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Enabling Conditions for Safety System Implementation by Leaders in a Southern California School District: An Improvement Science Study

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ENABLING CONDITIONS FOR SAFETY SYSTEM IMPLEMENTATION BY LEADERS IN A SOUTHERN CALIFORNIA SCHOOL DISTRICT

An Improvement Science Study
by
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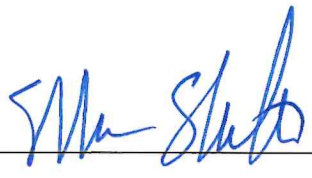
4/8/23 

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Abstract

The purpose of the study was to learn the enabling conditions for implementation of a safety system in a Southern California school district. One high school piloted this safety system while focusing their attention to document, investigate, and reduce the number of fight and prefight incidents involving students. Although the intended outcome was to reduce these safety incidents, the intended learning of this study was to understand how the district could adapt the safety system model.

Pilot participants were interviewed and asked to share successes and challenges with regards to each of the four main model components: (a) reporting safety events using a safety events log, (b) investigating the root causes of the safety event and pulling support from leaders when necessary, (c) identifying a solution(s) to mitigate and prevent the safety event, and (d) collecting effective solutions on a system-wide level to reduce the occurrence of safety events.

Findings included themes of success related to empowering front-line and school-based teams to solve pervasive problems of safety with the sponsorship of district leadership, structuring a supportive problem-solving process, and the promise of solving some problems versus mitigating pervasive issues. Some challenges implementing the model included safety incident reporting conflicts with state expectations, time needed to draw stakeholders into the problem-solving process, and the ability to attend to systemic reform as opposed to more punitive practices that blame individuals. The implication is the school will need to substantially adapt the model components, related processes, and create routines that acknowledge and appreciate the needs of people engaging in the work.

Acknowledgments

I would like to first acknowledge a very committed school district who truly holds the best interest of students in mind and has invested every resource possible to design a system that ultimately meets the needs of students and staff. They are willing to be vulnerable and reflective to do the hard work necessary. School improvement is messy and never straightforward or without challenges, yet the teams I have encountered show an unparalleled dedication and drive to do whatever it takes. Thank you for your partnership and commitment to better your community. You are an exceptional example for schools across the nation.

I would like to send a special thank you to the WestEd staff who have taken a somewhat undefined out-of-industry approach and made the translation more palatable to the district we serve. You do the early hard work to predict barriers and smooth the rough edges of implementation to reduce the amount of adjusting necessary for the pilot district. Thank you for your dedication and attention to the important details while maintaining the bigger vision, without losing site of what our work is ultimately about: designing systems that ensure students have what they need to thrive in schools.

Finally, I would like to send a thank to you to my dissertation colleagues who have been wonderfully collaborative. To my close friend, Jenn, who is more like a sister, thank you for your continued support, wisdom, commiseration, and all the laughs and tears. I could not think of a better partner on this journey.

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Chapter 1: Strategy

Chapter 1 details the strategy of this improvement science dissertation in practice. This strategy includes all pertinent information regarding the plans for implementing the improvement project, team engagement on the project, and how I learned gleaned important learnings for district scale implications.

Purpose of the Study

Desert Dreams Unified School (i.e., Desert Dreams) is a pseudonym for the site location used in this study. At the time of the study, Desert Dreams was located in Southern California and served a large and diverse geographic region of over 650 square miles. With over 22,000 students and approximately 1,686 full-time staff, the district included 11 elementary schools, two K–8 schools, four middle schools, four comprehensive high schools, and seven alternative education centers (California Department of Education, n.d.).

Aim

The aim of this study was to learn the enabling conditions for district implementation of a real-time safety system by piloting the system at one high school for 6 months. This safety system was based on the Alcoa model, which is described in Duhigg's (2014) book, *The Power of Habit*. This approach involves four main components: (a) reporting safety events using a safety events log, (b) investigating the root causes of the safety event and pulling support from leaders when necessary, (c) identifying a solution(s) to mitigate and prevent the safety event, and (d) collecting effective solutions on a system-wide level to reduce the occurrence of safety events.

Problem of Practice

District stakeholders at Desert Dreams had grown concerned about safety issues occurring on school sites, especially issues related to student–student and student–teacher violence incidents. These issues had resulted in a significant increase in the number of student suspensions and expulsions, which had been much higher than the state average. The California Department of Education (2023) reported 1,339 students were suspended at least one time in the 2021–2022 school year out of 23,442 total students, which was 5.7% of all students. This suspension rate placed Desert Dreams in the *high suspension* category compared to other California districts (California School Dashboard, 2022). The suspension rates were even more staggering when disaggregated by student group. The following data show the number of students at Desert Dreams who were suspended for at least one day in 2021–2022:

- 2,013 African American students (11.1%)
- 331 foster youth (10.2%)
- 3,865 students with disabilities (9.5%)
- 169 American Indian/Native students (8.3%)

These student groups received a *very high suspension* status by the state as compared to other districts.

Top cited violent offenses for the 2022–2023 school year—as shared by the superintendent at a public board meeting—included: fighting, harassment, possession/use of weapons, possession of illicit substances, and strains/contusions. These offenses resulted in the following outcomes across the district: 1,324 student suspensions, 52 student expulsions, and 110 worker's compensation claims reported with approximately $1 million in total claim costs.

Staff and students had been leaving the district for opportunities elsewhere, and the board called for immediate action. With high staff turnover and an overwhelming number of unfilled certificated and classified positions, many students had left the district in pursuit of safer schools and better learning opportunities. This reality forced three school closures and threatened the infrastructure of the entire district. Desert Dreams had seen their safety issues as a crisis at the core of many problems impacting staff and students. Although there had been standard processes in place to mitigate problems as they arose, there had been no safety system in place that allowed the district to document, respond, and prevent these safety incidents.

The district responded to this need to mitigate safety events by organizing internally, beginning with a cabinet team consisting of a superintendent and five assistant superintendents. They oversaw the entire district to establish safety as its top priority. The cabinet team organized monthly meetings for all district leaders and managers to build their capacity around continuous improvement and learn how to respond to problems in real-time. This real-time problem-solving approach will serve as an essential skill to leaders when the district launches a real-time safety system because problem-solving will be a core skill to be used.

To understand how best to launch this district-wide response to safety events, Desert Dreams decided to pilot a real-time safety system at one high school for the fall semester of 2022. Years of work went into establishing district priorities based on identified root causes to their persistent safety issues. These causes included:

- misalignment of the current work and vision of the district,
- missing ability to visualize the needs of the students and staff and response to address those needs,
- siloed workflows,

- a focus on fixing problems versus solving them so they never happen again,
- uncoordinated and unintentional staff development,
- lack of standard work,
- missing and inaccurate information and data and no way to understand current outcomes (e.g., need for ongoing cabinet discussions to build the district safety initiative as it situates with the strategic direction and vision of the district).

Desert Dreams acted as a pilot site in Fall 2022 through December 2022. At the time of the study, the school served a population of 2,407 students and was experiencing a significant increase in the number of suspensions and expulsions. This rate was much higher than the state average due to an increase in student–student and student–teacher violence incidents.

Conceptual Framework

News headlines have tended to show school violence in U.S. schools as extreme incidents of violence that result in severe injury or death (Swanson et al., 2019). However, researchers have suggested physical injuries resulting from school violence are, on average, relatively minor. For example, Loder et al. (2022) reviewed 5,702,369 hospital visit cases over a 10-year period that were the result of school violence and assault. Head and neck injury accounted for roughly 69% of cases; however, more than 98% of patients were released and required no other medical attention. These statistics highlight how school violence most often appears as simple disagreements resulting in fighting as opposed to heinous plans to end lives. Still, the perception of the problem based on media is pervasive and contributes to a declining sense of safety in public schools.

Most educators agree that safety in schools is a necessary and worthwhile pursuit; however, many schools struggle with the right approach to addressing the issue. Fuentes (2018)

stated that not all schools are designed entirely for the ideal of zero safety incidents, but they are typically safer than the threats many students face while not in school. Fuentes noted the incidences of abuse and neglect in children's homes. When students are not in school, they often roam the streets completely unsupervised without the careful watch of adults. Thus, Fuentes made the case that schools are the safest place for children and have been throughout history, even when schools struggle to maintain 100% safety.

Fuentes (2018) even argued schools are designed intentionally to be somewhat unsafe for some students. Historically, schools mimic the structures and processes related to juvenile detention facilitates. The first compulsory school laws in the late 19th century were an answer to decreasing crime rates. The philosophy was that poor, immigrant families who could afford to send their children to school eventually made up a large portion of the criminal base that plagued cities. Getting kids off the streets and essentially jailed before they could commit a crime also gave schools leaders a chance to teach moral principles they were not learning at home. So, from the very start of mandated education, the goal was to prevent crime by jailing children.

A dilemma in modern education relates to how schools can rehabilitate youth who are already breaking the rules and disrupting the schooling experience for their peers. Casteel et al. (2007) recommended violence prevention strategies rather than doubling down on punitive processes. They recommended schools focus efforts on school systems and programs that enable appropriate choice and behavior and reduce the opportunity for violence. Casteel et al. (2007) explained, "Prevention approaches should make environmental changes on school grounds that can reduce the opportunity for violence, which in turn can reduce the risk of assaults against teachers as students" (p. 937). This recommendation is supported by California's newest set of guidelines (California Department of Education, 2022) about how best to address discipline

related to school violence; however, prevention techniques are typically unpracticed in schools today where the predominant focus is punitive.

An important element to consider is not only how to address students who engage in school violence, but also to understand why students engage in violence in the first place. Sattler et al. (2019) studied the relationships between students' experiences in school and the related incidence of fighting. Specifically, the researchers analyzed the rate at which students engaged in fighting as a result of fear, as opposed to feeling fearful as a result of fighting. They found there were key differences in the reasons male and female students engaged in fighting, but one thing remained consistent: students tended to engage in fights as a fear of interpersonal threats from other students. Fighting was perceived as a way to ultimately protect themselves. This research suggests that focusing prevention practices specifically on addressing interpersonal relationships could be the key to making students feel safe and less likely to fight.

Although an all-inclusive definition of safety is cited as important, the National Institute of Justice (2020) recommended schools prioritize physical safety first and foremost above social and psychological safety. They referenced the need for schools to create a comprehensive safety plan that "requires a range of strategies, interventions, and effective threat assessment policies to ensure physical safety" (National Institute of Justice, 2020, p. 3). These strategies would position the efforts of school leaders to ensure they have created plans to address a wide range of perceived and potential safety threats that are inclusive of simple acts of violence and more egregious threats that could result in serious bodily harm. Although the National Institute of Justice narrowed the scope of safety purview to be non-inclusive of social and psychological safety, they outlined best practices related to developing a comprehensive school safety plan that includes root cause analysis tied to implemented practices in schools.

Reporting requirements and information systems that are already in place in schools make it challenging for schools to address violence. Breiter and Light (2006) detailed existing structures of the most popular information systems and related processes to capturing relevant data. These information systems have tended to focus on administrators as key decisionmakers with regards to data that are focused on improving teaching and learning, documenting behavior citations, or housing broad student information in general. They noted decision-making processes tend to be based on:

> Administrative information systems, learning management systems and assessment information systems. In principle we must distinguish between systems that are focused directly on the support of the teaching and learning process and systems that serve for the administration and instructional decisions. (Breiter & Light, 2006, p. 208)

Breiter and Light's study signaled a breakdown in the way student information systems are used in practice. Although teaching and learning and administration are typically thought of as separate systems, school safety intersects all aspects of a school setting, inclusive of student interactions in the classroom, the oversight of after-school student events, staffroom disagreements, and accidental injury. Such a distinction between various systems and platforms that are designed based on these distinctions make a system-wide approach to understanding and improving school safety a challenge.

Why Safety?

At the time of the study, Alcoa was a U.S. aluminum company that became famous for the surprising organizational focus that led them to become the unsuspected leader in their industry thanks to their newly appointed chief executive officer, Paul O'Neill, in 1989 (Duhigg, 2014). O'Neill's management style has been studied and replicated in many industries even

though his approach to meeting market expectations and increasing profit margins was anything but traditional. At his first meeting with investors and stock analysts, O'Neill said, "Safety will be an indicator that we're making progress in changing our habits across the entire institution. That's how we should be judged" (O'Neill, 1989, as cited in Duhigg, 2014, p. 99). O'Neill's message alarmed listeners in the crowd due to its lack of a typical focus on profit margins; however, within a year, profits reached an all-time high and staff morale had never been better.

