Can they improve programs midcourse based on formative or interim data? 3. How much time do educators and district officials have to reflect on and improve practices? Is the time available sufficient for relevant actors to incorporate continuous improvement into their daily practices? 4. Is continuous improvement possible in my region given current district and school cultures? Are there systems in place to encourage the testing and refining of interventions?
Using data and evaluation to improve outcomes	1. What data collection tools and systems can schools and districts in my region access? Do current data systems provide information that is timely, relevant, reliable, and easily accessible? 2. Do educators and district officials in my region understand how to use data to improve practice? What training exists to help educators better use data? 3. What mechanisms for the evaluation of programs in schools and districts currently exist? Do current practices allow for the collection of baseline data, ongoing evaluation from the beginning of a program, and continuous improvement based on midcourse evaluations?
Preparing educators to adopt continuous improvement	1. Are educators and district officials in my region currently using a continuous improvement approach? Do school and district leaders understand and use formal improvement methodologies? Do current practices allow for rapid prototyping and iterative development? 2. What quality improvement training can educators and district officials in my region access? 3. Who can provide input into school and district improvement efforts? Do policies promote stakeholder investment in school and district improvement? 4. What mechanisms exist for sharing knowledge within and among schools and districts in my region? Do these mechanisms allow for the continuous improvement of school and district practices?

Recommendations

Continuous improvement has proven useful and effective in various industries, and schools and districts incorporating continuous improvement into their work have shown promising results. Policymakers interested in promoting continuous improvement in their regions have much to consider. The following recommendations can assist policymakers as they begin this process:

- Investigate current improvement practices in schools and districts to determine whether formal improvement processes are in place, whether these processes allow for rapid prototyping, and how best to gauge the effectiveness of current methods.
- Review policies related to the number and type of goals that schools and districts are asked to reach, the rate at which they are asked to achieve these goals, and the flexibility they are provided regarding said goals.
- Gather information on training and time devoted to continuous improvement in schools and districts.
- Compile and assess information on data collection, data systems, data use, and data sharing within and among schools and districts.
- Ensure that there are formative and interim measures to help strengthen continuous improvement efforts as they are implemented.
- Examine policies related to the evaluation of school and district programs and determine whether they support continuous improvement efforts.
- Assess current policy to determine what mechanisms are in place to promote stakeholder investment in school and district improvement.

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