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Equity-oriented improvement science as organizational resilience: a cross-case comparison of collective thriving

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Introduction: This paper explores organizational resilience by applying the theory of social embeddedness of thriving at work from the positive organizational psychology research through a cross-case comparison of five schools involved in improvement work during the pandemic.

Methods: Using document analysis, observation, and interviews, this study is framed through the literature on workplace stress in schools under pressure and argues that schools with limited resources, such as schools in need of improvement, need to rethink how educators spend time together to improve together if we hope to retain thriving (energetic, motivated, and cognitively engaged) educators.

Findings: The findings focus on collective thriving as demonstrated through the work behaviors embedded in equity-focused improvement in teams (Design Improvement). We explore what collective thriving looks like in two of the five schools, including a discussion of the resources produced from the equity-centered continuous improvement work that supports thriving. Lastly, we provide a comparative analysis of the contextual factors that led to these two schools thriving during this time, as compared to other schools in their cohort.

Discussion: The two schools collectively thrived during the 2020–21 schools year through (a) a systematic approach with common, transparent routines, and (b) inclusive social learning through collective and multiple perspectives.

KEYWORDS

collective thriving, equity-oriented improvement science, workplace culture in schools under pressure, social and organizational learning, organizational resilience, global pandemic

Introduction

The global pandemic, which began in March 2020, shocked the education system and increased stress for already strained educators (Manning and Jeon, 2020; Dos Santos, 2021; Pressley et al., 2021; Zamarro et al., 2022). With the pandemic causing continued disruption, educators had the difficult task of preparing for the 2020–21 academic year by creating new types of online learning environments, adjusting instructional strategies for a virtual world, and continuing to support the academic and social needs of their students—all while navigating their own health and safety (Robinson et al., 2022; Wharton-Beck et al., 2022; Zamarro et al., 2022). The pandemic took place in a fraught political environment that shook educators' confidence in their leaders and the policies that guided their work and safety. In fact, many teachers did not trust leaders and policy makers (Robinson et al., 2022; Westphal et al., 2022). These disruptions to schooling required educators' nimbleness and responsiveness, requiring many school and teacher leaders to create visionary responses to ensuring the education of youths during a global crisis

(Banwo et al., 2020; Wharton-Beck et al., 2022). Our study highlights how school design teams employed a continuous improvement method known as improvement science (Bryk et al., 2015; Hinnant-Crawford, 2020) to not only survive the stress of this difficult 2020–21 school year but also to demonstrate organizational resilience (Evenseth et al., 2022) by collectively thriving (Spreitzer et al., 2005, 2012; Spreitzer and Sutcliffe, 2007) amidst the continued pursuit of improvement.

This study sought to answer the research question: In what ways, if any, did school design teams use a team-based, continuous improvement process called improvement science to collectively thrive in the workplace during the pandemic? This study describes the improvement science process carried out through a professional learning program that began in 2017 as part of a research-practice partnership. The district invited schools to join the program to support equity-focused improvement goals and to gain skills that could be applied to any complex problem. During the 2020–21 academic year, Fox Elementary, Eagle Elementary, and three other schools (Bear Elementary, Cheetah Elementary, and Prairie Dog Early Childhood Education) participated in the 2nd year of the improvement science program. Although all five schools engaged in parts of the continuous improvement process while facing unprecedented stress, two schools collectively thrived in their commitment to equity-oriented improvement. At a time when many leaders and schools could not find the time and energy to prioritize improvement and equity (Clifford and Coggsall, 2021), Fox Elementary and Eagle Elementary stood out because they not only made progress on their problem of practice by focusing on improvement and equity but also maintained positive energy and a learner stance, which are attributes of collective thriving in the workplace. These two schools demonstrated evidence that collaborative, problem-driven, continuous-improvement could develop the agentic behaviors and organizational enablers that lead to collective thriving (Keister, 2014; Walumbwa et al., 2018; Xu and Wang, 2020). Additionally, these schools showed that schools with limited resources, such as schools in need of improvement, need to rethink how educators spend time together on improvement to retain thriving educators who are energetic, motivated, and cognitively engaged.

Despite the high levels of stress educators endure, the lessons learned from this cross-case comparison study can help us understand how to create resilient schools that are thriving workplaces by understanding if and how they thrived in extreme conditions. We define thriving using the *social embeddedness of thriving at work theory* from the positive organizational change literature (Spreitzer et al., 2005, 2012; Spreitzer and Sutcliffe, 2007). Collective thriving comes from applying new knowledge in a healthy social environment that results in feeling confident, competent, and optimistic- despite the challenges of a job (Spreitzer et al., 2012). This study adds to this existing literature by applying Spreitzer's et al. (2005) thriving framework to the improvement science process for the first time. This study also adds to the existing literature by (a) arguing that restructuring how educators spend daily time together can increase their capacity to create workplace conditions that lead to collective thriving and organizational resiliency in schools, and (b) arguing that creating systems to resolve the complex, adaptive problems that exist within schools could further alleviate workplace stress and facilitate thriving

conditions. For these reasons, the theoretical framing of this paper is discussed in detail.

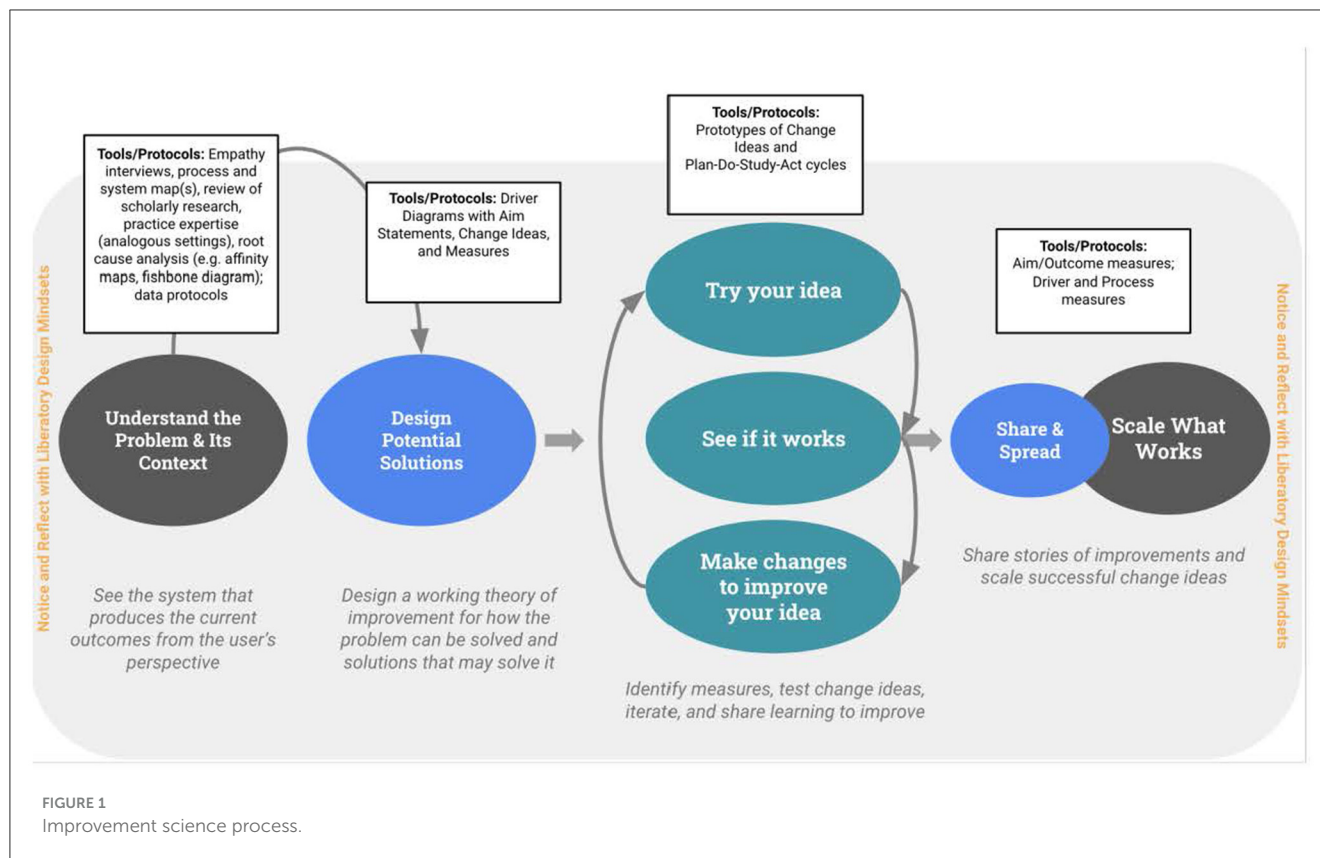
Equity-oriented improvement science

Like the organizational learning concepts undergirding organizational resilience (Evenseth et al., 2022), the improvement science model provides experiential learning opportunities in which school-based design teams address urgent, complex, equity-focused problems of practice while simultaneously learning continuous improvement practices to apply to future problems (Bryk et al., 2015; Hinnant-Crawford, 2020). The process is captured in Figure 1.