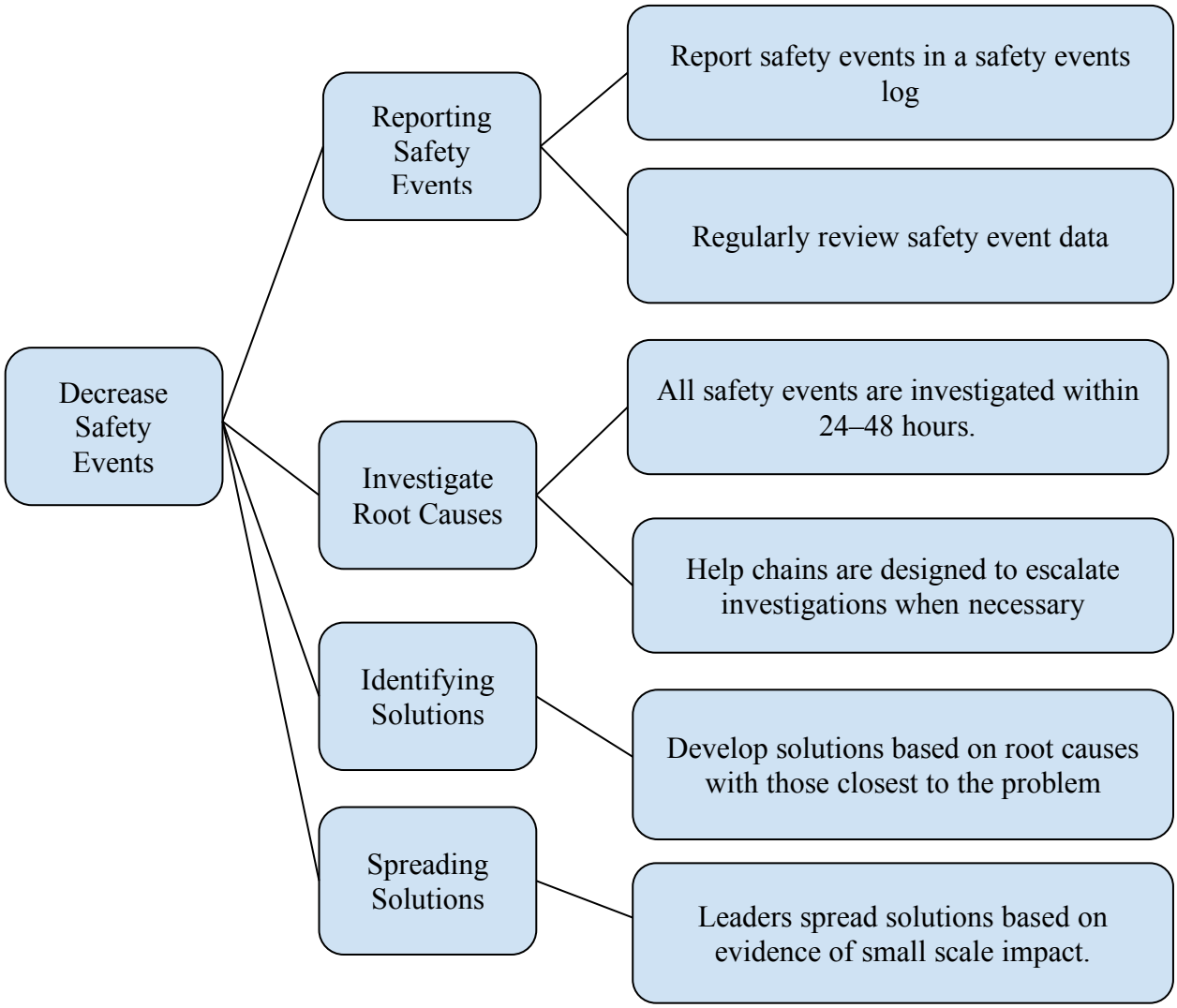
O'Neill's commitment to safety established a focus that no one could deny was important and enabled the organization to develop keystone habits that ultimately positioned them to solve production problems, leading to efficiency and reliability to meet customer needs (Duhigg, 2014). The keystone habits that O'Neill held with high expectations included: managers attending to priority data, investigating causes of adverse events and outcomes, and engaging front-line employees in developing solutions.

Theory of Improvement

The Alcoa model was derived from Toyota production system principles, which have shown great promise in many industries—including manufacturing, engineering, and healthcare (Spear & Bowen, 1999)— yet it had never been implemented in a school setting (G. Webster, personal communication, July 1, 2021). The study's aim was to learn the success and challenges of implementing the safety system in one high school. Based on the model, the district cabinet team designed the following safety system theory of improvement, which will be revised based on the findings of this study. This theory is built with four drivers built around the four model components: (a) reporting safety events, (b) investigating root causes, (c) identifying solutions, and (d) spreading solutions (see Figure 1).

Figure 1

Safety System Theory of Improvement



Note. Adapted from "The Power of Habit: Why We Do What We Do in Life and Business," by C. Duhigg, 2014. Copyright 2014 by Random House Trade Paperbacks.

Driver 1: Reporting Safety Events

O'Neill's approach at Alcoa was derived from the principles of the Toyota production system responsible for their unfounded success in the automotive industry. Ultimately, "seeing

problems was the prerequisite for the high-speed kaizen (‘continuous improvement’) for which Toyota came to be subtle and highly-regarded” (Duhigg, 2014, p. 162). O’Neill translated these ideas into practice by requiring every and all safety events to be reported in a safety events log that was reviewed daily by managers. This process ensured safety issues were acknowledged and knowledge about how to solve those problems could be spread throughout the company. Reporting safety events—namely, illuminating problems rather than minimizing or mitigating them—became a keystone habit that started to impact the way teams thought about other work-related issues.

Reporting safety events in schools is not a new practice; however, safety reporting will require somewhat of a different, yet overlapping process, from existing practice (California Longitudinal Pupil Achievement Data System, n.d.). Schools are mandated by the state to report disciplinary data in the form of suspensions and expulsions; thus, schools usually have somewhat robust and integrated student information systems to capture the required reporting information.

The California Department of Education published guidance for laws on discipline that predicate how schools ultimately organize resources to address safety issues (Thurmond & Darling-Hammond, 2021). At the time of the study, local educational agencies were expected to report incident records for acts of violence, assault, bullying, theft, and drugs, whether or not they resulted in serious harm or in a formal disciplinary action. Although California has explicit reporting expectations under their provisions, local educational agencies are ultimately only responsible for reporting the actions that occurred and any disciplinary action taken. This process has been troubling for a few reasons. There are norms and well-established processes related to how safety events are addressed based on what the state requires. These reporting requirements

are void of any expectation to investigate root causes of the event and focus administrative attention on discipline rather than understanding student needs.

California has been working to shift practices in support of schools developing more effective systems to address behavior. Legislators established laws in 2021 to minimize the occurrences of suspensions and expulsions and replace them with alternatives. Thurmond and Darling-Hammond (2021) passed state laws requiring schools to establish multi-tiered systems of support with the goal to "help students gain critical social and emotional skills, receive support to help transform trauma-related responses, understand the impact of their actions, and develop meaningful methods for repairing harm to the school community" (para. 4). Understanding student needs becomes an essential element of discovering root causes of common safety events. State law supports a shift in practice related to how schools respond to what is typically thought of as a purely behavioral problem.

At the time of the study, Aeries was the district's student information system that housed and articulated student information to the state platform and was the sole source for documenting disciplinary processes related to school violence (Aeries, 2023). The purpose of existing district safety platforms was for accountability to report the incident itself versus learning how to prevent these incidents from occurring again based on learning more about the design of the school system that enabled them. The district then developed a log that captured important information and reported on other necessary platforms for state-required items.

Driver 2: Investigating Root Causes

Spear (2009) noted the "velocity of discovery" (p. 156) was responsible for Toyota's ability to adapt their processes for optimization. Spear (2009) shared, "The importance of direct observations of the problems are seen in the idiosyncratic context of the person product process,

place, and time in which they occur in it and are investigated while they are still hot" (p. 272). This principle was replicated at Alcoa and was a key driver in the real-time system theory.

For a real-time safety system to be possible in the context of schools, teams must be able to respond immediately when a safety event occurs so a root cause investigation can take place while the details of the event are still salient and crisp. Rather than merely matching a behavior with a consequence—which was typical in past practice in the school's discipline process—teams are meant to learn not only about the motivation of people involved, but also the circumstances that allowed for them to take place on school grounds. This knowledge requires an investigation and collection of experiences from people closest to the incident and an avoidance of making quick judgements about intentions.

The idea of looking into the system design and digging deeper to understand why safety events are occurring is a new and necessary stance in investigating root causes. Bryk et al. (2015) explained:

> In general, the performance of any social system, whether a hospital, a school, or any other organization, is the product of interactions among the people engaged with it, the tools and materials they have at their disposal, and the processes through which these people and resources come together to do work. In simple terms, these interactions are few and the resulting outcomes may be easily traced. In contrast, in most modern-day institutions the interactions are many in number and densely interconnected. (p. 58)

Bryk explained system design is responsible for people's behavior, decisions, and outcomes. This fact puts the responsibility of school leaders to accept that violence in schools, to some degree, is the result of ineffective systems that enable these devastating outcomes.

Duhigg (2014) described a problem-solving discipline found in learning about the Toyota production system and its standard for quality assurance. This process was refined at Alcoa, and it leveraged some of the same ideas for problem investigations. First, engaging front-line workers in understanding the problem was crucial. The main idea is people who experience a problem are the ones who have the greatest insight into why it happened in the first place. In a school context, students are closest to the problem of ineffective school design that results in fights. Front-line workers include staff in schools who interact closely and on a day-to-day basis with students and/or experience first-hand student interactions that result in fights. These workers could include teachers, security, and supervisory staff.

Part of the model for enabling efficient and timely root cause analysis is ensuring leaders are ready to support the effort when problems cannot be investigated. Spear (2009) described observing Toyota managers on the factory floor as exceptionally different from typical leaders. One key difference is they followed a strict pull-system style of support where managers observed front-line workers and engaged only with workers who called for support and only offered exactly what was requested. This process eliminated waste and ensured manager support was maximized. At Alcoa, this process was practiced by a process of managers reviewing the safety events log regularly, and the expectation that workers were expected to call on their manager for support if they could not solve a problem immediately; the manager could escalate problems up a help chain as needed.

Driver 3: Identifying Solutions

Bryk et al. (2015) warned of the volatility of complex systems when change is not carefully considered, saying, “Formally, these are called complex systems. Such systems can manifest behaviors that no one intentionally designed and often it is hard to fully predict the

outcomes that may ensue from attempts to change them" (p. 58). Spear (2009) outlined an approach to developing solutions for systems change that relied on engaging people who experience the problem to be the ones who design solutions or countermeasures; these changes are meant to offset the causal factor uncovered during root cause analysis.

O'Neill took these ideas seriously at Alcoa. Duhigg (2014) described O'Neill's approach to using a root cause process to understand why an injury happened, saying:

> To understand how things were going wrong you had to bring in people who could educate workers about quality control and the most efficient work processes, so that it would be easier to do everything right, since correct work is also safe for work. (p. 106)

In other words, to protect workers, Alcoa needed to become the best, most streamlined aluminum company on Earth.

Toyota's approach included not only a clear and viable solution, but also a built-in test to learn to what degree the solution actually solved the problem; in an ideal case, it also prevented the problem from ever occurring again (Duhigg, 2014). Desert Dream's real-time problem-solving process was developed with this principle in mind and details a process that includes understanding how a solution is theorized to impact the root cause. Duhigg's (2014) hypothesis is vetted collaboratively by using the frame: If *x*, then *y* will happen as a result as measured by *z*. Iterative tests of change will enable the team to adapt their working theories for improvement into viable and vetted solutions, tested in their explicit context, and designed with their specific needs in mind.

Driver 4: Spreading Solutions

Duhigg (2014) told a story of O'Neill learning about a worker who became sick at one of his factories, yet there was no evidence of the safety incident in the event log nor had any

manager informally reported the issue. The managing supervisor who knew of the employee's illness but failed to report it was fired immediately. O'Neill (1996) responded, "He got fired because he didn't report the incident, and no one else had the opportunity to learn from it. Not sharing an opportunity to learn is a cardinal sin" (as cited in Duhigg, 2014, p. 124). Spreading solutions is based on the idea that redesigning systems must involve maximizing learning from a few to improve circumstances for everyone. O'Neill established set timelines and expectations for reporting safety events, analyzing data, and discussing solutions so the number of safety events would eventually drop to zero. This goal is impossible if people in an organization are all working independently to solve a similar set of problems, or if everyone experiences problems repeatedly without any process for preventing them. Desert Dreams piloted a sharing process that drew the pilot team together on a weekly basis to review safety events and discuss solutions. The district representative attended these meetings to serve as a resource and to draw upon meaningful insights that could be captured for district dissemination.

Significance of the Study

When students feel unsafe at school, they are more likely to disengage or be absent from school. When staff feel unsafe, they are more likely to leave the district or profession (Sattler et al., 2019). When students get suspended or expelled from school, they lose opportunities to further their education and become productive members of society (T. Thurmond & L. Darling-Hammond, personal communication, August 19, 2021). Thus, this study was significant because it intended to identify enabling conditions for implementation of a real-time safety system to ensure school systems were designed such that students and staff could feel physically and psychologically safe. Without this effort to improve school safety, Desert Dreams would continue to perpetuate unfavorable conditions that would result in a high number of student

suspensions, expulsions, and injuries. Findings enabled the district to build a safety system scale plan with reliability and sustainability and informed a broader educational community about the feasibility of the Alcoa model in educational systems.

Risks and Ethical Considerations

With regard to psychological safety, there were some risks to study participants because reflecting on violent altercations can be triggering to people who have had personal experience under similar circumstances. However, the interview questions were not personal in nature outside of the workplace and were designed to draw on work experiences related to meeting the safety needs of students and staff; thus, risk to participants was minimal.

Participants needed to be somewhat vulnerable in sharing about the challenges they faced and any implications for system redesign. It may have felt uncomfortable to be explicit to share perceived negative feelings about their experience at work or in collaborative moments with colleagues. I protected the identity of participants to encourage transparency.

Definitions of Terms

The following relevant terms will be used throughout the course of this study.

Help chain is a routine for interaction and involvement to solve a problem when it arises, starting with the production operator and involving the immediate leaders up to the heads of all support areas, eliminating instabilities in the process (Lean Institute Brasil, 2023).

Huddles are short, regular debriefings designed to engage clinical staff in discussions about existing or emerging safety issues (Schatz & Bergren, 2022).

Just-in-time means pulling parts through production based on customer demand instead of pushing parts through production based on projected demand (Lean Production, 2023).

Kanban (pull system) is a method of regulating the flow of goods both within the factory and with outside suppliers and customers. It is based on automatic replenishment through signal cards that indicate when more goods are needed (Lean Production, 2023).

Plan-do-study-act (PDSA) is a useful tool for documenting a test of change (Institute for Healthcare Improvement, 2023). The PDSA cycle is shorthand for testing a change by developing a plan to test the change (i.e., plan), carrying out the test (i.e., do), observing and learning from the consequences (i.e., study), and determining what modifications should be made to the test (i.e., act).

Real-time problem solving is a process that aims to solve problems effectively and efficiently by responding immediately in a trusting manner, to investigate root causes, develop solutions based on a target condition, testing those solutions, then sharing effective practices across the organization (Value Capture, 2023).