Equity-oriented improvement science is the basis of a professional learning program that engages school-based design teams in continuous improvement to address urgent, complex, equity-focused problems of practice while simultaneously learning improvement practices to apply to future problems (Bryk et al., 2015; Biag, 2019; Hinnant-Crawford, 2020; Anderson et al., 2023). The focus of said program is on developing collective learning about equity-oriented improvement by learning a process to solve adaptive problems (Anderson and Zhao, 2020) that leverages educators' assets and expertise (Wright et al., 2018). The goal is to ask what works, for who, under what conditions (Bryk et al., 2015).

The core principles of improvement science include being user-centered and problem-focused, using systems thinking to define the problem, embracing measurement, engaging in disciplined inquiry, and sharing learning through a network (Bryk et al., 2015; Hinnant-Crawford, 2020). The improvement process moves through phases beginning with collaboratively exploring the problem through analyzing local data, research and practice evidence, analogous settings, and process and systems mapping (Bryk et al., 2015; Hinnant-Crawford, 2020; Hinnant-Crawford and Anderson, 2022). A key part of this process is to conduct empathy interviews with a diverse group of stakeholders to understand how they are experiencing the problem (Bryk et al., 2015; Biag, 2019; Hinnant-Crawford, 2020; Biag and Sherer, 2021; Anderson et al., 2023). These data are used to conduct root cause analysis, and then to create the theory of improvement (Bryk et al., 2015; Hinnant-Crawford, 2020). After developing a theory of improvement, the team determines change ideas linked to the drivers, to explore through experimentation in Plan-Do-Study-Act (PDSA) cycles (Bryk et al., 2015; Lewis, 2015; Hinnant-Crawford et al., 2021). The team is asked to develop a change idea to address a driver (and in turn the aim), and then test the ideas with a small group of teachers and/or students before spreading it system-wide (Bryk et al., 2015; Hinnant-Crawford, 2020). In this process, the team collects and studies data to determine if the change idea is working as predicted or if it needs to be revised and iterated to address the goal of the idea (Bryk et al., 2015; Hinnant-Crawford, 2020). Biag and Sherer (2021) referred to educators engaged in improvement science who test ideas; collect, reflect and learn from data; seek multiple perspectives; and take action, while accepting that they may have to try again and learn from those attempts as educational improvers.

The equity-oriented improvement science method, as implemented within the schools in this study, employed a critical



pragmatic approach by infusing liberatory design mindsets with to the improvement science process (Hinnant-Crawford, 2020; Anaissie et al., 2021; Hinnant-Crawford et al., 2023). This process focuses on equity at all phases by noticing and reflecting on oppressive structures, systems, and practices (Biag, 2019; Anaissie et al., 2021). Design teams were coached to select problems related to the opportunity gaps present in their schools and district (Hinnant-Crawford and Anderson, 2022). Equity-oriented improvement science, based in liberatory design, uses both an equity lens and a commitment to equity throughout all phases of the improvement science process (Eddy-Spicer and Gomez, 2022; Anderson et al., 2023). A more thorough description of improvement science is embedded in the section on the theoretical framework.

Stress and the educator workforce

Well before the pandemic, school-based educators exhibited high levels of stress (Diliberti et al., 2021). In fact, a national study on teacher attrition both before and after the pandemic found, “Three out of four former teachers ($N = 949$) said that work was “often” or “always” stressful in the most recent year in which they taught in a public school (p. 10). There has been a decline in the teaching workforce due to stress caused by years of accountability policies, fiscal concerns and strikes, negative public responses, political polarization, racial injustice, and other stressors that predated the pandemic (Diliberti et al., 2021; Tran, 2022). Diliberti et al. indicated stressors created

by long work hours, limited flexibility in work schedules, poor working conditions, and low pay will likely continue to affect the recruitment and retention of teachers. The pandemic exacerbated each of these existing problems while also creating new stressors for educators to mitigate; thereby, creating workplace conditions that left teachers most susceptible to experiencing second-hand trauma and burnout (Manning and Jeon, 2020; Dos Santos, 2021; Pressley et al., 2021; Robinson et al., 2022; Zamorro et al., 2022). Given the exodus of teachers that have been leaving the profession, organizational resilience (Vogus and Sutcliffe, 2007; Evenseth et al., 2022) within schools is large concern for practitioners and researchers.

Reasons for leaving the profession are multitudinous, but there is agreement that school and district context matters. Westphal et al. (2022) found, “School principals’ leadership styles emerged as an organizational characteristic that is highly relevant for K–12 teachers’ levels of stress and burnout” (n.p.). Chaotic and unpredictable workplace environments have been consistently documented as the top reason for leaving the teaching profession; workplace environments are tied to leadership styles and decisions (Dos Santos, 2021; Tran, 2022). Stress comes from teachers’ concerns with leadership decisions and a lack of teacher agency (Gillani et al., 2021; Robinson et al., 2022). Similarly, Robinson and colleagues found that teachers wanted their perspectives included and wanted regular support to feel efficacious in their job. Recent research emphasized that educators do not feel that they can serve their students in the ways that they have committed to, and as a result, are leaving the profession (Pendola et al., 2023). Failing to promote positive school workplace conditions to increase

investment, resilience, and loyalty by teachers has resulted in a decline in the supply of teachers (Ouchi, 1981; Downs and Swailes, 2013; Evenseth et al., 2022).

Responses to educator stress

The solutions suggested by researchers and policymakers tend to focus on relieving educators of time commitments, adding flexibility to teacher schedules, preparing educators through professional development, or giving teachers more money (Diliberti et al., 2021; Fullard, 2021). Although increased pay commensurate with the hours and responsibilities of the job would be an improvement, a national study of nearly 1,000 teachers who left teaching before and after the pandemic found that “stress was the most common reason for leaving public school teaching early—almost twice as common as insufficient pay” (Diliberti et al., 2021, p. 1). In fact, many of the teachers who left teaching early (before retirement) took jobs with pay cuts and better working conditions, which included increased flexibility. Pressley (2021) indicated that providing teachers with support, ranging from support with technology to mental health, may help improve workplace conditions for teachers and curb the effects of teacher stress on the supply of teachers. Pressley (2021) also suggested that to reduce teacher turnover, school districts could have mental health days, provide more instructional guidance, or utilize technology for alleviating some of the teaching workload.

Although these are all excellent suggestions that would certainly improve working conditions for educators, many of them are not sustainable in a system under pressure (e.g., shortages of teachers, student mental health issues, and school funding limitations; Diliberti et al., 2021). To mitigate the effects that stressful working conditions have upon teachers, Tran (2022) suggested an approach to human resource management in education that: (a) develops teachers’ employee experience and engagement within the district and/or school; (b) leverages the talents of employees and the needs and developmental capacity of each employee (Swailes et al., 2014); and (c) incorporates the needs and development of educators, rather than compromising the needs of teachers for student achievement (Tran, 2022). Educators who direct their own professional growth and have agency to leverage their talents experience increased job satisfaction and have less intention to leave (You and Conley, 2015). Like Tran’s (2022) work and Evenseth et al.’s (2022) organizational resilience framework, we suggest improving educator workplaces by developing their individual and collective capacity to navigate stress and support their own wellbeing by leading improvement in their school.

Positive organizational change in schools

Fullan (2006) has long argued change requires profound shifts in the daily work of schools. Positive change in schools requires a focus by leaders on developing relationships between stakeholders, creating coherence in systems, upholding a moral purpose, and building knowledge (Fullan, 2015). The positive organizational change literature explores the “transformational potential of

change” (Quinn and Wellman, 2013, p. 2). Organizations that embrace and see change as part of their work are more positive. Quinn and Wellman (2013) suggest that leaders who want to support change need to “act with others,” surrender control, create trust, and invest time toward a vision of improvement (p. 2). The organization should move toward the desired state and should focus on the possibilities that lie ahead, not just the problem in front of them—seeking change in how they learn, what they learn, and how they impact learning (Quinn and Wellman, 2013).

An organization that believes that change is positive is a learning organization (Senge, 2006). Collinson and Cook (2007) suggest that productive learning organizations:

- Helps avoid defensive behaviors that preserve the status quo.
- Allows proactive instead of reactive learning.
- Promotes {learning from gaps between intended and ideal states}.
- Institutionalizes/embeds new knowledge.
- Helps schools/systems balance continuity and change.
- Allows school/systems to renew or transform themselves from within and respond to external challenges (p. 45).