Root cause analysis is a problem-solving methodology that focuses on resolving the underlying problem instead of applying quick fixes that only treat immediate symptoms of the problem. A common approach is to ask why 5 times, with each time moving a step closer to discovering the true, underlying problem (Lean Production, 2023).

Standardized work is documented procedures for manufacturing that capture best practices, including the time to complete each task. It must be living documentation that is easy to change (Lean Production, 2023).

Toyota production system is a manufacturing strategy developed by Toyota Motor Corporation of Japan over a period of many years (Lean Production, 2023). The system focuses on the complete elimination of waste from the manufacturing process, and is the progenitor of lean manufacturing.

Chapter 2: Implement and Analyze

Chapter 2 details the implementation of the safety system pilot, including some important preparations prior to launch. The methodology used is detailed along with an analysis of findings. This chapter includes some key adaptations made to the model components that were described in Chapter 1 to better reflect the team's real-time learning throughout the process. As such, the first couple of sections narrate key elements of the implementation phase. Readers may be justified in believing these sections could have easily found their way into the first chapter's strategy phase. Although there is overlap and the two chapters are not mutually exclusive, I believe the inclusion of these adaptations in Chapter 2 more accurately mirrors the intricate relationship between strategy and implementation.

Establishing the District Safety Priority

The cabinet team met in Spring 2022 and prepared to launch the real-time safety system pilot in Fall 2022. The team made plans to put a new assistant superintendent position in place to oversee improvement and data analytics for the pilot. This position was important because it allowed a cabinet member to devote a considerable amount of time preparing a pilot team, launching and facilitating the pilot, and drawing out lessons learned and implications for the eventual dissemination of the real-time safety system to the broader district. This position was ultimately filled by an already seated assistant superintendent who led special education services for the district. They had a robust tenure with the school district, which meant they intimately knew the system, history of efforts to improve it, and the cultural and relational elements needed for feasibility to shift practice.

During Summer 2022, the district launched an annual colloquium with an all-inspiring message from the superintendent. The superintendent gave a call to action to an audience of over

100 people, including school principals and assistant principals, business services managers, human resources personnel, and instructional services directors. The superintendent detailed the current state of safety in the district. They described student incidents related to behaviors that led to an alarming number of suspensions and expulsions. They left the audience with a commitment to address safety concerns by launching a real-time safety system, providing some general information about the pilot, and sharing a timeline that detailed considerations for the eventual district-wide dissemination of the system. The superintendent encouraged the leaders in the room to spend Fall 2022 learning about the real-time problem-solving skills they would be enacting and spreading to their areas of work upon the pilot's conclusion in December 2022.

Key skills related to real-time problem solving included: (a) creating a district platform to report and share all safety incidents (i.e., the safety events log), (b) using root causes analysis for discipline investigations, (c) designing changes and testing their impact, and (d) establishing a system to share quality improvements to scale to broader contexts. This problem solving approach was based on how O'Neill approached safety incidents at Alcoa, which is described in Duhigg's (2014) book, *The Power of Habit*. The superintendent's final remarks established they would be focused on improving district safety and they were "going for zero," meaning the goal was to reduce the number of unfavorable safety incidents to none, which was a similar stance as O'Neill.

The superintendent's message at Summer Colloquium excited, intimidated, and intrigued the crowd. Some fundamental ideas were shared that grounded the philosophy about how they would work together to build a system that would meet every student's needs, specifically their need to feel safe at school. The following statements reflect those ideas:

- Real-time problem-solving is rooted in the understanding that 94% of all problems result from system design rather than the innate skill or will of the people involved (Deming, 2018). The district has embraced an idea that evolved from a discussion at a leadership meeting when reflecting on the nature of system design, which was that "people have needs; systems have problems." As the leadership team investigates root causes of safety events, they need to remember they are trying to learn about the system and how it enables unfavorable safety outcomes rather than blaming students, staff, or families for their behavior. They will need to remember system design influences behavior and is actionable to change.
- Real-time problem solving is meant to *solve* rather than *fix* problems. If leadership investigates problems to determine root causes and develop changes to address the systemic breakdown that caused the problem, they will be designing a system that ultimately prevents these problems from occurring again.
- Problems are like ping-pong balls. All the safety problems that exist in a system are like a room full of ping-pong balls, and each ball represents a problem. It is impossible to grab each ball, conduct a thorough investigation, and solve each one as a separate event. However, it is possible to grab a few balls to understand a few problems that exist and possibly get to the root cause of a few of those problems. In understanding the system design responsible for enabling persistent problems and resolving these breakdowns, leadership will actually be addressing multiple problems. Knowing which ping-pong balls to prioritize is key.
- The real-time safety system requires a structure of support that is different from what is typical in education. Help chains are intentionally designed as *pull* support, where a

person knows exactly who they go to when they get stuck in an investigation, and a leader is ready to assist. This pull can be activated just in time, immediately when needed, and as often as necessary. Nothing is pushed down to the frontline that is not first pulled for support and designed by people closest to the problem.

- All changes are tested to ensure they solve the root of the problem versus fixing the problem at a surface level. Implementing changes should be a disciplined process involving a plan-do-study-act (PDSA) cycle where knowledge about impact can be determined and shared broadly.

The day after the colloquium, the superintendent gave the opening speech at a day-long meeting with the high school pilot participants, including the full district cabinet, school principal, two assistant principals, one teacher, one campus security officer, one office secretary, one classified union president, and one certificated union president. Before detailing the responsibilities of the pilot team, the superintendent reiterated their platform of safety as the number one district initiative and thanked the team for being willing to "learn their way into a brand-new approach in education." The rest of the day's agenda was designed around getting clear about what safety events would trigger the safety system response. Specifically, they debated whether or not issues of psychological safety would be included, or if they would focus solely on physical safety incidents. The team began to understand the process they would engage in so as to investigate safety incidents and how this new approach would require them to lean on each other in ways they never had before.

Engaging front-line workers became a resonant topic because it was the first time a district-convening meeting had diverse perspectives in attendance. The site security officer noted this was the first time he had been in a meeting like this about improving safety on campus even

though he believed he had the most day-to-day experience with issues of safety. The union president also shared similar thoughts about the strength of the district to convene this team and attempting to learn from people closest to the problem. The meeting concluded with a few key outcomes, including: (a) a commitment by every individual to be a part of the pilot for 6 months; and (b) establishment of a weekly, 1-hour meeting to organize and make decisions for the pilot launch.

Pilot Team Planning Their Focus on School Safety

Having left the summer colloquium and pilot meetings feeling enthused to address safety incidents on campus, the high school administrative team decided to launch the real-time safety system pilot at the start of the school year. They communicated to students and families that safety was a school-wide focus.

The administrative team started the year off trying with one structural change. They developed a process called *tardy sweeps* where a set of identified adults on campus would walk the halls ushering students to their classes to avoid loitering after classes began. This time was historically a time when students were left completely unsupervised. Hallway loitering during class time had been pervasive on campus the previous year and was an easy opportunity for students to make poor choices while unsupervised. The administrative team noted an alarming number of fights happened when students were left in the halls after the bell rang and adults were already back in their classrooms and offices. The administrative team thought if they could ensure all students would be in class on time, fewer students would have the opportunity to engage in fighting and other behaviors that lead to safety issues. There was an established zero tolerance policy for truancy, and everyone was asked to usher students to classrooms when the first bell rang. A school leader noted:

> We had thought of tardy sweeps as a change for the year, but we didn't consider implementing it until after we had our initial colloquium, where we talked about real-time safety systems and all of that. I think it gave us, I guess, the courage or the confidence to say, "We're going to do it." And we worked really hard on it.

Scheduling Weekly Huddles

The team decided a weekly huddle structure would be the appropriate amount of time to review the safety incident log and share updates on pending investigations or implemented solutions that might be productive to share. This 1-hour meeting took place before school, which was intentionally designed to be the best chance at not being canceled due to other urgent needs that emerged throughout the day. The entire pilot team tried out this huddle for the first few months to make sure the structure was appropriate.

Launching the Real-Time Safety System

The pilot team launched the real-time safety system at the start of the school year in mid-August 2022 and continued testing and refining their designs around the safety events log, reporting practices, investigation processes, huddle structure, and scale implications for solutions developed for a small set of problems. In terms of intended outcomes, the district aimed to launch the real-time safety system to learn how to adapt the Alcoa model for appropriate use in education. As a leading measure, the rate of safety events reported, investigated, and solved for root causes were important to the district. This study served to answer the question: What are the enabling conditions for the real-time problem-solving model components? Specifically, to what degree is the model reducing the rate of safety incidents? Although findings pointed to some reduction in safety event incidents, the purpose of this study was to learn enabling conditions for the safety system model in a school context. Vignettes in Chapter 3 elaborate on lessons learned

from targeted specific problems; further, qualitative and quantitative data are included in the following sections.

Research Design

The pilot team tested the efficacy of the safety events log, which included documenting details of safety events and number of events investigated within 24–48 hours, number of events with identified solutions, and number of solutions scaled broadly across the school site. The pilot team used exploratory quantitative data to analyze measures of central tendency (e.g., mean, median, mode) for the time of day, day of the week, and any atypical scheduling implications that affected the staff's ability to document and investigate safety events (e.g., school events, holidays).

Pilot participants engaged in qualitative interviews, sharing successes and challenges they experienced implementing the safety system and any other issues they faced reducing safety incidents at their site. These interviews were conducted one-on-one with pilot participants and lasted between 30-45 minutes. Interviews were semi-structured while simultaneously flexible and allowing for follow-up questions and opportunities for expansion. Interview questions included:

1. What were the successes/challenges you experienced in reporting safety events in the safety events log?
2. What are the successes and challenges to investigating root causes of common safety events?
3. What are the successes and challenges related to using help chains to escalate investigations?

4. What are the successes and challenges related to identifying solution(s) to mitigate and prevent the safety event?
5. What are the successes and challenges related to scaling solutions for common root causes?
6. What do you think a district should know if they are launching a real-time safety system?

Interviews were conducted via Zoom and recorded using two devices: the VoiceMemo app on an iPhone and a personal recording device for documentation purposes only. All recordings and notes were kept in a personal, secure, locked file cabinet and will be destroyed by shredding 3 years following the conclusion of the project. After the interviews, I transcribed, coded, and analyzed the transcripts for cognitive processes, heuristics, and biases. Interviews were coded into themes. Participant identities remained confidential.

Characteristics of Pilot Participants

A group of 12 individuals at the high school piloted the safety system and served as a networked improvement community to test the safety system elements and use their experience to inform the district-wide implementation in Spring 2023. Purposive sampling was used to build the networked improvement community team because these individuals would play an important role in system implementation and test usability from multiple perspectives. Site leadership involved in the pilot included the site principal, two assistant principals, two discipline secretaries, the lead counselor, and the lead campus supervisor. They served as help chain leaders who could escalate safety investigations when needed. They also played a critical role in analyzing site data and meeting with districts to eventually illuminate systemic problems and root causes.

Three teachers were part of this pilot group. At the time of the study, one teacher served as a member of the Political Action Committee of the teacher's union and the other was the department chair for special education. Teachers interacted mostly one-on-one with students and were most often involved with student–staff safety incidents. A teacher's union representative and the classified union president was a participant of the pilot group. Union representatives played an important role in advocating for employees as the pilot team considered additional workload and responsibilities related to full implementation.

The six cabinet members participating in the pilot were the superintendent, deputy superintendent, and four assistant superintendents who collectively managed every division and employee. They were responsible for establishing safety as the district's main priority, establishing the safety system implementation, and holding regular meetings with leaders to discuss systemic safety threats and potential solutions.

Designing the Problem-Solving Process

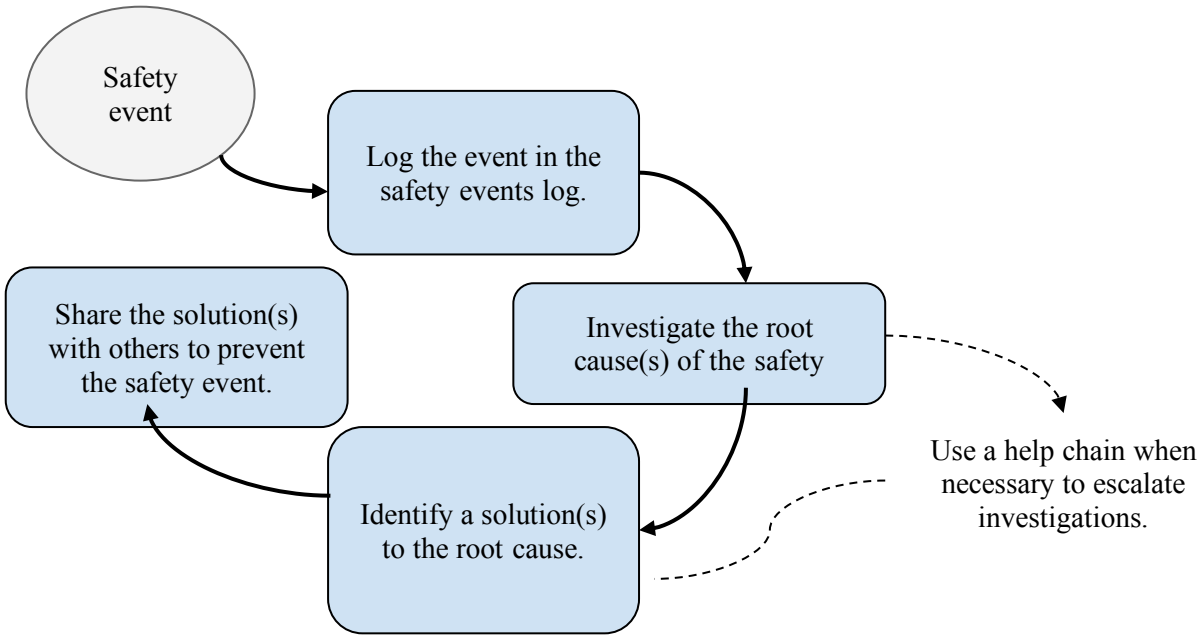
The pilot team debated elements of the real-time problem-solving process, how to implement them, and what some of their early learnings needed to entail to adapt the model for optimization and practicality in their school setting. Their early conversations generated key questions regarding refinement of the model components and related process once enacted. The key questions were:

- What exactly would trigger the real-time problem-solving process?
- How could we identify root causes to safety events?
- Who could help to report and solve safety events (i.e., the help chain design)?
- How could we report the safety incidents to those immediately necessary?
- How could safety events and learning about root causes be shared more broadly?