They also summarize the organizational learning literature (e.g., Argyris and Schön, 1978, 1996; Fiol and Lyles, 1985), which is particularly relevant to school leaders doing improvement-oriented work, as having six conditions for that support organizational learning and change in schools. A leader must: (a) ensure that all members of the school are learning, (b) create a culture of inquiry, (c) create systems for sharing knowledge, (d) lead in a ways that elevate the voices of all stakeholders, (e) humanize their communication, expectations, and human resource management, and (f) ensure that staff feels fulfilled (p. 60). The use of inquiry to learn has been around for decades (Argyris and Schön, 1978, 1996). Argyris and Schön and other introduced the idea of double loop learning and the need for cognitive change or shifts in mental models, including shared understandings (Fiol and Lyles, 1985) and changed beliefs alongside changed in behaviors (Senge, 2006). Equity-oriented improvement science supports organizational learning through changes in mental models, team learning, and adaptative practices (Anderson and Zhao, 2020). We will expand on these positive organizational change and organizational learning as we the explicate the social embeddedness of thriving at work framework and the outcome of collective thriving.

Theoretical framework: social embeddedness of thriving at work and equity-oriented improvement science

Although positive organizational change has largely been explored in non-school settings, applying this theory to K-12 schools’ continuous improvement is novel and could help inform the creation of workplace environments that contend with the inevitable and desired change needed in schools while mitigating stress. This study uses the *social embeddedness of thriving at work* and the related concept of *collective thriving* as a framework to argue that the school teams that implemented the equity-oriented

improvement process (Bryk et al., 2015) fostered organizational resilience (Spreitzer and Sutcliffe, 2007). Thriving at work is an alternative response to stress and negative wellbeing; two outcomes of working in schools exacerbated during the COVID-19 pandemic.

Figure 2 presents a framework of the *Social Embeddedness of Thriving at Work* aligned with the equity-oriented improvement science model.

Spreitzer et al. (2005), Spreitzer and Sutcliffe (2007) describe collective thriving as the result of both *vitality* and *learning* in an organization or team; these components are also central to improvement science (Spreitzer et al., 2005, 2012; Spreitzer and Sutcliffe, 2007). The first component (*affective*) is the vitality or energy maintained by an employee in the workplace. This energy is reflected in whether a person feels optimistic or excited about work. For this study, vitality is defined by the school staff staying energized during the pandemic and not feeling “burned out.” Schools demonstrated this energy by finding time, despite all the demands, to continue to implement equity-oriented improvement science to address improvement needs. The other component (*cognitive*) is learning or continuously growing at work. Learning and growing professionally leads to greater confidence and feelings of competence (Spreitzer et al., 2005, 2012; Spreitzer and Sutcliffe, 2007). In this study, the primary goal of improvement science, embedded in daily work, is to learn, regularly reflect, and grow (Anderson et al., 2023). Spreitzer et al. explain that neither energy without learning nor learning without energy results in thriving; instead, both are necessary for “psychological functioning and development” conditions that lead to thriving (Spreitzer and Sutcliffe, 2007, p. 76). Feeling energetic about your work but feeling like you are not growing in the work will not necessarily lead to thriving at work. Also, constantly taking in new learning but not being energized by the work will not lead to better performance and resiliency in the workplace.

Collective thriving and continuous improvement

Although the pandemic has been an unprecedented and prolonged crisis for schools and communities, schools are frequently operating in external and internal systems of volatility, uncertainty, complexity, and ambiguity (VUCA; Shields, 2010) that require organizational resilience. This VUCA world ranges from more acute moments of crisis, like the pandemic, to more persistent moments of crisis brought on by social, political, and economic chaos and uncertainty. Spreitzer and Sutcliffe (2007) suggest that collective thriving may be a new way to conceptualize the efficacy of an organization and may lead to more adaptive organizations that can more adeptly respond to the VUCA world via equity-oriented improvement (Keister, 2014). Keister found evidence of the relationship between continuous improvement and collective thriving. Keister explains,

A thriving, change-agile, collaborative change team will lean toward having a high-level approach to their work developing ways to engage the organization in collecting and making meaning of the information gathered, leveraging

intuition and group efficacy rather than a prescriptive planned change approach adhering to project plans and task execution [low thriving (p. 326)].

The equity-oriented improvement science inquiry process produces resources and outcomes of collective thriving and organizational resilience.

This model of collective thriving recognizes that in addition to improvement, organizations need to attend to the social aspects of their work when maintaining organizational resilience. Thriving collectives are not afraid to experiment, explore, and learn from failure, which are core principles of improvement science (Spreitzer and Sutcliffe, 2007). Glynn (1996) explain:

Thriving collectives are not afraid to try new things, take risks, and learn from mistakes. They build capabilities (i.e., sets of routines) and new competencies from their learning. This collective capability can be used to respond to the demands of an unpredictable world. A thriving collective is also energized—energy which contributes to the collective capacity to cope with obstacles, challenges, setbacks, and failures and to persist in their efforts (p. 85).

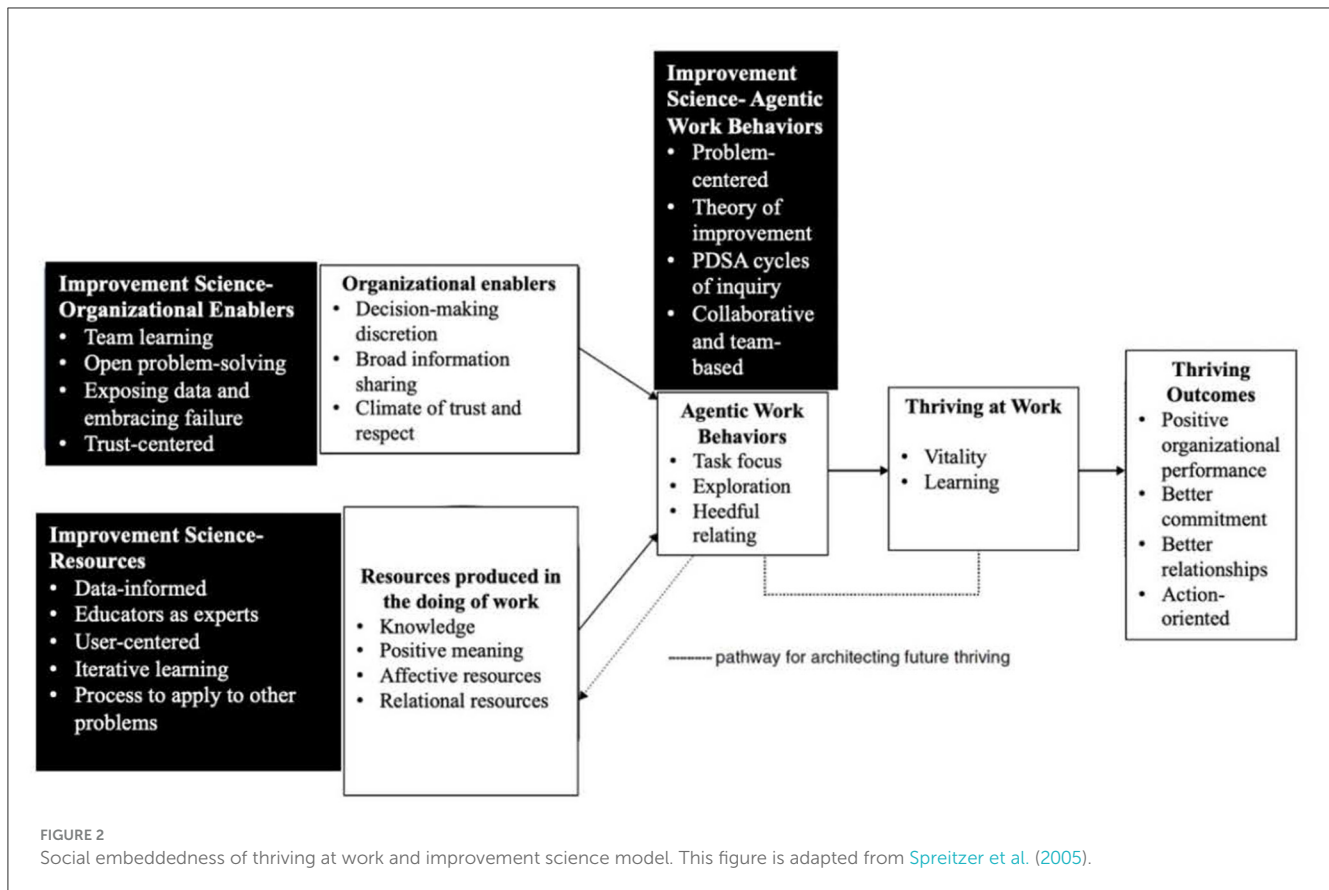
The energy developed through working together and trying innovative ideas feeds back into the collective (Keister, 2014; Walumbwa et al., 2018; Xu and Wang, 2020). In this paper, we are focused on collective thriving or the learning and vitality of the collective because equity-oriented improvement science requires teamwork and collaboration.

Agentic work behaviors and organizational enablers that create collective thriving through the equity-oriented improvement science process

Thriving is based on context and conditions, meaning levels of thriving can shift over time with changes in the school or district (Spreitzer et al., 2005, 2012; Spreitzer and Sutcliffe, 2007). These conditions are “agentic working behaviors” or the context and actions of daily work and “organizational enablers of thriving” or “the dominant way that work is accomplished, which includes such things as how decisions are made, how information is shared, and the extent to which interactions are infused with trust and respect” (p. 79). Equity-oriented improvement science creates the agentic work behaviors and organizational enablers that create collective thriving. Table 1 demonstrates the alignment between the concepts and equity-oriented improvement science. Agentic work behaviors are embedded within improvement science, creating conditions for these three agentic behaviors to exist, and therefore, supporting collective thriving for design teams engaged in the work. Equity-oriented improvement science creates conditions for the three contextual factors that enable organizations to thrive to exist.

Agentic behaviors

Spreitzer and Sutcliffe (2007) explain that thriving both depends on and results in agentic behaviors, and “the extent that they (a) have a *task focus* to get their work done, (b) explore *new ways of working and being* to enhance their learning, and (c) *heedfully relate* to and with others in their work environment” (p.



79). These agentic work behaviors are embedded within the equity-oriented improvement science process, which creates conditions for these three agentic behaviors to exist, and therefore, support collective thriving for design teams engaged in the work.

Task focus is having a common goal in which to pursue the work. The equity-oriented improvement science model demonstrates *task focus* by requiring a theory of improvement, captured in a driver diagram, that has an overall aim or an outcome of solving the problem. This aim should be tightly connected to the problem, as defined through a process of understanding the problem, and should be specific, measurable, and demonstrate progress in solving the problem. The theory of improvement also has drivers or leverage points in the system that could help reach the aim and gives the team a focus for their work together (Bryk et al., 2015; Hinnant-Crawford, 2020).

New ways of working include engaging in exploration, ideally as a team or collective. *Heedfully relating* is working together in pursuit of improvement and “extend(ing) beyond their narrowly defined jobs” to “consider their interdependence with others” (Spreitzer and Sutcliffe, 2007, p. 543). Equity-oriented improvement science is intended to bring people together to solve problems and to see themselves as part of a bigger system of interdependent roles/people who grow and improve by working together. The work is inherently relational. The expectation is that the group will collectively address problems, seek input from the users, and learn about how their change ideas are working. Equity-oriented improvement science is an inquiry process, meaning that teams explore a problem in-depth and use that knowledge to make

changes in their systems, which is a new way of working (Bryk et al., 2015; Lewis, 2015; Hinnant-Crawford, 2020).

Organizational enablers of thriving

The organizational enablers of thriving are the contextual factors that help ensure individuals and teams thrive with resiliency by facilitating agentic working behaviors (Spreitzer et al., 2005). Spreitzer and Sutcliffe (2007) explain that these contextual factors “are not merely the opposite of factors that exacerbate stress” (p. 539). Instead, they are factors that create conditions to collectively thrive even while also grappling with stressful conditions, such as a global pandemic. The organizational enablers of thriving can be purposefully developed to support thriving and resiliency at work. Equity-oriented improvement science creates conditions for the three contextual factors to exist. These enablers include *enabling decision-making*, *sharing information about the organization broadly*, and *establishing trust and respect* (Spreitzer et al., 2012).

Enabling decision-making helps to support worker autonomy while also promoting the agentic behaviors of task focus, exploration, and heedful relationships or connections with others (Spreitzer et al., 2005). In the inquiry process, decision-making about how to design the change idea and tests and how to proceed is extended to the design team. Every member can provide feedback on the problem, the theory of improvement, and the change ideas.

This *task focus* is also enhanced by *information sharing* or the open discussion of organizational performance and potential

TABLE 1 Alignment between the agentic work behaviors and organizational enablers that create collective thriving and the equity-oriented improvement science process.

Agentic work behaviors	Explanation of concept	Equity-oriented improvement science process
Heedful relating	Working together, interdependently, regardless of role, in pursuit of improvement.	Equity-oriented improvement science brings people together to solve problems and to see themselves as part of a bigger system of interdependent roles/people who grow and improve by working together. The team frames the problem through an asset-based lens and makes progress on solving a complex, persistent problem. The work is inherently relational in that it is done as a team and includes the voices of multiple stakeholder groups. The expectation is that the group will collectively address problems, seek input from the users, and learn about how their change ideas are working. The improvement science process values the voice of all stakeholders in framing and solving the problem, including family, students, and teachers. By being inclusive of multiple perspectives, teams are building better relationships between stakeholders and ensuring collective responsibility for the problem (Bryk et al., 2015; Hinnant-Crawford, 2020; Biag and Sherer, 2021).
New ways of working	Engaging in exploration, ideally as a team or collective.	Equity-oriented improvement science is data-informed; the process results in gaining more knowledge about a persistent problem. This knowledge then informs the theory of improvement and change ideas. Through Plan-Do-Study-Act (PDSA) or experimentation, the team gathers additional knowledge about the applicability and feasibility of the change ideas (Bryk et al., 2015; Hinnant-Crawford, 2020).
Task focus	Having a common goal in which to pursue the work.	Equity-oriented improvement science develops a theory of improvement, with an aim statement naming the outcome, and then the team determines change ideas linked to the drivers, to explore through experimentation in Plan-Do-Study-Act (PDSA) cycles (Bryk et al., 2015; Hinnant-Crawford, 2020).
Organizational enablers	Explanation of concept	Equity-oriented improvement science process
Decision-making discretion	Supporting worker autonomy while also promoting the agentic behaviors.	Equity-oriented improvement science requires decision-making extend to the design team. Every member can provide feedback on the problem, the theory of improvement, and the change ideas. Decisions about how to proceed are made as a team (Bryk et al., 2015; Hinnant-Crawford, 2020).
Broad information sharing	Discussing organizational performance and potential causes of problems, which can galvanize collective responses to problems through exploration openly.	Equity-oriented improvement science starts with analyzing local data, research and practice evidence, analogous settings, and process and systems mapping. A key part of this process is to conduct empathy interviews with a diverse group of stakeholders to understand how they are experiencing the problem. These data are used to conduct root cause analysis, and then to create the theory of improvement. Problem-solving is done in an open manner, and the design team as well as other stakeholders are aware of the problem, are often part of the data collection, and at times help to analyze the learning. The problem is made public through the driver diagram, and as ideas are tested and adopted, the learnings are shared throughout the school (Bryk et al., 2015; Hinnant-Crawford, 2020).
Climate of trust and respect	Promoting efficacy as well as makes members of the organization feel valued, including civility, feedback, and inclusion, making it easier to work together to explore problems.	Equity-oriented improvement science builds and expands trust. The coaches facilitate team learning and team norms and ensure that the design team operates in a trusting manner. If that trust is missing or wavering, the coaches will work with individual team members and the whole group to ensure that they are building relationships. Trust is built from competence and confidence and this process helps to build those precursors of trust (Bryk et al., 2015; Hinnant-Crawford, 2020; Anderson et al., 2023).

causes of problems, which can galvanize collective responses to problems through exploration. In equity-oriented improvement science, problem-solving is done in an open manner, and the design team, as well as other stakeholders aware of the problem, are often part of the data collection, and at times help to analyze the learning. The problem is made public through the driver diagram, and as ideas are tested and adopted, the learnings are shared throughout the school.

The last factor of a climate of *trust and respect*, including being civil, inclusive, and prone toward feedback, promotes efficacy as well as makes members of the organization feel valued, making it easier to work together to explore problems (Spreitzer et al., 2005). Improvement process builds and expands trust (Anderson et al., 2023). The coaches facilitate team learning and team norms and ensure that the design team operates in a trusting manner. If that trust is missing or wavering, the coaches will work with individual team members and the whole group to ensure that they are building relationships. Trust is built from competence and confidence and

this process helps to build those precursors of trust (e.g., Bryk et al., 2015).

Resources of collective thriving

These *agentic behaviors* and *enabling conditions* also lead to new resources developed through working together, such as new knowledge and better relationships, which promote collective thriving at work (Spreitzer and Sutcliffe, 2007). The resources that arise from the equity-oriented improvement science process are indicative of collective thriving. *Knowledge* is a key resource for thriving and for improvement and includes knowing and understanding how work gets done and how to engage with the work in an organization. All points in the equity-oriented improvement science process are data-informed, and therefore, the process results in gaining more knowledge about a persistent problem (Bryk et al., 2015; Hinnant-Crawford, 2020). This knowledge then helps inform the theory of improvement and

the change ideas. Through PDSA or experimentation, the team gathers additional knowledge about the applicability and feasibility of the change ideas. The team is framing the problem through an asset-based lens and is making progress on solving a complex, persistent problem.

Positive meaning is a shared sense of hope and purpose about solving problems while *positive affective resources* are how the approach to the work creates joy and contentment. This hope, purpose, joy, and contentment is related to working together and connecting or bonding over shared work (*relational resources*). The positive meaning that comes from making progress on the problem is part of the goal of improvement science. When teams have success in collaborative problem-solving, it increases the group becomes more intentional and believes more in the process (Anderson et al., 2023). Equity-oriented improvement science values the voice of all stakeholders in framing and solving the problem, including family, students, and teachers. By being inclusive of multiple perspectives, teams are building better relationships between stakeholders and ensuring collective responsibility for the problem (Anderson et al., 2023).