The pilot team designed and implemented a process that included four components of the real time safety system (see Figure 2).

Figure 2

Safety System Components, a process designed by the pilot team



Modeling their real-time problem-solving process after Toyota's production system (Spear, 2009) and lessons learned from O'Neill's leadership at Alcoa (Duhigg, 2014), the first step in the process was for an adult to contain the issue, preventing it from continuing or escalating, and to care for anyone who may be injured. In most cases, fights brought about a considerable audience who fueled the energy surrounding a fight; thus, breaking up the fight was often just as much about breaking up the actual fight as it was keeping other students out of harm's way. As soon as possible, the adult would capture important information because facts

surrounding incidents tend to atrophy over time. This information would need to be updated in the safety events log.

Safety System Component 1: Reporting Safety Events

The pilot team codesigned and piloted a safety events log that was publicly shared and updated every time a safety incident arose within 24 hours. Reported incidents included student–student and student–staff violent interactions that resulted in harm or serious risk of harm. If the Alcoa model works for Desert Dreams, reported safety events will initially begin astronomically high but quickly decrease to a very manageable number when root causes are uncovered, and solutions are shared to prevent future events.

With regard to documenting safety events, I intended to learn: (a) What proportion of safety events get reported in the safety events log? and (b) What are the successes and challenges related to reporting safety incidents in the safety events log?

The new expectations for the pilot team to report safety events in the real-time safety system posed a challenge because there was already a high degree of expectation and processes tied to reporting suspension/expulsion data to the state. It also required the pilot team to continue their existing investigation process for state reporting that focused on fact-finding ties to punitive processes. The real-time safety system required a different kind of investigation meant to uncover systemic root causes. Not only did this process place a demand on the limited resource of time, but it also required a duplicative process for investigation with conflicting purposes.

Preparing the Safety Events Log

Some of the first weekly meetings sought to address exactly what safety events would get logged, how they would be logged, and how the investigations would take place. Ultimately, the team decided on designing a safety events log using Google Forms because that platform was

easy to use on computers, phones, and tablets, which are all devices pilot participants used. They hoped anyone who encountered a safety event entered it into the form immediately, with the expectation to log and investigate the event within 24–48 hours. There was careful consideration about limiting the amount of information required in the log because it was already posing a duplicative reporting process with Aeries, their district-adopted student information system required for state reporting.

The Google Form included space to report the incident details: who was involved, when and where the event occurred, and other pertinent details. There was a space for noting investigation findings and possible solutions. Administrators decided log reporting responsibilities would fall specifically on the assistant principals for the initial phase of the pilot. Anyone who encountered a safety event would report the event to their assigning assistant principal, and they would complete the initial log entry together with details about the event. The assistant principal would follow up to get more information about the investigation later.

Establishing a Clear Trigger for the Safety System Pilot

Early concern grew for the pilot team as they became clear about the kinds of events that needed to be included in the real-time safety system response. O'Neill required physical injuries be reported, but this requirement specifically excluded other harmful issues like bullying and verbal arguments (Duhigg, 2014). There was considerable effort to consider an inclusive definition of school safety, yet the pilot team believed narrowing the scope to only a few specific incidence types would help them maintain their existing discipline processes, which further allowed time to learn how to institute the safety system process. After analyzing behavior incidences and discussing the highest leverage issues, the team believed fighting was a clear enough trigger and would be a worthwhile problem to tackle. Prefight behavior, including

arguing and planning an actual fight, would also appropriately trigger the real-time safety system.

Safety System Component 2: Investigating Root Causes

The pilot team investigated the root causes of safety incidents within 24–48 hours and encountered barriers and required assistance. Investigations included understanding why the event occurred, which required the pilot team to spend more time meeting with students and staff to gain a fuller picture of all the factors involved. Participants were assigned a dedicated help chain of leaders who escalated investigations to surface the root cause of each event within 24–48 hours.

The investigation to learn the root cause of a fight or prefight behavior included understanding various perspectives and not making assumptions about intentions or enabling conditions (Spear, 2009). Getting to the root cause of why students thought a disagreement escalated to the point of a physical altercation was not typical information gathering and went beyond the fact-finding steps required for behavior responses. When discussing the reasons a fight took place, it was also a great time to establish relationships with students, building trust and rapport so they could feel comfortable being honest and vulnerable.

Desert Dreams senior leaders adapted a real-time problem-solving process and supported other district leaders to learn this approach during their monthly leadership meetings. This problem-solving process drew on Toyota's production system and used examples from Alcoa in their recommendation for engaging in root causes analysis. Leaders at Toyota developed a five whys protocol tool to be used to understand why a problem exists (MindTools, n.d.). District staff worked with front-line workers experiencing the problem and focused on systemic causes versus individual choice or will. The pilot team used this problem-solving process as they

investigated root causes of safety events. The real-time problem-solving focus for district leadership had built capabilities they would need when formally scaling the real-time safety system beyond the pilot high school in Spring 2023.

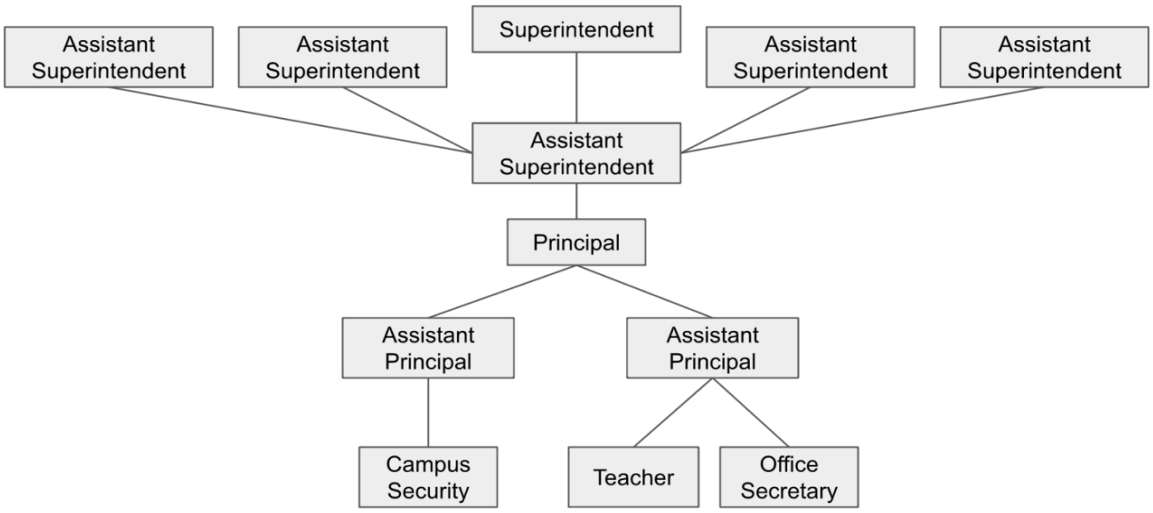
The pilot team designed explicit help chains and clear lines of support for individuals investigating root causes. Every pilot participant had a one-to-one support person and a clear process for enacting the help chain. This process required upstream leaders to carve out time to be able to assist their staff when called upon. This style was a radically new leadership design in schools and anticipated to be a challenge considering the limited bandwidth of school leaders.

With regard to investigating root causes of safety events, I intended to learn: (a) What proportion of reported safety events are investigated with an identified root cause? (b) What are the successes and challenges of investigating the root causes of common safety events? and (c) What are the successes and challenges related to using help chains to escalate investigations?

The pilot team designed help chains, which were meant to serve individuals who needed help throughout the problem-solving process. Pilot teachers, campus security officers, and the office secretary pulled support from assistant principals when they needed help investigating root causes or escalating a safety event. Assistant principals pulled support from the principal. The principal pulled support from the assistant superintendent. Finally, the assistant superintendent pulled support from the rest of the cabinet, which included the superintendent. The design of help chains mimicked supervisory structures with the exception of the campus security officers, who formally reported to staff not involved in the pilot (see Figure 3).

Figure 3

Help Chain Design



Safety System Component 3: Identifying Solutions

The pilot team designed or adopted solutions to root causes of safety events and tested them using an explicit inquiry method (i.e., PDSA). This inquiry helped members understand if the solution truly addressed the root cause or merely fixed the problem for the short term.

Based on a determination of the root cause of an incident, a change idea was developed—most often at the team huddle in collaboration with other pilot team members—to try to prevent that particular type of fight or prefight incident from occurring again. In past practice, there were fight investigations that would typically end in a decision about how to discipline the student(s) involved, and the incident would get reported via Aeries, the district-adopted student information system. However, school administrators previously never considered preventative measures or system redesign. The huddle structure allowed time for a discussion about the school leaders' abilities to control the environment to restrict students' desires and/or opportunities to fight.

There were challenges with designing or adopting solutions and using the PDSA model to evaluate impact. With regard to investigating root causes of safety events, I intended to learn: (a) What proportion of reported safety events result in a tested solution? and (b) What are the successes and challenges related to identifying solution(s) to mitigate and prevent the safety event?

Safety System Component 4: Spreading Solutions System Wide

The final step in the problem-solving process involves sharing what was learned about system redesign so others can benefit from the pilot team's work. The team decided, at first, scale implications would only be considered at the pilot high school, rather than scaling too quickly to other schools in the district. Planning for the launch of the real-time safety system had the pilot team confident they would be able to learn enough by December 2022 to share with colleagues at other high schools. Understanding the real-time problem-solving process and being clear about their learning questions and need for customization drove the next level of planning to preparing the safety events log, establishing help chains, being clear about the problem focus and trigger for real-time problem solving, and scheduling formal structures/weekly huddles for the team to reflect on their progress implementing the process.

The pilot team and district leaders analyzed data regarding the reliability of tested solutions documented in the events log and discussed possible site implementation in regular leadership meetings. This step required the district to design a data review process that involved communication with the site to understand the occurrence of safety events, their discovered root causes, and solutions to be considered at scale.

With regard to spreading solutions, I intended to learn: (a) What proportion of reported safety events result in a scaled solution? and (b) What are the successes and challenges related to scaling solutions for common root causes?

Analysis

I conducted quantitative analysis following a review of the safety events log and Aeries behavior reporting. Qualitative analysis of themes related to successes and challenges were derived from participant interviews at the conclusion of the pilot.

Quantitative Findings

Figure 4 shows the total number of safety events captured in the safety events log from August through December 2022. Administrators documented a total of 14 events and investigated only one event to determine the root cause and document a scaled solution. Early complaints about the limited time available to do this log reporting, along with the annoyance of double documenting some information in Aeries, led to the need for a comparison of safety events reported in the safety events log versus behavior incidents related to fight and prefight behavior in Aeries.

Figure 4

Comparison of Safety Event Documentation

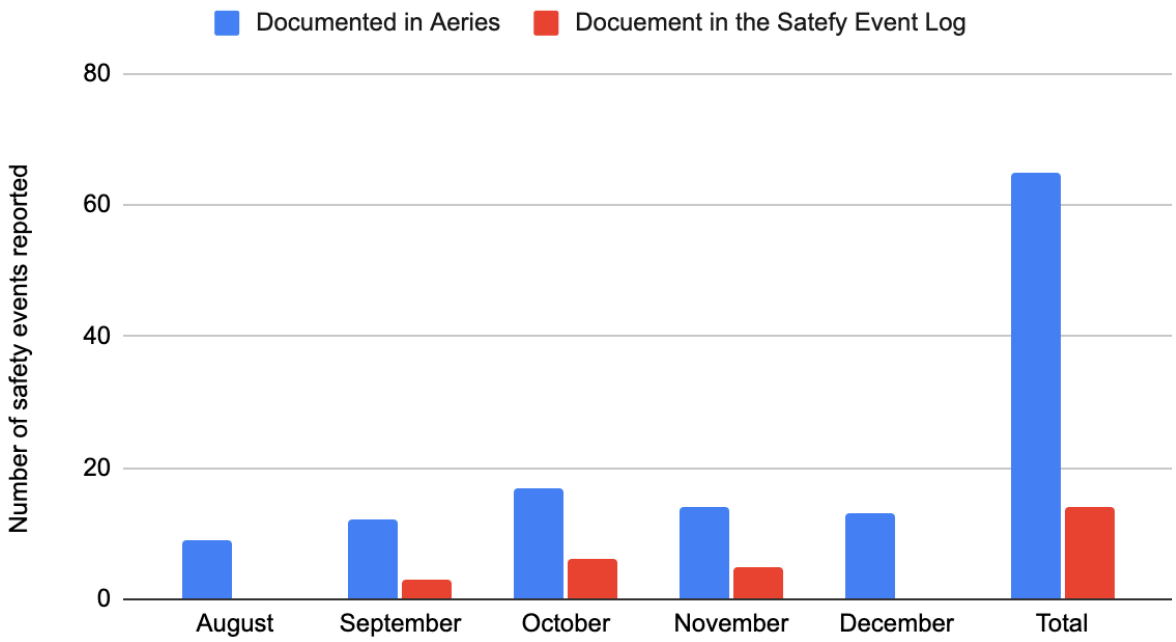


Table 1 shows the number of events documented in the safety events log each month compared to fight and prefight behavior incidents reported in Aeries. Table 1 further illustrates the discrepancy between reporting platforms, with Aeries capturing 65 events through December 2022, and the safety events log only accounting for 14.