Outcomes of collective thriving

Thriving leads to more positive outcomes and organizational resilience via greater personal and collective improvement. Although thriving influences various aspects of work including personal development and health and wellbeing (Spreitzer and Sutcliffe, 2007), this study is most concerned with the impact on group performance and social learning, which are most closely connected to improvement and resiliency in schools. Research on collective thriving also found that leaders support thriving at work by encouraging teamwork and focusing on collective good (Xu and Wang, 2020). Leaders who exhibit these behaviors build better relationships in teams leading to collective thriving and organizational resilience (Walumbwa et al., 2018; Xu and Wang, 2020; Evenseth et al., 2022). Walumbwa et al. (2018) found that collective thriving leads to positive performance through the affective state of the organization, meaning that individuals in the system can impact the organization through their own adaptive practices. They also found that individuals who thrive show greater commitment to their team, resulting in better performance.

Methods

This study employed a cross-case comparison methodology (Yin, 2018) to describe and explore the experiences of five school design teams (Bear Elementary, Eagle Elementary, Fox Elementary, Cheetah Elementary, Prairie Dog Early Childhood Education) engaged in an equity-oriented improvement science process focused on (a) creating collaborative cultures, (b) understanding the system and engaging in user-centered design, (c) engaging in iterative problem solving and (d) noticing and reflecting on power, privilege, and equity. The program involved three online network sessions and at least three coaching sessions per month. Coaches from the university involved in a research-practice partnership with the district helped school design teams identify problems related to the opportunity gaps present in their schools and

district. In the 2nd year of professional learning, the teams had the necessary background knowledge, with the support of an improvement coach, to expand problem-solving. The program was completely optional, and schools did not have to engage in any improvement work with an external provider or document improvement progress during the 2020–21 school year due to the disruptions of the pandemic.

Site and sample

The four elementary schools and one early childhood school were from a district in the Mountain West. At each site, there were design teams that included leaders and other educators invited to participate because they were closest to the problem of practice being addressed. The schools were each identified by the district as needing support to improve. Table 2 provides an overview of each school.

Data collection

This study is part of a larger, longitudinal study focused on (a) partnering to design an equity-oriented improvement science program, (b) implementing and applying improvement science in schools, (c) identifying the benefits and challenges, building capacity, and (d) prioritizing diversity, equity, inclusion, and anti-racist (DEIA) practices in program design and school improvement. We collected data for this paper over 2 school years (2019–20 and 2020–21). At the end of each year, we conducted 30-to-45-min group interviews with the design team participants. Interviews included questions on describing the improvement work, the role of coaches and workshops, helpful and challenging aspects of the equity-oriented improvement science process, approaches to problem-solving, changes in beliefs about the problem of practice, and conditions that enabled or hindered the work. Additionally, the lead researchers interviewed the two faculty coaches and two district leads. These interviews lasted between 30 and 90 min and questions included how they described the improvement work, how they supported the schools, the benefits and challenges of the process, and the conditions to enable the work.

Observational data including recordings of in-person and online network convenings as well as field notes collected by the lead researchers and graduate assistant, who attended coaching sessions and completed a field note template with observations and analytical notes at least three times throughout the year (once per action period). Documents included coaching notes from each coaching session with the school teams recorded by schools and their coaches (up to three per month), documents and notes from university/district planning meetings and progress debriefs, and documents produced by the schools during the equity-oriented improvement science process (e.g., root cause analysis templates, empathy interview notes, driver diagrams change idea prototypes, PDSA trackers, weekly meeting protocols, and other planning/meeting documents).

TABLE 2 Demographic and team composition of schools.

Schools	Problem	Design team	Population	FRL rate	Latinx	White	Black	Native	Multi-racial	Asian
Eagle	Equitable student achievement and cultural unity	2- Principal, Dean of Instruction plus equity team of 7	226 s in PK-5	91.2%	84.5%	8.1%	2.7%	2.3%	1.6%	<1
Fox	Math outcomes and instruction	7- Principal, Assistant Principal, 2 Instructional Coach, 3 Teachers	174 in PK-5	71.5%	48.9%	6.9%	38.5	6.9%	4%	1.7%
Cheetah	Math outcomes and instruction	4- Principal, Assistant Principal, 2 Teachers	390 in PK-5	12.6%	9.2	72.4	7.7	<1	7.9	4.2
Bear	Attendance	6- Principal, Reading Interventionist, 3 Teachers, Social Worker	291 in PK-5	86.3%	89.8	4.2	2.1	1.5	2.4	0
Prairie Dog	Family engagement and attendance	4- Principal, 1 Senior Team Lead, 2 Teachers	205 in ECE/PK	68.3%	91.2	6	1	1	<1	0

Data analysis

We transcribed these data and uploaded the data into NVivo 12.0. First, we coded the interviews, within each school by year, then we coded the field notes of coaching meeting observations and network sessions, specifically presentations from each school within each school by year, and finally, we coded all the accompanying documents within each school by year. To understand the ways in which the schools engaged in problem solving through DI, we relied on the field notes and documents for rich description of what the design teams did during these years and how they did it. The interviews allowed us to triangulate the details of the process and to determine the experience of the participants. One researcher coded deductively for elements of the theoretical framework on thriving in the workplace and established a code book (Yin, 2018). The codes included contextual factors (decision-making discretion, broad information sharing, climate of trust, and respect); resources produced in the doing of the work (knowledge, positive meaning, positive affective resources, and relational resources); collective agentic work behaviors (common goal to pursue, explore new ways of working or being; consider their interdependence with others, extending beyond their narrowly defined jobs, working together in pursuit of improvement); and thriving (excitement about work, optimism about work, persisting through the pandemic, feeling competent, feeling confident, and growing at work). Then, the researchers categorized these codes by comparing across cases triangulating between data sources, participants, and schools (Yin, 2018). Each deductive code was represented in the sample, and all five schools showed evidence of each code to varying degrees. Based on the number and distribution of codes and the content of the coded data, we built a matrix to determine which schools demonstrated which elements of the framework.

We present the findings based on the purpose of this paper, which is to present how the equity-oriented improvement science process allowed for collective thriving in the workplace during a time of heightened stress. To provide evidence of the agentic and contextual organizational enablers as well as the resources and outcomes, we provide in-depth descriptions of the two schools that demonstrated all aspects of collective thriving. Then we

relied on the cross case comparison, including the other schools, to emphasize the key elements of equity-oriented improvement science that create collective thriving.

Limitations

There are three main limitations to this study. First, the primary researcher is involved in the design and implementation of the equity-oriented improvement science program, meaning that she had a deep understanding of the work but could be biased in her interpretation of the school's thriving. The inclusion of a second researcher who is removed from the work helped to address the subjectivity of the researcher and the triangulation of sources help to add credibility to the findings (Yin, 2018). A second limitation is that the researcher does not have data on the job trends within the district and the schools being studied. Despite framing this as a human resource crisis, there is only anecdotal evidence that thriving also led to increased job satisfaction and teacher retention. Additionally, thriving is confined to the teams themselves, as opposed to the whole organization. Finally, this study argues that stress reduction is measured, in part, by thriving but doesn't have other measures of stress in the data set. This study set out to understand broader questions about applying and building capacity for continuous improvement taking an inductive approach to conceptual framing of the study.

Findings

In the first part of the findings, we will present two cases that demonstrate how the schools engaged in equity-oriented improvement science with an emphasis on describing the agentic behaviors and organizational enablers that can be found in these schools, as described in detail in Table 1. The findings also focus on the resources and outcomes produced by describing what collective thriving and organizational resilience looked like in two schools that collectively thrived. In the second part of the findings, we present a comparative analysis of why these two schools thrived

during this time. Our discussion connects these findings to the literature on thriving and organizational resilience.

School cases of thriving through vitality and learning

Before all schools in the district transitioned to remote learning, each school was progressing on their own context-specific, school-level, equity problem. Two of the five schools, Eagle and Fox, maintained high energy and a learning stance while also making progress on their stated aims (an improvement science term for outcomes, often measured with ongoing data and not lagging data indicators). Importantly, Eagle and Fox continued their design team's complex work of embedding equity into the day-to-day operations of the school and the improvement of teaching and learning that they had worked on for 8 months before the pandemic began by using the work they had begun to support the transition to online learning.

Eagle elementary school

Eagle ES had two major improvement goals that fostered equity into daily operations, teaching, and learning. During the 1st year of the improvement process, the team focused on strategies such as a standards-based observation protocol and an empathy-based plan for teacher observation and feedback. The design team spent a year focused on building relationships with teachers and improving observation and feedback through emphasizing teacher needs. Then, the team wanted to focus on the second goal, which they referred to as "heart work." The "heart work" focused on equity and unity. In August 2020, as we were all months into lockdown, the principal and a dean of instruction met with their improvement coach to talk about the work for the upcoming year. They decided the school would continue to work on the problem from the previous year but wanted to "branch out into the primary drivers of teacher excellence and teacher support and the secondary drivers of professional development and staff culture and motivation (School Planning document, 2020)." The leaders described the improvement goal as, "Eagle staff and community will use language that supports unity for all while understanding their own biases and privilege." They believed that "focusing on the adults' cultural competency and ability in employing equity-based practices will ensure an inclusive culture for staff and students as well as equitable student achievement among our multilingual and English-only students (School Planning document, 2020)."

As a change idea, the leadership team developed the *Eagle Equity Team* that met voluntarily for an hour every Friday before school (School Coaching Notes, 2020). The equity team at Eagle consisted of nine members, which included the principal and dean of instruction as well as seven leadership team and teacher members who volunteered to join in the work. The team created a structure for the equity team, a vision for equity, and a professional learning plan with the coach's support. They practiced and learned ways to discuss equity in their context within the team, and then

parlayed that learning into a plan for school-wide, reflective, equity-focused professional learning. The team embedded measures into the process to determine what was working and what needed change. The theory of action for the *Eagle Equity Team* was,

If we create an Equity Team that engages in self-reflection and learns about our own biases and intercultural development, then the team will be prepared to facilitate professional development that leads to standards-based and equitable learning and unity in our culture (School Presentation, 2020).

In fall 2020, the newly formed equity team collected data from the students and staff, data from processes related to the problem, affinity interview data, analogous setting information, and research (School Coaching Notes, 2020). They also created a pre/post survey that asked about equity practices within the school and the six culturally responsive mindsets identified by the district. The team crafted a vision or future state around equity that they called their equity lens, which stated:

We prioritize building relationships, fostering safe, inclusive, and joyful classrooms, to provide instruction that is cognitively demanding, accessible, and culturally relevant, so that we meet the expectation that all Eagle students are independent learners and achieve their fullest potential. (School Presentation, 2020)

Over the winter, the equity team worked on building community within the team and continued to develop their change idea "to engage in critical intercultural self-analysis and development in order to facilitate culturally responsive professional learning to improve teaching, learning, and school culture." Grounding their conversation in the data from the school-designed cultural competence self-assessment, they talked about how to monitor the progress/impact of their change ideas of (a) an equity team and (b) equity-focused professional learning.

One primary action of the equity team was to create and deliver equity-based professional learning for the staff (School Presentation, 2020). In January 2021, the equity team prepared and delivered a PD for the staff to (a) understand the district-mandated plan for supporting black students, (b) begin to understand their individual biases and origins, (c) explore the multiple dimensions of their individual identities, (d) build their equity understanding as a community; and I understand their *Eagle Equity Team's* Theory of Action. Their district-mandated plan for supporting black students was also based on culturally responsive education mindsets, including building responsibility for ensuring that Eagle staff got to know their Black students while holding high expectations. They also set up a plan to create a brave space for the instructional leadership meetings to learn about their own biases and cultural development to support the equity team's work and subsequent professional development for the Eagle staff.

The equity team explored current data based on a second staff survey and prepared the next all-staff PD (School Planning Documents, 2020; School Presentation, 2020; School Coaching Notes, 2020). Then, they held a PD in mid-February. As part of their work from how they would get from the current state to the desired, future state. The team asked the staff, "What does our staff

need us to do in this PD right now to support their intercultural growth?" Teachers suggested that they provide activities in Spanish and English, work in small groups, and explore different cultures.

The equity team continued by focusing on how "to develop their personal and group identity in a brave, constructive space and worked to clarify their work based on staff input about [the] PD (School Presentation, 2020)." The staff watched part of a session from Robin DeAngelo, and then discussed the reason behind the district's requirement for having a plan to support black students. The team shared data on disproportionality in special education, academic access (e.g., special education, Advanced Placement, gifted, and talented), outcomes (e.g., graduating on time, grade level learning), and student discipline, sharing about the school-to-prison pipeline. The professional development gave the teachers and staff an opportunity to have a dialogue about the data in small groups. They shared and affirmed that the school needed,

a {plan for supporting black students} because systemic racism in our society has not allowed our Black students to be as successful as they could be. We need to dismantle the systems that are keeping them from being as successful as our White students (School Presentation, 2020).

In April, the equity team reviewed the data from a staff survey about how they would like to come together in small groups to deepen their culturally responsive mindsets (School Planning Documents, 2020; School Presentation, 2020; School Coaching Notes). The team watched the second part of a session from Robin DeAngelo and discussed their new awareness, acknowledgments, and actions based on the presentation. In May, they solicited information to determine how they needed to continue to build community, finding that the staff preferred small, consistent groups using protocols and norms to encourage trust and vulnerability. They decided to start expanding the equity team, giving more concrete examples and stories, raising cultural awareness, and making data about growth with the equity lens transparent.

Fox elementary school

In this second case of a thriving school, the story unfolded in a slightly different manner. Fox's improvement and equity work was not as in-depth as at Eagle Elementary but still represented a success story of a school that was thriving. The team demonstrated the ability to use their existing theory of improvement and processes for improvement to address the biggest issue in the pandemic- planning good instruction. Fox ES was focused on improving planning and math instruction by focusing on using data, unpacking standards, and revising planning practices. The design team met with their coach online using Zoom, setting up a regular time for the work. The team continued their work on improving instructional practices with the goal of improving outcomes in math. Their theory of improvement focused on the (a) primary drivers of data-driven instruction (DDI) and teacher mindsets about learning and (b) the secondary drivers of facilitating planning through instructional coaching cycles and differentiated professional development through standard-based curriculum knowledge. The team worked toward an aim statement in 2019–20 that stated that by May 2020, $\geq 35\%$ of Fox students

would meet or exceed{state}Math assessments. Although this number may seem low, the district average was around 40 percent and the school had previously only had 17 students who met or exceeded on the CMAS math assessment, so 35% meant doubling the number of students meeting or exceeding state standards based upon the CMAS math assessment. They met that goal (or a modified version based on interim assessment data due to the lack of state testing data that year).

Their work in 2019–20 focused mostly on the primary driver of data driven instruction (DDI) by focusing on the structure and function of DDI meetings and the teacher observation and feedback coaching cycles. The team had tested and refined several ideas during that year, including a protocol focused on what students know and how to present evidence of that knowledge, exit tickets that can be used as data points to ensure rigor, and the process for reteaching skills and knowledge based on interim assessment data. They tested out the ideal frequency of data team meetings and increased the meetings to two times a week; this frequency helped teachers get to know more students more deeply. The team also settled on having the standards mapped out for the year in 6-week chunks. They shared that their work from 2019 to 20 led to improved data practices.

Even if they weren't analyzing the data, to the extent we wanted them to. All the teachers were tracking data and had some sort of way to track data, which we didn't necessarily have in the past. So that was a really good starting point... I think it forced teachers to really organize themselves and organize, like, not only what they were planning and teaching, but what they were collecting and how they were assessing, whether it was like the making a pass through the classroom with the checklist, which I know some of the teachers were doing, or collecting the exit tickets. And so, 'it's just a more homed in approach that we created. And so that was positive. Cause I hadn't really seen that in the past....' it's now, how do we dive deeper into it? (Fox Principal Interview).

In March 2020, right before the pandemic, the team began to collect data to start addressing the driver of student mindset (School Coaching Notes, 2020; School Planning Documents, 2020; School Presentation, 2020). The team created empathy interview questions and a student experience survey and collected data that they began to inform their approach to the driver when the pandemic halted in-person learning for the year. This pre-pandemic work was halted by the public health circumstances.

When they returned for the 2020–21 school year, the team decided to pursue a new secondary driver related to the primary driver of developing a teacher mindset around consistently using a standards-based lesson plan (School Coaching Notes, 2020; School Planning Documents, 2020; School vPresentation, 2020). The team was looking for ways to improve virtual instruction and ended up focusing on a lesson planning tool to help provide structure for the teachers, provide some consistency for the students, and ensure their focus on standards-based instruction was upheld during remote learning. They had a theory of action for that change idea, "If everyone used lesson planning documents with essential components, then curriculum and instruction would be aligned,

and student learning would be improved ” (School Planning Document, 2021).

At the start of the school year, the three teachers on the team collected empathy data from the teachers to understand how to bridge the curriculum with meaningful instruction and to get their feelings about a lesson planning template. While they collected that information, the instructional coaches reviewed the *Universal Design for Learning* model to see how that could inform the change idea. The team reviewed these data and led a Five Whys activity that pointed toward the idea that a template might not be received well, based on prior experience. Teachers were concerned that it would take away individuality, and they felt that it was “taking the extra step” when no one looked at it. The instructional coaches also questioned how it could be informative and helped the teacher unpack the standard- a focus on their DDI work (School Coaching Notes, 2020; School Planning Documents, 2020; School Presentation, 2020).

At this point, they decided to bring their change idea to their instructional leadership team. The design team shared what they had learned and sought feedback from the instructional leadership team about what they would recommend that they do so that they can address the needs of the various stakeholders. The team members also planned to meet with teachers to get input on the design of a template that the design team could review and implement and that will connect DDI planning with the lesson planning expectations.