Table 1

Comparison of Number of Safety Events Documented by Platform

Month	Aeries	Safety events log
August	9	0
September	12	3
October	17	6
November	14	5
December	13	0
Total	65	14

Due to a high degree of discrepancy in safety event reporting across platforms, I conducted further analysis with Aeries data to analyze reported safety incidents, specifically fight and prefight behavior that resulted in disciplinary action. Five education codes (California Longitudinal Pupil Achievement Data System. (n.d.), tied specifically to fight and prefight behavior and are documented in Aeries, including:

- 48990 A-1: Caused, attempted to cause, or threatened to cause physical injury to another person.
- 48900 A-2: Willfully used force or violence upon the person of another, except in self-defense.
- 48900 T: A pupil who aids or abets, as defined in Sec. 31 of the Penal Code, the infliction or attempted infliction of physical injury to another person.
- 48915 A-1: Causing serious physical injury to another person, except in self-defense.
- 48915 A-5: Assault or battery, as defined in Sections 240 and 242 of the Penal Code, upon any school employee.

Table 2 contains a breakdown of education code violations by month in 2022–2023 and Table 3 contains a breakdown of education code violations by month in 2021–2022. Education code 48990 A-1 violations for Fall 2022, the highest number of education code incidents, were at 56. The same violations in 2021 occurred at a rate of more than 3 times that amount. The total education code violations followed that pattern of more than tripling when comparing Fall 2021 to Fall 2022 across every month.

Table 2

Education Code Violations in 2022–2023, fall semester

Month	Education code					
	48990 A-1	48900 A-2	48900 T	48915 A-1	48915 A-5	Total
August	9	0	0	0	0	9
September	8	4	0	0	0	12
October	14	3	0	0	0	17
November	12	2	0	0	0	14
December	13	0	0	0	0	13
Total	56	9	0	0	0	65

Table 3

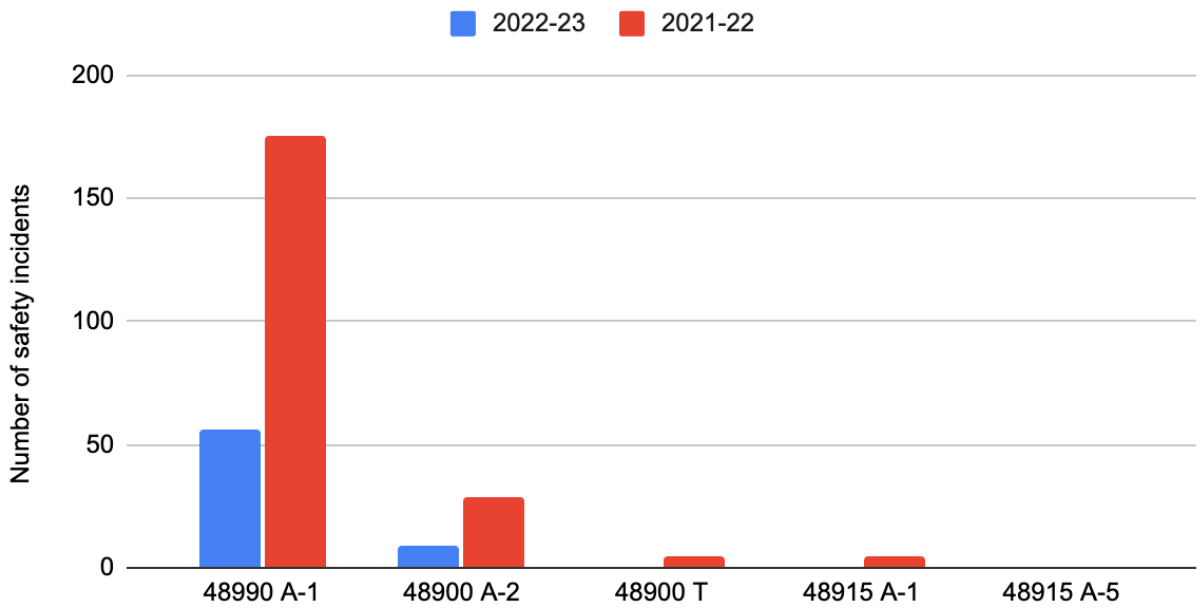
Education Code Violations in 2021–2022

Month	Education code					
	48990 A-1	48900 A-2	48900 T	48915 A-1	48915 A-5	Total
August	15	3	0	0	0	18
September	21	4	1	0	0	26
October	30	4	0	0	0	34
November	18	5	0	0	0	23
December	24	0	3	0	0	27
January	4	5	1	1	0	11
February	8	0	0	2	0	10
March	26	5	0	1	0	32
April	8	1	0	0	0	9
May	21	1	0	1	0	23
June	0	1	0	0	0	1
Total	175	29	5	5	0	214

Figure 5 shows the incidences of each education code violation, comparing the fall semester for school years 2021–2022 to 2022–2023. Education code 48990 A-1 had the highest rate of incidence over both years; however, a marked decline of education code violations was noted for the 2022–2023 school year as compared to the same months in 2021–2022.

Figure 5

Behavior Incidents Reported in the Safety Information System by Education Code and Year



Figures 6 and 7 show the incidence trends of five education code violations over the fall months for 2021 and 2022. Although the occurrence of incidences was varied, the general pattern from month to month remained relatively consistent between years. Both years showed a steady incline of incidents from August through September, with a spike in October. In November, the rate decreased before rising again in December. In both years, the rate of incidents was highest in October.

Figure 6

2021–2022 Behavior Incidents by Months, Disaggregated by Education Code

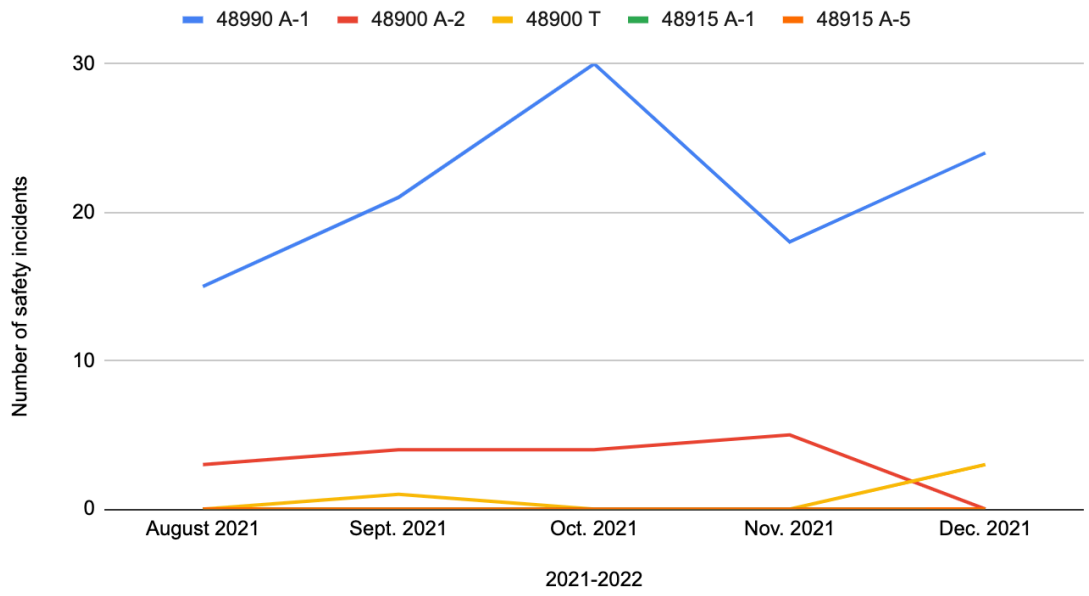
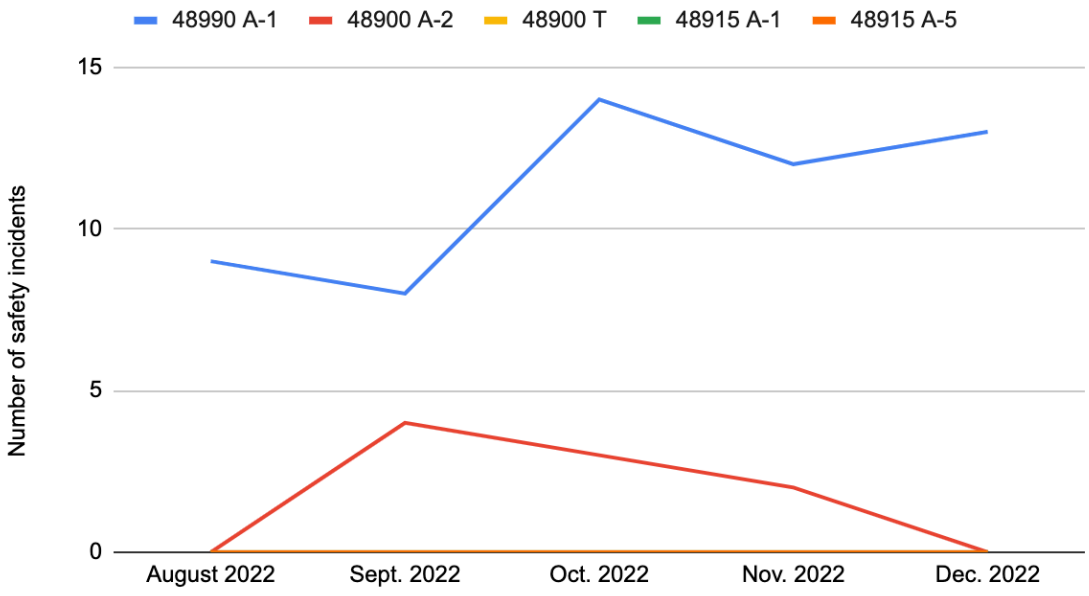


Figure 7

2022–2023 Behavior Incidents by Month, Disaggregated by Education Code



Qualitative Findings

I interviewed five pilot participants for this study: the assistant superintendent overseeing the project, the school principal, one assistant principal, one teacher, and one campus security officer.

Documenting Safety Events

I identified the following themes related to challenges when documenting safety events in the log: (a) conflicting and duplicative reporting processes and (b) cumbersome initial log design. I identified the following themes related to successes when documenting safety events in the log: (a) drawing others into the work and (b) accountability to maintain a disciplined investigation process.

Challenge 1: Conflicting and Duplicative Reporting Processes. Documenting safety events in the log added significant workload to pilot participants. One participant recalled, "It took us 45 minutes to get through this log and it was like, 'Whoa, is this feasible?'" Dedicating time to update the log seemed duplicative. The participant added to this sentiment, "As we were implementing the log, one of the challenges that the administration's having is we're putting information in Aeries and we're also putting information in the log. . . . We don't have time for all of this." This documentation was cited as duplicative in Aeries reporting. The safety system reposting was thought of as an additional reporting expectation although not a requirement so it was not executed when staff schedules became impacted, something every participant noted as a challenge in their interview.

A leader with significant understanding of the principles and rationale for reporting safety events noted it was likely other pilot participants could not yet see the benefit of documenting safety events so others could eventually learn from the problem-solving processes at play. The

individual investment in documentation was in service of the greater knowledge about the problems, which did not immediately benefit the person taking the time to log, so that was considered an easy step to skip knowing state reporting in Aeries was required.

To increase the reliability of safety event reporting, a decision was made that administrators would be responsible to report all safety events in the log. Although their schedules were also highly impacted, administrators thought they understood the importance of the log and could take that responsibility on until a better process could be put into place. There was concern that perception of ownership may become an issue. One participant reported:

> [Solving the safety problem] should be seen as something that is owned by the organization or owned by the school. And when you just give it to the admin in terms of logging, it feels like it's just reporting for administrative purposes and we lose buy-in from other staff. But other staff are not always at a computer to capture this information in a timely fashion, so that's the issue.

Eventually, a front office secretary, who had dedicated time to be responsible for reporting, took on the responsibility of logging all events. However, another challenge surfaced. One participant noted:

> Certificated or classified [employees] can say, "You are working me out of class. This is not a part of my job description. I can't do it within my typical workday, so I'm not going to do it. You need to pay me extra to do it." And so, we've been trying to balance the idea that people need to ask for this and we can't just push it because again, we now have collective bargaining agreement language that may not allow for it. And so, you could end up having to negotiate the effects of it and so forth.

One of the challenges surfaced was the issue of still needing to report behavior incidents in a program that was based on disciplinary action rather than system improvement. One participant explained:

> In education, we have designed a very punitive system. We have said, "Here's a list of consequences that you should and have to give if something occurs." There's district court policy that says that, so there are specific expectations to be punitive. We also have a student information system, and ours happens to be Aeries, but every school district has a student information system that is not designed to capture what we're doing in the real-time safety system, which is root cause information, etc. It is only designed to capture the surface-level, punitive information.

Another participant made the connection between reporting purposes and the challenge it places on eventually being able to conduct root causes analysis. They shared:

> And so, a really good point is that board policy, past practices, our student information system is all designed to be very punitive, consequence oriented, and exclusionary as it relates to capturing the voice and the reason why things are happening.

The team believed it was important to shift practices, so they were able to use the safety system to ultimately redesign their system in response to what was typically thought of as behavior issues. One participant shared:

> When the incident happens, to take a position of asking, "Why?" instead of "What?" And when we're trying to design systems and not blame people, really, I'm trying to figure out, why is that? Why on a regular basis can we not be disciplined to real-time problem solve and capture in that event log, be able to share it? So, that's a big challenge.

Logging and investigating events were key for the real-time safety system to result in broader, district-wide impact.

Challenge 2: Cumbersome Initial Log Designs. The initial design of the log was in a Google Form format. One teacher thought the form was simple, noting, "It lends itself well towards creating reports and capturing data and then being able to analyze data." Other teachers thought there was too much information being stored in the log; therefore, it was taking too long to complete. One teacher elaborated:

> Because that's 45 minutes that he wasn't out there supervising kids. And that was 45 minutes of my time. So, that's when we really started to think about how we can make the logs more streamlined. There were things on the log that we thought, "Do we really need to log this in?" Because it's in Aeries. And if we have a question later on, we have access to it in Aeries.

They continued, saying, "Our system is not designed to capture positive proactive interventions. We had to create that and then it's not on the same table or view as the punitive consequences." The team found success in being able to focus on positive interventions and report them in the log; however, the duplication of entering information in two platforms remained a key challenge.

Eventually, the log was redesigned into a simple Google Sheet with only the most important elements. One participant stated:

> Now we have the new log, for me, it makes a lot of sense because we talk about the [real-time problem-solving system]. It includes "describe the problem," and we have it color coded. And then it's "investigate root cause" and it's purple. Then "develop solutions with those closest to the problem" is green, and "testing solutions" is blue. So, for me, that is very, very helpful.

Although there were many challenges in documenting safety events in the log, the team was able to find successes in adapting the log and process for reporting. Those successes of note included drawing others into the work and accountability to a disciplined investigation process.

Strength 1: Drawing Others Into the Work. One participant noted he and his counterparts were considered a first-line defense for most fighting incidents on campus, but they were typically not included in any effort to understand or improve these safety incidents. His supervisor said, "In the immediate state, the log helped to ensure that we were bringing voices other than the traditional administration in trying to solve problems because it reminded us to go close to the source." Another participant noted, "In order to be able to have the right information, you needed more than just your administrators to be a part of that conversation. And so, the log started to build discipline into creating a voice for others."

A senior leader described the social process when the team gathered to review the log together, sharing:

> Based on my experience with when we had successes, having disciplined and regular conversations about: what did you seek? What do you think about that? Where do we go now? And then making decisions to scale together from various perspectives. We'd all gather around the log and that discussion was so important.

The log created an opportunity for the team to come together to make updates collaboratively. It was a moment to bring together individuals who would not otherwise meet on a regular basis.

Strength 2: Accountability to Maintain a Disciplined Investigation Process. The team considered the safety log to be a reliable resource to hold them accountable to log and investigate safety incidents. One participant noted a conversation when reviewing the logged investigation where she challenged another individual's assumptions about root cause. They shared:

> I asked, "How do you know that? What does the parent say?" And their response was, "Well, we didn't ask the parents." So, I continued, "What do the students say?" and again, "Well, we didn't ask the student." It challenged them that we need to go out and ask the parents. We need to ask the student . . . to have accurate information to put into the log to be disciplined in the process to truly understand why these fights are occurring. And so, that log really gave voice to others if we were doing it well. And so, then we pause, go out, go ask the parent, go ask the student, go ask the staff member, then let's come back and capture that investigation.

Without the documentation expectation tied to a new problem-solving process, conversations may have been less disciplined or explicit. Solidifying everyone's thinking to update the log made possible opportunities to clarify understanding and challenge assumptions.

Investigating Root Causes

I identified the following themes related to challenges when investigating root causes of safety events in the log: (a) engaging the right people at the right time, (b) learning a new approach to investigations, and (c) pervasive people blaming. I identified the following themes related to successes with regard to investigating root causes of safety events in the log: (a) learning to see the system, (b) building student relationships, and (c) working in depth on solving one problem.

Challenge 1: Engaging the Right People at the Right Time. One participant highlighted how valuable the opportunity was to shift their approach from that of "investigating the what" to "investigating the how." This pilot participant was noting the shift from previous investigation practice, which only required documentation of the events that took place rather than how the event was enabled in the first place. However, they also noted, "The time it takes,

making sure that you've got the right people there to look at root causes and do a thorough root cause analysis, it's really hard with everyone's busy schedule." They made the connection that the right people needed to join the root cause discussion to understand enabling conditions of fight and prefight behavior. Often, those people have limited bandwidth to participate in an investigation, so that continued to be a limiting factor in terms of how far they could get with their investigations.

Challenge 2: Learning a New Approach to Investigations. With a new process for problem solving, such as conducting investigations to determine a root cause, there was a challenge with learning the new approach. One participant noted there really was not a set of "standard work or guidance" to help them apply this new methodology. One participant reflected on a moment when she had an epiphany, saying:

> So, I had an aha moment, I don't know, it was about a month and a half ago or so, about five whys, which is a tool recommended to get to the root cause. I realized it's not the only way to get to the root cause. So, that was just helpful to me because sometimes it's not like we're going to be, "Okay, why did this happen, and why?" Because you can sometimes get yourself into a rabbit hole. You go down a rabbit hole because if you answer one why, then you go down, "Well, why was that?" You sometimes have to strategically get yourself back to center because you know you're going in a little rogue direction and sometimes a whole new set of whys is necessary.

This participant noted the importance of guidance on how to do the work but also appreciated her ability to learn the flexibility of the models so she could apply them practically.

Challenge 3: Pervasive People Blaming. One of the strongest worries shared by leaders in the group was the team's affinity to blame individuals rather than looking to system design to

explain the reason for a fight or prefight behavior. Knowing the purpose of a root cause analysis is to understand where in the system a problem was enabled. One leader noted a prevalent practice, especially in school violence situations, is to blame students and families. They said, "Even with all the work they did to understand the principle of systems investigations, they are still saying, 'The parent did this, the student did this, the staff did this or they didn't.'" Another participant identified their own bias to blame students, saying, "[Students] don't really care because they don't participate in things that they care about," but also agreed with the philosophy, "We need to see a system and to root cause to the system and not the people." This uncovered contradiction supports the idea that school leaders need time to fully embrace the idea of system design as the ultimate cause for fight and prefight behavior.

One participant attributed the challenge of people blaming to discipline processes that are triggered as a result of a fight and interfere with maintaining a systems-oriented mindset. They stated:

> So, a fight happens and we go very punitive in our mindsets, blaming people, giving out punitive consequences that are exclusionary like suspension or recommendations for expulsion. And instead of taking a position to really seek to understand and try to connect with a potential intervention and build that system out to meet the needs of people rather than just blame and "here's your consequence," move on.

They went on to describe a shift in policy. If a fight occurs on school grounds, merely punishing students was not going to address the enablement of that behavior in the first place. Punishment was often punitive in nature rather than restorative, which was a direct violation of new laws and processes supported by the district. Although there were challenges, there were also successes.

Success 1: Learning to See the System. Although it was challenging to shift practice to understand at a systems level why a safety incident occurred, the team felt successful because they were now aware of the importance of systems lenses when conducting root causes analysis. One participant described this effort, saying:

> We really are trying to ask why. The challenge: do we have ears to actually listen to that why and maybe follow up with the next person and continue the investigation? Maybe not always. But we really are trying to ask why. And I think that that is such a success. It's like, okay, this thing occurred because of a reason or reasons that are deeper than what we see on the surface and that mindset feels like a big shift for our team.

Although the root cause investigations did not occur with complete reliability, the team felt successful in their adoption of attending to a systems mindset when deeply investigating some of the fight and prefight behaviors they encountered. They felt confident they would become more efficient in the process as they continue to build their capabilities around root cause analysis.

Success 2: Building Student Relationships. Most participants noted root cause investigations provided opportunities to build relationships with students in ways that had not been possible before. Previous investigations focused on gathering facts to assign a disciplinary action, but one participant stated, "This only causes a divide between staff and students, us versus them." One participant described their approach to student conversations as an opportunity to let them know staff cared. They said, "Hey, we're here for you. Let's come up with a solution to your problem or get you to the people that can possibly help you out with the solution." Pilot participants generally thought this approach was important as they looked for ways to build trusting relationships to ensure students felt safe at school. One participant noted they considered "care for students" as their number one duty.

Success 3: Working in Depth to Solve One Problem. Most participants offered some regret with regard to how often they set aside their investigative responsibilities due to an overwhelming schedule or compounding safety incidents occurring at the same time. However, all participants believed the time invested in conducting a deep root cause analysis was worthwhile. One participant shared:

> At first I thought, "How in the heck are we going to capture and investigate every frigging fight? That is just not possible." But one of my biggest learnings, and this is a big aha, probably, in October, is that we capture one event, but that one event, when we solve to root, and we implement change, that will trickle down and mitigate other potential events of the like, so we don't have to actually root cause every little incident. That's pretty powerful.

The pilot team in general understood the benefit of solving a few problems to root and the resulting resolution of many other connected problems. By investing in a deep root cause analysis, they thought the payoff was worthwhile.

Using Help Chains

I identified the following themes related to challenges using help chains: (a) designing the right help chain, (b) destigmatizing the need for help, and (c) asking for help in real time. I identified the following themes related to successes about using help chains: (a) bridging school efforts with district leadership and (b) planning help chain engagement time.

Challenge 1: Designing the Right Help Chain. It took considerable planning and discussion for administrators to decide on the help chain that was ultimately piloted. The team noted consideration of supervisory roles, availability to help people in their chain in real time, and overlapping schedules that enabled quick meetings as needed in their design process. After a

few months, they realized a key individual was missing from the district office. One administrator explained, “I think the principal lead is going to formally be named in the help chain now, too, which will be great because she’s my direct boss. She’s a super solver, so that’s really helpful.”

A few adaptations were made to the help chain based on challenges the team identified (see Figures 8 and 9). First, they brainstormed possible next-in-line supports should one individual not be available in a timely manner. Considering the rate at which time had been listed as a challenge across the board, the pilot team thought this backup, although not ideal, addressed an anticipated issue. They also reprioritized the role of the secretary in the help chain to alleviate the workload on assistant principals and added an additional member at the district level with specific connections to the work of the high school leadership teams.

Figure 8

Original Help Chain Design

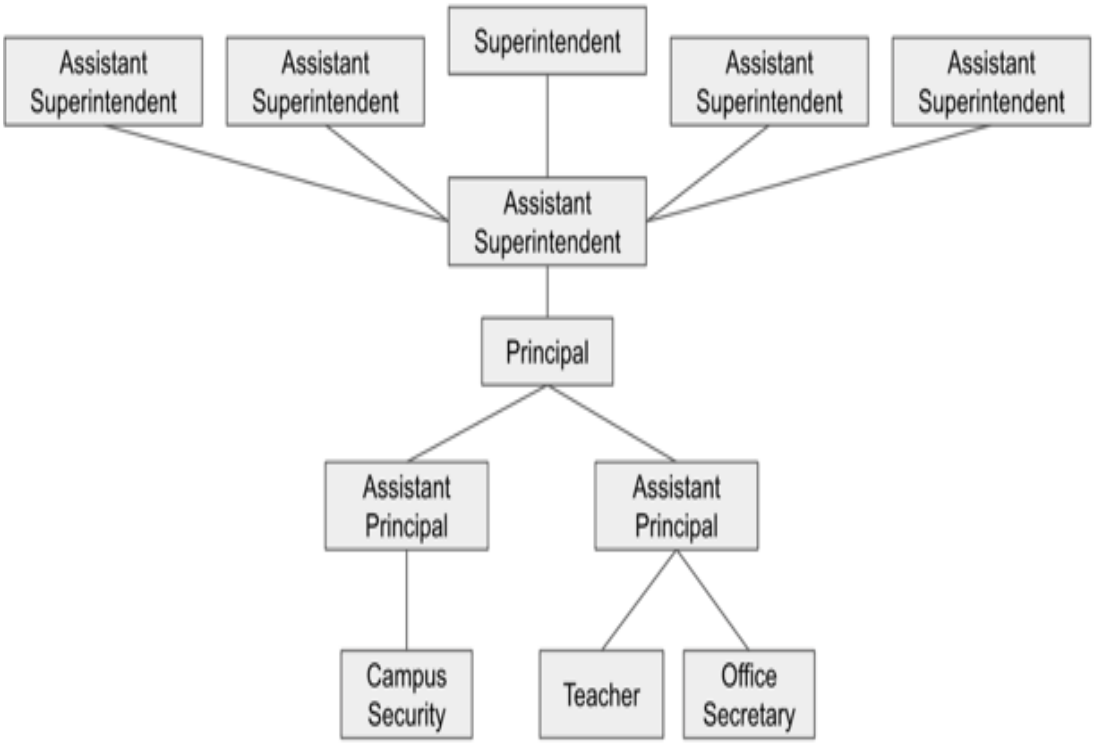
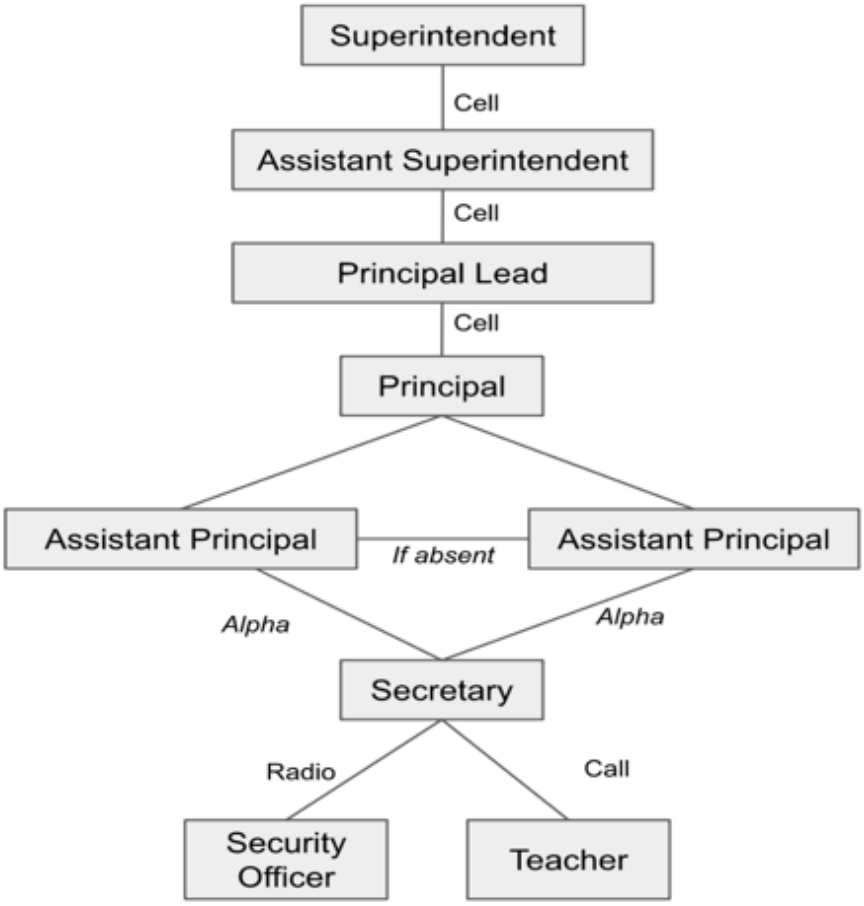


Figure 9

Adapted Help Chain Design



Challenge 2: Destigmatizing the Need for Help. A highly referenced challenge was the stigma associated with asking for help, which seemed to limit the use of the help chain among pilot participants. One participant said, "It is seen more like it's that you're not doing your job well if you have to ask for help, or you might get judged and evaluated if you ask for help." Another participant offered the importance of "a humble stance and knowing we're in it together" when overcoming the fear of asking a leader for help. They took that sentiment a step further, asking, "And how do you get people to have a culture where asking for help is an expectation?" Another participant attributed this tendency to avoid asking for help, saying:

> Traditionally, and this is a part of our system, they have been asked to solve a lot of problems on their own. And I won't even say solve; I'm going to say fix their problems on their own, and that gets rewarded. . . .They feel like we're supposed to handle it all on our own.