Again, in late October, the team got input from the school leadership team and gathered suggestions for the “lesson plan dilemma.” They shared what the instructional leadership team had determined “were the best ways to incorporate everything that is desired by the teachers and expected by school leadership in terms of planning instruction” (School Presentation, 2021). The team decided to create a slide deck rather than a lesson plan template and use the notes column to capture their differentiation pieces, exemplar responses, or questions. They left that meeting with a plan to decide on (a) what to include in every slide deck (either in the slides or in the notes) and to design a prototype slide deck; (b) the process to save the slide decks so anyone on the instructional leadership team could access the slide decks; (c) a way to maintain measurement of student mastery of questions/exit tickets even if it was added to the slide after the question; and (d) how to measure the prototype’s effectiveness.

In November, they had three teachers test the template- one teacher brand new to teaching, one experienced teacher, and one teacher who had been resistant to a lesson plan template in the past (School Observation, 2020). They explored the following questions:

1. What did you like/not like about the slide deck?
2. How easy or difficult was it to use?
3. Do you feel that this made your planning more efficient, or do you feel that you spent more time on weekly lesson planning?
4. What would you change or modify?

From this conversation, they revised the template and planned to ask all math and English teachers to test the template.

In February, the team reviewed survey data from all the core subject teachers on the template (School Coaching Notes, 2020; School Planning documents, 2020; School Presentation, 2020). All

but one teacher said it was easy to use. The team realized they needed one more iteration to work on improving the template to explore how to provide space for additional note-taking and small group instruction planning. They decided to create a checklist to improve the gaps in the slides as well as to include the small group interventions. The team planned to have the instructional coaches test the checklist out.

After a few months, the team asked the teachers if the lesson planning template was efficient and 60% thought it was extremely efficient, 20% thought it was largely efficient and 20% found it somewhat efficient/neutral. No one found it inefficient. One teacher summed up their experience by saying the template helped with “checking for understanding because of the scaffolds that helped save time the day of instruction. A one stop of teaching helps me plan what I say to the students and think about future questions—helps me stay organized” (School Observation, 2021). The instructional coaches shared that the template improved instruction and student learning because it made the information accessible to the coaches, increased access to instruction and transparency, and created some consistency for the students. One instructional coach explained that “It’s going well! Since a pull-out teacher and a specials teacher also want to do it” (School Observation, 2021). These teachers did not have to use the lesson planning template but decided to adopt it because it was useful for their planning. The other instructional coach mentioned, “I think it’s helped teachers see the major components that are in there. Concrete examples of where they are... Math teachers have struggled with that’ (School Interview, 2021). She also talked about the improvement process and shared, “because of the time constraints in school, this really helps you get to the hardest stuff and get things moving and going.”

Using equity-oriented improvement science, the team was able to learn, test, and streamline their routines and built a customized schedule and pattern for tackling problems in their buildings, especially during the unprecedented pandemic year. As Fox’s principal shared, “I know the steps that I need to take. And just having internalized that process has helped me think about, ‘Okay,’ we’re now confronted with this dilemma. What’s the first step? I think that mindset shift, that behavior shift for me has really just had the biggest impact” (School Interview, 2021). The principal also spoke about how the team established routines and streamlined them in the online environment, allowing them to work more efficiently and to include more stakeholders in the work. In a presentation in April 2020, the team reflected on the improvement process and how it impacted their shift to remote learning. The team shared in a presentation that equity-oriented improvement science “required us to reflect on practices, make shifts, and make changes or adjustments on a daily and/or weekly basis. The PDSA cycle is now part of an internal practice that has assisted us in making these adjustments for students (2020).” This was also true a year later in spring of 2021.

Summary: learning and vitality at eagle ES and fox ES

Thriving is about learning and vitality in the workplace, which are indicators of organizational resilience. That is evident in the way these two design teams continued to tackle equity-focused problems. The teams maintained high energy and resiliency for the equity issues while facing the stress of a global pandemic. A 2nd

year allowed the team to dig deep into the data and reflect on the equity focus from a different angle. Eagle's principal stated,

I think the biggest realization that I've had... working side-by-side with {our coach}, learning alongside our newly formed equity team... in the past, it was always equity is this thing we have to do. Now, it is **the** thing, and it's in all things, and it's all the time. For me, it was a big aha... it's not separate, and it can be woven into everything'. It's changed my mindset completely about the work and the way we're going to approach future planning (Interview, 2021).

The educators in the school shifted their mindsets to see equity as central to their work through new learning; the team was invigorated to continue that work.

Thriving and organizational resilience includes social risk taking. Eagle and Fox teams worked together, shared information broadly, and engaged in team decision making with the input of teachers and staff. These two teams worked together around performance feedback, data use, and intercultural development. Both Eagle and Fox continued to try new change ideas during this time, not shying away from change due to the chaos of the pandemic. Thriving and organizational resilience also includes learning from mistakes. Both schools focused on experimentation through small scale tests of change. Both the schools used PDSA cycles to improve their change ideas. Thriving and organizational resilience is also about building new competencies from their learning. This disciplined inquiry allowed for failing fast and learning from failure. Eagle was able to expand their equity work and bolster their commitment to supporting staff in developing their intercultural competence while also ensuring that they supported Black students. Fox continued to improve the delivery of all instruction, but particularly math instruction, at a time when their school community was disproportionately impacted by COVID-19. They created new structures and systems to both meet the needs of the changing times and to continue the improvement work that had begun the year before. This work was done collaboratively in teams with multiple perspectives included in the work and not just the traditional model of the formal leader making decisions and how to improve and what is an improvement. Thriving and organizational resilience is about feeling competent and confident based on the knowledge that team members have developed from their inquiry. These two schools learned about change through PDSA cycles and felt confident in tackling equity-focused problems during the stressful, global pandemic.

Cross case comparison

The other three schools (Bear, Cheetah, and Prairie Dog) worked toward equity-oriented improvement although they did engage in all the components of the process or demonstrate all the characteristics of thriving. Although they may not have had the collective success of Eagle and Fox, there was still evidence of them exhibiting growth in agentic tasks, such as exploration and task focus; and resources such as relational and positive affective resources. All five schools worked toward task focus, exploration,

and heedful relationships through equity-oriented improvement science, and the school teams all felt that they made progress toward both improving and thriving. All teams also mentioned that they learned new things, gained more knowledge, grew in the work, and became more confident and optimistic.

The organizational enablers seemed to be the factors that led some schools to thrive while others struggled. Table 3 shows how the schools differed in these areas.

Cheetah and Prairie Dog did not have the trust established, due in part to new leadership or new teams, and did not share decision-making with team members or outside the team. Bear had trust established but sharing information and decision making was still limited. The collective thriving and resiliency found in the two schools that thrived in a stressful context was the result of the schools' decision-making discretion, information-sharing, and trusting relationships through the resources of (a) a systemic approach to improvement with common, transparent routines, and (b) inclusive social learning collective and multiple perspectives.

Systematic inquiry approach with common, transparent routines

All schools mentioned systems and routines, but these two schools took a systematic, collective approach to problem-solving. The schools developed the habit of shared purpose by discussing, diagnosing, and responding as a team. Eagle and Fox spent the year prior to the pandemic determining the focus, engaging in experimentation, and learning together, establishing norms for how they worked as a team. By establishing norms for how they worked as a team, they established trust in their improvement coach, their design team, and their teachers. The teams learned, tested, and streamlined their routines and built a customized routine and pattern for tackling problems in their buildings, especially during the unprecedented pandemic year. The principal of Fox Elementary added,

As a school leader there are a lot of things you want to change, and the past 2 years have allowed me to really focus and study the things that we want to do. The PDSA. We're doing it to see if we are working or not working and improving upon it. So that has been the value of the work (Interview, 2021).

They had a systemic approach through customized and streamlined routines for tackling problems. Eagle's principal shared,

I think for me {this process has}given me the structure and forced me to slow down, to really not rush to conclusions or rush to action or rush to the idea that's going to fix the problem. In the environment' we're all in, just feeling that sense of urgency and feeling pressed for everything. That's sort of maybe the natural inclination. So, I just appreciated that I know the steps that I want to take. I know the steps that I need to take. And just having internalized that process has helped me think about, "Okay, 'we're now confronted with this dilemma. What's the first step?" I think that mindset shift, that behavior shift for me has really just had the biggest impact (Interview, 2021).

TABLE 3 Cross case comparison of resources and outcomes produced through thriving conditions.

	Systematic approach	Common transparent routines	Inclusive of collective and multiple perspectives	Social learning	Learning	Vitality	Outcomes
Eagle	X	X	X	X	X	X	X
Fox	X	X	X	X	X	X	X
Bear	X		X		X	Individual vitality but not collective	X
Prairie Dog			X		Demonstrated potential to grow through learning	Demonstrated positivity about the work	
Cheetah						Saw potential and demonstrated excitement about thriving in the future	

Those schools that did not accomplish their goals indicated that they had “failed” but learned a lot; the teams from those schools suggested they know how to plan and figure out clearer systems and routines. For instance, Prairie Dog ECE was not able to get the work systematized, and while they still discussed benefits to the work, felt like change was occurring, and wanted to engage more deeply, they did not demonstrate the growth necessary to thrive because of the inability to create and follow through on all aspects of equity-oriented improvement science process.