Challenge 3: Asking for Help in Real Time. As with most challenges highlighted, time was central in the dilemma about how to investigate root causes in real time and ask for help and coordinate with another person with a busy schedule. This concept was shared as an especially concerning challenge for teachers who had a classroom full of students. They were only able to conduct investigations or call for help in limited, specific time frames throughout the day. One teacher elaborated, "[Teachers are] managing the room and they don't have the time to make a phone call, to write an email, to find the person that is next in their help chain." Although there were challenges, there were also successes.

Success 1: Bridging School Efforts With District Leadership. Administrators noted a particular strength of the help chain was it formalized the involvement of district staff to work directly with school staff to solve problems. One participant said:

> I don't want it to ever feel like an us versus them with the district. So, it's nice to have them in the loop, so they know what the site is going through and they can both be our representative and offer support and guidance.

Another related success was the structure of the help chain situated district interaction as pull support rather than pushing initiatives onto the sites. Having the right perspectives at the table when understanding the school's problems was valued experience.

Success 2: Planning Help Chain Engagement Time. A principal design of the help chain was to activate support in real time whenever necessary. One participant praised their

direct help chain support, saying, “Pretty much every time I go to [name] with something, she jumps right on it, and she takes care of business immediately.” Even so, the team decided to mitigate the inevitability of pilot members being too busy to provide support in real-time; thus, they structured weekly huddles with members of the help chain to review the log and discuss problem-solving progress in general. In response to this designated time, one individual said, “We’ve had much more success lately with having a forced part of the help chain in the room for a conversation.”

Developing Solutions

I identified the following themes related to challenges about developing solutions: (a) time to develop changes with those closest to the problem, (b) ensuring solutions match the intended root cause, and (c) disciplined inquiry around a change. I identified the following themes related to successes about developing solutions: (a) accessing cross-over help chain perspectives and (b) not doing what has been done in the past.

Challenge 1: Time to Develop Changes With People Closest to the Problem. A key tenant of the real-time problem-solving process was to engage front-line workers so people closest to the problem not only provided insights into why that problem was occurring, but also recommend solutions to the problem. One participant explained:

> You don’t want to make decisions in isolation when you’re trying to affect root cause change. So, that’s one thing that I’ve noticed as a challenge, is if we need to get a supervisor, we need to get a teacher, or even a student, is just finding that time because we’ve already gone on to three or four other events.

Including various perspectives continued to be a challenge throughout this study. In this case, it was challenging finding the time to engage multiple stakeholders in developing solutions. The

team attributed some success in prescheduled time gathering to investigate and develop solutions but that gathering was not inclusive of other important participants based on the problems at hand. Other important individuals include students, teachers, and parents.

Challenge 2: Ensuring Solutions Match the Intended Root Cause. Root cause analysis is meant to uncover a gap or broken element in a system design, and the solution is meant to address that root cause. Although the purpose of a root cause analysis was somewhat understood by the pilot team, there was an expressed challenge that generating solutions often reverted back to blaming individuals as the root cause. One participant referenced this challenge, saying, "We are trying to draw a really clear line between the potential solution and what we identified as the root cause or where the system is violated and is there a correlation to that." One example includes a time when the team experienced a fight at a football game. After investigating, the team concluded the fight occurred because of lack of adult supervision in key areas of the stadium and norms about behavior at games. However, changes brainstormed included things like harsher punishments for the students involved.

Challenge 3: Disciplined Inquiry Around a Change. Solutions are meant to be developed and tested using disciplined inquiry using a PDSA protocol. Disciplined inquiry ensures the team is able to learn to what degree the solution resulted in an improvement. A pilot leader thought disciplined inquiry might be the biggest obstacle they faced in the process, saying:

> Did we discipline ourselves to measure anecdotally? Everyone said, "Wow, vast improvement, less fights." But again, we had 17 change ideas that we did at one time and so, hard to know – was it an improvement? How was it an improvement? But it felt good. . . . We think this is going to work. But we need to focus on what do we want to learn about it and how are we going to learn that?

The leader's comment spoke to the risk that was likely to occur if improvements were made without knowledge of exactly what led to that outcome. This risk made scaling almost impossible. They emphasized, "Surprising results aren't necessarily a good thing in the long run." Another participant noted a similar challenge and called out the need for humility, sharing:

> The recipe just kept being more and more complex in terms of solutions. And so, the idea of allowing [the team] to learn through an experience and also trying to call some red flags, like caution, this might not work. And so, it was that fair balance of, all right, we tried to improve something the best we could, let's go and learn about it. But then, you go to pinpoint what change actually resulted in this improvement. And you have seven changes you did; how do you make any connection to what you are learning?

One leader thought this quick jump to developing solutions with an undisciplined process to learn about impact was most pervasive in early months of implementation. They shared:

> I would say in October, November, we were going straight to the solution. We didn't learn about it. So then, we're like, okay, let's let them try out, even if we think it will fail. Let's have some learning about that. They're going to try out a solution. Their solution did not involve the voices of those closest to the problem and their solution didn't have any kind of disciplined measurement. And so, it took a lot of asking questions and trying to be disciplined. . . . What do we expect to learn and how do we know we're going to learn it? What are we going to measure it with?

Although this tendency to fix quickly was pervasive, a related strength was the team's willingness to be open to the idea of disciplined inquiry, even if it took heavy leadership guidance and support at first.

I identified the following themes related to successes about developing solutions: (a) accessing cross-over help chain perspectives and (b) not doing what has been done in the past.

Success 1: Accessing Crossover Help Chain Perspectives. One leader shared:

> One of the successes was [the principal]. She was able to call me and ask for help, and I was able to access the crossover help chain with a nonpilot staff member and get other leaders to be at the table to have a conversation with all the high schools involved in this problem. And so, what we're able to do from her pulling on me and asking for help is gathering people to have greater perspectives. . . . Ultimately, we want standard work across the district, and that is important.

This leader elaborated that brainstormed changes needed to be something other high schools could support because they could impact after-school events, which implicated other sites. Administrators thought the brainstormed solutions were more comprehensive because the other school leaders had some good ideas about how to address the root causes. The football game vignette details these problems-solving processes in depth in Chapter 3.

Success 2: Breaking the Mold of What Has Been Done in the Past. One advantage shared by multiple participants was the new approach to finding solutions to problems after a thorough root cause investigation helped leaders rethink what was possible in terms of outcomes and how to achieve them. One pilot participant noted:

> Back then [before the real-time safety system], people were saying, "If there was a fight, this is how we've always handled it." Versus now, we have an actual team, we have a system that we can go through to get possible solutions, and nobody's solution is thrown off the table. Everything is taken in and we generate new ideas that actually make a difference.

Scaling Solutions

I identified the following themes related to challenges about scaling solutions: (a) the tendency to scale without sufficient evidence and (b) scaling without a plan to continue to learn about impact. I identified the following themes related to successes about scaling solutions: (a) achieving a scaled solution across high schools and (b) and sponsoring senior leaders.

Challenge 1: The Tendency to Scale Without Sufficient Evidence. One participant explained the shift required to test solutions and being careful to not scale initiatives before there was sufficient evidence. They further explained:

> I would say in general, the challenge with scaling is we don't start small enough and intentionally enough to learn if it's an improvement to start. And so, still trying to design for us as a school system to be really intentional and learn as much as we can so that when we scale solutions, they truly are vetted.

Another participant echoed the same sentiment, sharing:

> When it comes to scaling, we've never had a problem scaling because, guess what? We've scaled it to begin with, even if we don't really have confidence in the change. It's just a guess or a hope at that point.

The challenge to overcome was a strong connection between root cause analysis and the necessary change; the potential scaled potential scaled change had the right evidence base to limit the potential risk of disrupting an already volatile system.

Challenge 2: Scaling Without a Plan to Continue to Learn About Impact. Leaders consistently pointed to challenges of scale and a lack of intentionality in that process. Unlike the challenge of ensuring a solution had an evidence base, a related challenge was ensuring there

was an appropriate plan to scale where teams could continue to test the solution for reliability across those scaled contexts. They explained:

> We really do need to start smaller and more intentionally about what we want to learn. And then based off of that, making a really intentional plan to scale. Where are we going to go next? Do we need to learn more somewhere else?

They continued with a proposed approach to ensuring learning was captured about scaling impacts, sharing:

> And then, how is that going to then be translated across the organization? And so, I predict one of the things that we are going to need to be successful with in scaling once we can get really disciplined in learning about our possible solutions is a system or forum to share our learnings. So, it's a part of the real-time safety system. It's the sharing system.

The district identified the sharing system as an eventual need as they scaled the real-time safety system and its affiliated safety solutions more broadly. Although there were challenges, there were also successes.

Success 1: Achieving a Scaled Solution Across High Schools. Every pilot participant pointed to a particular problem regarding a fight at a high school football game that was addressed via the real-time safety system and resulted in a scaled solution across district high schools. The football game vignette details these problem-solving processes in depth in Chapter 3. Participants felt a sense of pride implementing the process in an effort to improve high schools. One participant explained:

> So, I would say a successful example was when we got all the high schools together, plus some other stakeholders, to be able to give input on raising the expectations around high

> school football games, especially the entrance and the seating. That was a huge success. And I think one of the reasons why it's successful is we brought people together and forced the conversation around, what is your perspective? So, the director of security, the director of communications, every high school principal, the director of secondary, who was missing? Students and parents' voice; however, really successful in being able to collaborate to get input and then go out and scale some possible solutions.

The team believed the solutions generated were of quality because they were developed to some degree by members of potential scaled contexts; in this case, they were leaders from the other high schools. The pilot team noted the huge success in even being able to scale a solution within 1 week that ultimately benefited all the other high schools in the area. This situation also created a problem-solving community and culture with people involved with managing the after-school events, making a smoother path to working together on a future problem.

Success 2: Sponsoring Senior Leadership. Having senior leaders at the high school and district work and scale a solution with intentionality was an identified success. One participant said, "Without those leaders advocating and supporting the team to work together, we probably would have never achieved this outcome." Another participant said, "Without that support [from the district office], it would have been business as usual."

District leadership's role in prioritizing the development of the safety system was key. Pilot participants felt a sense of autonomy to do this important work yet equally supported to collaborate to solve problems. A key shift noted was the district's ability to not push solutions down to them with little or no evidence that they will actually work. Empowering the front-line staff, including all staff at the pilot site, was pivotal.

Chapter Conclusion

It is important to note a few key learnings. Although fewer than a quarter of all fight and prefight incidents appeared in the safety events log, much was learned about the utility of the log when designed with purpose and practicality in mind. Updating the log itself was an initiation step for the more impactful process of investigating root causes.

Root cause analysis and fight and prefight behavior investigations only occurred a fraction of the time, even though the pilot team found it productive and beneficial. They were committed to learning how to be more efficient and reliable to engage in root cause investigations, solving for the problem of finding the time to engage. Although availability was a limiting factor, time taken to engage in root cause analysis was perceived to be worthwhile.

With only one or two stories of a fully scaled solution as a result of the real-time safety system pilot, the team believed they learned an immense lesson in how to design enabling conditions for the safety system components. Those adaptations to the model are shared in the synthesis of findings with the conceptual and theoretical framework in Chapter 3, with respect to the initial and developing problems of practice.

Chapter 3: Reflection

With this study, I set out to learn the enabling conditions for implementing an adapted safety system model based on the Toyota production system and exemplified at Alcoa under Paul O'Neill's leadership. Strengths and weaknesses regarding specific elements of the model were gathered from high school pilot participant interviews. These interviews also provided context around missing elements in the model that should be considered and further researched regarding the effective spread of the safety system in schools.

Vignette: Football Game Incident

By the middle of September 2022, the pilot team was challenged to document and investigate every safety event they encountered. They thought it could be a good opportunity to go through the problem-solving process together as a team when a significant incident occurred at a football game on their home field, which was a large fight involving multiple students in the stadium stands. A detail of the incident was captured in the log, which stated some students who apparently started the fight were not actually students from the high school and it was assumed they were from a neighboring alternative education district typically attended by students who have been expelled from their school district. As the pilot team began to discuss why the fight broke out, many theories were shared. Many of these theories pointed to the possibly expelled students and their intentions for attending the game. The assumption was they went to the game specifically to fight and cause trouble, although there was certainly no evidence of this assumption. The students were originally denied entrance into the game because they did not have student identification; however, they somehow made their way into the facility even though that should not have been possible. The pilot team hypothesized the students jumped the fence because there were no other areas to enter.

The team agreed to talk to staff involved in this incident to gain a deeper understanding of the events that took place and to avoid making assumptions. They wanted to learn who exactly was involved and how the fight was enabled to occur at an event so heavily staffed and monitored. The leadership team noted this agreement to learn more was a deviation from the normal villainizing that typically took place in these types of instances.