Inclusive social learning through multiple, collective perspectives

These two schools involved multiple perspectives to build a collaborative effort with shared decision-making. They brought in stakeholders outside of their design team, such as teachers and school support staff, to engage in the development and exploration of change ideas, including online lesson planning and the ethos of the equity team. The staff was actively involved in testing change ideas. These two teams also collected empathy data that helped them to understand the needs of their community. They regularly employed organizational learning by providing opportunities for all staff to give feedback on their change ideas and used that data to assess the success of the ideas and how to adapt them. Fox and Eagle spent a year determining the focus, engaging in experimentation, and learning together before the pandemic. The principal of Eagle ES shared:

We already established relationships. We already did the nitty-gritty, like sitting side-by-side {engaging in equity-oriented improvement science together}... We did all of that. And so, we lived it. We knew it. We could move on from it in a virtual setting (Interview, 2021).

This social element of the learning, which included a robust design team, led them to dig deeper into the problem and solutions despite the additional stress of the pandemic. For instance, although Bear Elementary showed some evidence of thriving and improved outcomes, the team ended up dismantled through staffing shifts

during the pandemic. There was only one individual, a reading interventionist, on the design team during the 2020–21 school year. That person demonstrated individual thriving. They gained confidence, remained optimistic, and saw gains related to their problem and change ideas; however, the lack of social learning did not lead to collective thriving.

Discussion, implications, and conclusion

This study looked for evidence of collective thriving in response to an acute crisis and the ongoing need for organizational resilience (Vogus and Sutcliffe, 2007) in the face of stress (Diliberti et al., 2021) and workforce shortages (Tran, 2022). As a school leader, the decision to engage in team-based, continuous improvement focused on equity is more likely to result in teachers (and leaders) thriving through competence, confidence, and optimism (Ouchi, 1981; Downs and Swailes, 2013). This collective thriving and organizational resilience resulted in better working conditions by making improvement central to the school's ethos and making schools better workplaces at the same time. From what we can determine, this would demonstrate the type of coping and adapting central to organizational resilience (Vogus and Sutcliffe, 2007).

Equity-oriented improvement science created the organizational enablers, the resources, and the agentic behaviors that lead to the thriving at work and outcomes related to thriving, such as better organizational performance. Two of five schools demonstrated evidence that collaborative, problem-driven, continuous improvement work could develop the agentic behaviors (focus, exploration, working together interdependently) that lead to collective thriving (Keister, 2014; Walumbwa et al., 2018; Xu and Wang, 2020). These schools also demonstrated evidence that collective thriving may result in improved outcomes (Bartel and Saavedra, 2000; Totterdell, 2000; Barsade, 2002; Spreitzer and Sutcliffe, 2007; Walumbwa et al., 2018). Fox and Eagle maintained high levels of energy while on a quest for improvement that required them to take a learner stance. Energy and learning must both co-exist to thrive (Spreitzer and Sutcliffe,

2007). Collaborative, problem-driven, sustained, equity-focused, asset-based continuous improvement (like improvement science) when done over time, systematically, with a consistent team can create the enabling conditions (e.g., focus, exploration, and working together interdependently) for collective thriving and organizational resilience (Vogus and Sutcliffe, 2007) even in times of extreme stress and uncertainty like the pandemic (Spreitzer et al., 2005, 2012; Spreitzer and Sutcliffe, 2007).

Inclusive social learning through multiple, collective perspectives

The teams that thrived created new knowledge while also building relationships within and outside of the design team (Bartel and Saavedra, 2000; Totterdell, 2000; Barsade, 2002; Spreitzer et al., 2005, 2012; Spreitzer and Sutcliffe, 2007; Walumbwa et al., 2018; Xu and Wang, 2020). These schools focused on systems, expanded their leadership to include multiple perspectives, and expanded their focus on equity all while addressing teaching and learning and community needs (Keister, 2014). They had consistent feedback loops built into their work. The relationships between team members became stronger because of the shared, transparent reflective time and the input of every team member (Walumbwa et al., 2018; Xu and Wang, 2020; Evenseth et al., 2022). Working together empowered them and helped them to both learn and stay energized about the improvement work at a time when many educators were merely surviving. They developed strong commitment to the problem and each other and performed better as a result (Walumbwa et al., 2018).

Systematic inquiry approach with common, transparent routines

The schools engaged in regular routines for meeting with their coaches throughout the year, made progress on their stated goals, and shifted mindsets in how they approached improvement (Keister, 2014). At a time when there was so much change as they faced the challenge of remote learning, the design worked together regularly and adhered to the equity-oriented improvement science process, continuously collecting data and iterating on their change ideas in ways that accelerated learning and led to improvement. This time working as a team was dedicated to problem-solving and was highly reflective. Both schools shifted their mindsets about what teachers were capable of learning. The teams were focused on action and leveraged learning into better outcomes (Spreitzer and Sutcliffe, 2007).

Creating resilient schools that are thriving workplaces: implications for practice

There are several implications of this study for leaders. This study sought to marry the social embeddedness of collective thriving at work framework with an equity-oriented improvement science framework as a major conceptual contribution. This

framing is important for how we think about educator's roles in continuous improvement. Sometimes there is hesitation on the part of schools, districts, and researchers to add another initiative to their already overpacked workdays. However, by engaging in equity-oriented improvement science as teams, as part of existing structures and practices, the leader may be reducing stress by creating the conditions and context for learning and vitality while also addressing deep rooted problems in their school. School systems, such as districts, can help to facilitate these opportunities for learning.

Leaders who are less top-down and share in decision-making, who invite people to work on complex problems, and encourage learning through doing engage educators in positive, equitable change together. Educators feel more efficacious, confident, and competent when they engage together in positive, equitable change that is focused on the collective good (Xu and Wang, 2020). It seems that happier people are more efficacious, confident, and competent and more efficacious, confident, and competent people are happier and optimistic- a win-win. If leaders make space and develop routines for social learning through systemic inquiry, educators will have more agency and efficacy making them more inclined to combat stress despite the challenges of the job (Gillani et al., 2021; Robinson et al., 2022). Leaders should make it a priority to create authentic opportunities for teams of educators to address equity-focused problems collaboratively and collectively. This study demonstrated how the team thrived, but if more educators in the building can participate in shared inquiry and learning, the whole school could thrive. If leaders seek to create educational improvers who uphold an action orientation with a learner stance (Biag and Sherer, 2021), there is a great potential for change.

Understanding if and how to thrive in stress: implications for research

This study had limitations that help direct future research. The model of equity-oriented improvement science practiced in study needs to be explored in greater depth to understand if the thriving can be replicated in other districts and schools or whether the success of the work is due to other exogenous factors. Also, this study explored stress indirectly through demonstrating thriving as a means to reducing stress and attrition. Future research could include a pre- post- measure of stress to test the premise that stress felt by educators is reduced through thriving. Similarly, looking at job trends over time in schools that regularly engage in equity-oriented improvement science could help test the theory introduced in this paper.

Conclusion

Equity-oriented improvement science (and other similar models of continuous improvement) fosters working together in meaningful ways to solve problems (agentic behaviors, resources, and organizational enablers). We need to make schools better places to work (Saltman, 2014; Manning and Jeon, 2020; Diliberti et al., 2021; Dos Santos, 2021; Pressley

et al., 2021; Robinson et al., 2022; Tran, 2022; Westphal et al., 2022; Zamorro et al., 2022), and relatedly, we also need to improve schools in important ways, such as improving teaching and learning with organizational learning, bolstering socio-emotional support and school cultures, and recovering from the pandemic— all of which have equity implications (Hough et al., 2021; Hinnant-Crawford, 2020; Tran, 2022). Based on the existing theory, we know that thriving has the potential to result in better commitment and relationships (Walumbwa et al., 2018; Xu and Wang, 2020), which result in teacher retention (Tran, 2022). Better retention results in student learning (Diliberti et al., 2021; Dos Santos, 2021; Robinson et al., 2022; Tran, 2022). Thriving and resilience improve a school's performance and leads to more action-oriented behaviors, such as problem solving through PDSA cycles, demonstrated through the cases, which ultimately lead to student learning (Bartel and Saavedra, 2000; Totterdell, 2000; Barsade, 2002; Spreitzer and Sutcliffe, 2007; Swailes et al., 2014; You and Conley, 2015; Walumbwa et al., 2018; Tran, 2022). The result of a team-based, continuous improvement approach focused on equity is that the educators in the building thrive collectively making the organization more resilient to the types of stressors that schools face daily.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by University of Denver Institutional Research Review Board and the district

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EA: Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft. JR: Data curation, Writing – review & editing, Conceptualization, Writing – original draft.

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