At the following team huddle, the team found the students were indeed expelled from a neighboring school but they were unable to learn exactly how the students had gained access to the field. One security staff reported there being no apparent break in the fencing but proposed the students could have used other students' identification cards to enter the stadium. They also noted several security staff had been congregating together in one area, which made it feasible for students to jump the fence without notice in some isolated segments of the fence line. What was most alarming to the pilot team was not the possibility of students jumping the fence; rather, it was alarming that expelled students did not understand they could not attend school events or thought it was possible to go unnoticed on school grounds. Either way, this situation was an unacceptable reality.

The team discussed the challenge it must be for gate guards to decipher between family members coming to watch the game and students coming to potentially cause a disruption. Although the high school may have information about which students from their own high school should not be allowed entrance to student events, there was no way for that same information to be shared from other community schools.

In-depth conversations among the pilot team and further investigations uncovered root causes of this incident. Root causes included: (a) no mechanism for consistent monitoring of students attending after-school events, (b) no approach to identifying students who should not be

allowed entrance to these events, and (c) ineffective security positioning. The principal pulled on the assistant superintendent, using her help chain support, to help in contacting the other high schools in the community to discuss this issue of student access to after-school events. The assistant superintendent was successful in scheduling a meeting with all the school principals where they shared similar challenges they faced and brainstormed some possible solutions as a team. One such solution was developing a common "no-go list." This list would be updated weekly with students across all high schools who should not to be allowed admission to any after-school event at any high school. This list allowed gate personnel to enforce this list and notify neighboring schools of students who were attempting to gain unauthorized entrance to an event. This list was also integrated into a newly adopted scanning system that could easily flag unauthorized students.

Pilot participants took this change back to their stadium facility teams, advocated for the need for this new process, and prepared for its implementation. After a few football games, the no-go list integrated into a scanning system was found to be an effective solution and was deemed a permanent change. Along with this change, high schools communicated the expectations for after-school event attendance and implementation of the no-go list with students and families.

One additional solution was implemented at the pilot high school stadium. Ensuring security staff were positioned at key locations was an important consideration. The head of security brought this message back to his team to ensure clear expectations around the importance of their supervision in preventing any unauthorized guests from entering the facility. Although it was never concluded whether or not gate breaching actually contributed to the event investigated, everyone thought it was a good practice not currently being observed.

The problem-solving process the team engaged in to solve this problem and scale solutions more broadly was thought of as an immense success of the safety system. Although it took many weeks to investigate and solve this single problem, the pilot team believed it was a worthwhile use of time and resources. Based on this single problem, a few key lessons were learned about the safety system model, its utility in schools, and enabling elements needed to fully maximize its potential. First, collective awareness of safety incidents is the purpose of logging events. Although the log can create accountability, documentation is meant to rally a team to action and bring insights to a larger community. Without a concrete capturing of this high school fight, the team might not have realized the utility in working on such a problem as a group because the person who was responsible for following up on the event might not have realized the connection this event had to various other members on the team.

As the pilot team began to discuss root causes, they very quickly noted their affinity to make assumptions about students and blame them rather than interrogate their own ineffective system for ensuring safety at school events. The practice of engaging in a root causes analysis as a team and avoiding the instinct to blame individuals provided the team an opportunity to grow as practitioners in this new process. Ultimately, they were responsible for ensuring all students and families were safe on campus; thus, building this new skillset around system redesign was key.

Another important lesson learned was around the role of leadership engagement to support the broadening of perspectives and to leverage resources. The principal noted that this investigation accelerated beyond a typical school sphere of control when the assistant superintendent agreed to make connections with other high school leaders from neighboring districts. She noted the importance of the district providing support to her team to fully own their

problem-solving process; however, there was a limitation in what they were able to achieve in terms of an investigation and eventual solution generation. Investigating this problem to gain a more global perspective across multiple high schools allowed them to test a solution that was not only viable to them in the short term, but also beneficial to all the high schools in the long run. It also opened a door for these school leaders to continue to problem solve together more generally as needed in the future.

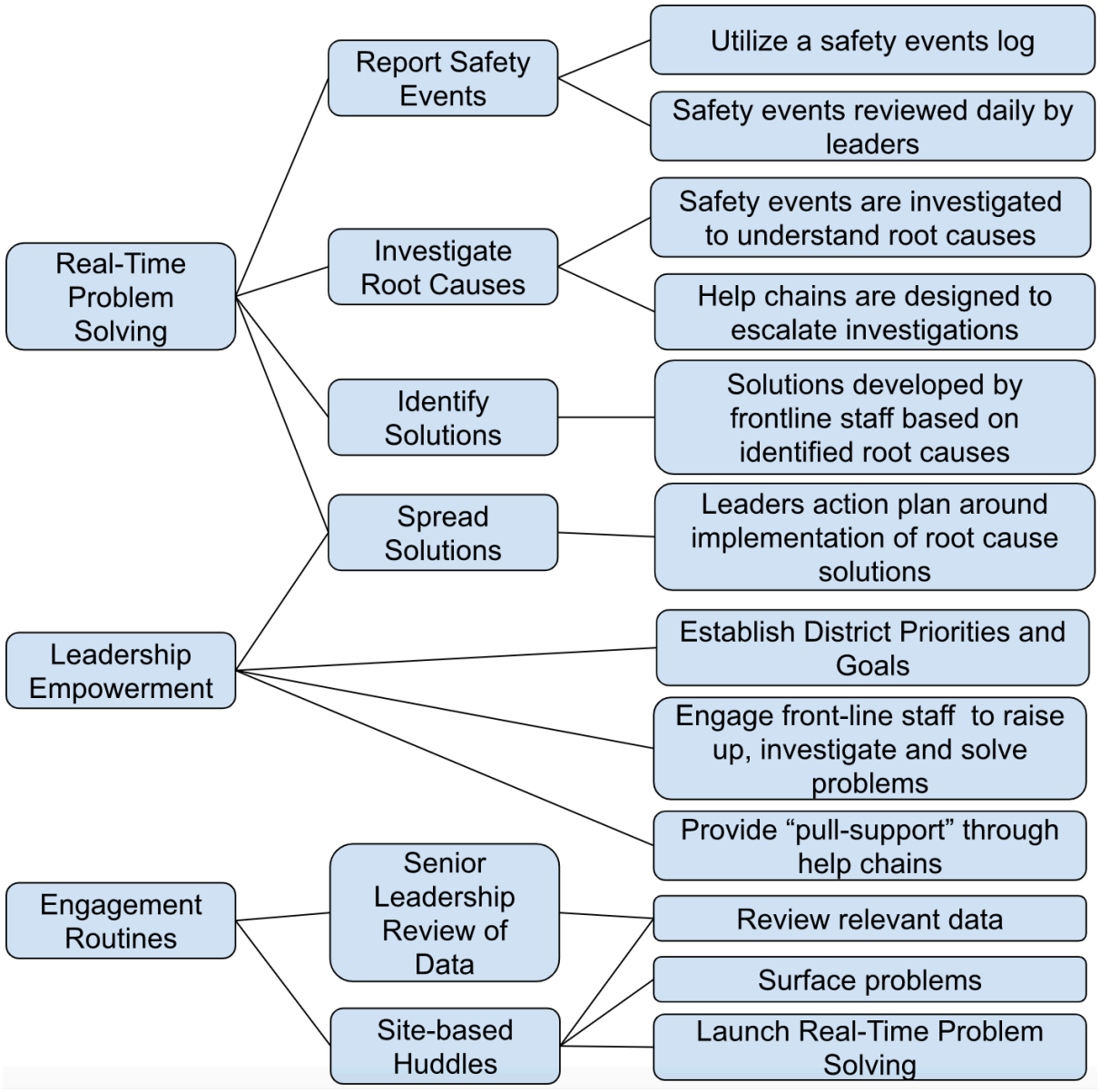
The assistant superintendent recalled the cross-over moment when she connected with other school leaders. It was not a heavy lift for her given her connection to the broader school community. It was also something that probably would not have happened if she was not regularly in touch with the pilot team and offering support as needed. The lesson learned was to have not only the appropriate senior leaders advocating for and supporting district priority work at a local level, but also engaging regularly to establish a truly supportive relationship between the district and school site.

Revision of the Safety System Theory of Improvement

Initially, the safety system model was based solely on the four components related to the problem-solving process in place at Alcoa: (a) reporting safety events, (b) investigating root causes, (c) identifying solutions, and (d) scaling solutions. Based on the experiences and lessons learned from the high school pilot team, adaptations to the problem-solving components were made, and two new drivers related to leadership empowerment and engagement routines were added. Figure 10 shows the adapted model with additional drivers.

Figure 10

Safety System Theory of Improvement



Note. Adapted from "The Power of Habit: Why We Do What We Do in Life and Business," by C. Duhigg, 2014. Copyright 2014 by Random House Trade Paperbacks.

Safety System Component 1: Reporting Safety Events

The time required to engage in safety system implementation is quite high. By far, the most cited issue with reporting safety incidents was related to the time it took to update the log. Regardless of the log design and its ease of use, reporting safety incidents felt like a heavy investment with far less payoff to the individual doing the reporting. Pilot leaders thought what might be at the heart of this challenge is the purpose of reporting safety events is not necessarily intended to benefit the individual reporting the event; rather, the beneficiary of the data is the district at large being able to see the occurrence of events and seeing over time to what degree those events are shifting as a result of the changes made.

One pilot leader reflected on a process to address this issue, saying:

> Once you put data into the log, consider who's looking at it, what conversations are being had, either individually or collectively to learn about that, to be able to share the learnings and make decisions together on how it scales.

Thus, motivating the need to report incidents became an important element of the leadership's guidance in bringing individuals into the safety system.

The pilot team implemented a huddle structure that began as a weekly meeting and shifted to a short, daily morning meeting. The principal thought this huddle structure gave the team time to update and review the log of safety incidents and prioritize any necessary root cause investigations. After this huddle structure was implemented, the team believed they were addressing time constraints by meeting first thing in the morning before a busy day. The meeting also allowed them to consistently align and prioritize safety overall as a site goal. Time allocated to huddle daily was just the first step. Further research must be conducted to understand the best

huddle structure for efficiency and effectiveness. At the time of the study, the pilot team was testing a new huddle agenda that the principal was leading.

Safety System Component 2: Investigating Root Causes

The huddle structure gave ample time for certain key staff (i.e., pilot participants) to ruminate on the safety events log and begin to discuss root cause investigations. What was intended to be a discussion about the investigations each individual was conducting on their own shifted to a more collaborative problem-solving process the team engaged in together. In the first month of the pilot, the team felt unsuccessful in their attempts to root cause each safety event and thought their investigations lacked the discipline necessary to get to a root cause. They made a shift in the second month that allowed them to choose one problem (i.e., the football game incident), and went through the entire problem-solving process together. This process allowed them to fully solve and scale one problem across multiple schools. Taking the time needed to understand and address one problem deeply was worthwhile because it would ultimately prevent other similar problems from arising in the future. The team will continue to choose high-leverage problems to investigate as a team, while still addressing smaller problems individually.

Safety System Component 3: Identifying Solutions

As noted in the football game fight problem, the key to a successful solution identification was not only conducting a thorough investigation, but also engaging others who experienced the problem from another perspective. This process required active engagement from senior leadership to serve as a help-chain connector and a commitment from the team to spend the time necessary to truly solve this problem at the root.

Safety System Component 4: Spreading Solutions System Wide

The pilot team felt a sense of pride that their work resulted in a scalable solution for others in the community. The principal noted a sense of hope and power to solve problems that had persisted her entire career. An important element of the model was not only identifying solutions, but also scaling them so future problems fail to exist. The pilot team learned they must seek to gain broader perspectives—which require relationships with individuals they do not regularly communicate with—to scale solutions. These individuals include district staff and leaders, leaders from other schools in the community, and students and families.

Safety System Component 5: Leadership Empowerment

A newly developed component around leadership empowerment was included in the new safety system model. As evidenced by multiple interview participants and as a key lesson learned in the football game problem-solving process, leadership played a critical role in empowering the school to address consistent problems of practice. For the pilot team, having the senior district leader establish safety as the number one goal was critical in their developing efficacy to address safety concerns.

The principal recalled a safety solution the team had been designing for months. *Tardy sweeps* was an idea they had about how to quickly usher students into class because students were lingering in the hallway unsupervised for long stretches of time. Many unsafe events tended to happen during these unstructured times so the school leadership wanted to do something about it. With so much on their plate, they never really felt empowered to put this change into place until after the superintendent made her call to action around safety. The team felt a sense of empowerment to finally put tardy sweeps into place; when they did, they saw a huge decrease in the number of students who were missing instruction and inadvertently engaging in

misbehaviors. The momentum the team felt continued as they launched the safety system pilot and continued to problem-solve fight and prefight behavior. The lesson learned was the power of district leaders to establish priorities to focus and empower local teams.

The pilot team appreciated the district leadership's stance to engage and support the site-level staff to solve their own problems. The pilot team believed they had the autonomy they needed to make a change without the complete abandonment by district leaders, yet with important support from district leaders when needed. Help chain enactment and cross-over support was necessary for the football game investigation and was the reason they got to a scalable solution that benefitted schools even outside of the district. The relationship between a site and district is important, and the lesson learned from this study was the importance of the balance between site autonomy and access to district support.

Safety System Component 6: Engagement Routines

With staff time being such a lacking commodity in schools, the development of structures that allow teams to regularly surface problems and engage in problem-solving processes is essential. In the case of the high school pilot, a quick, morning huddle ensured the team attended to the safety needs on campus and followed a disciplined process to solve problems at the root. The huddles ensured teams could build relationships that enabled the challenging of assumptions and created a space for broadening perspectives.

The huddle ensured leaders who were typically too busy to meet on a daily basis were available to engage with others and offer support as needed. It was the perfect time for district leaders to periodically check in to maintain sponsorship of site-level efforts. Importantly, the huddle allowed for regular opportunities to step back and take a look at the function of the entire

system while refining small aspects of the problem-solving process to increase productivity and efficiency of the team.

Recommendations for Further Research

Further research into appropriate safety log design could improve the experience around duplicated reporting with common student information systems that report to the state. Ideally, a school would only need to document safety events once, using a platform that syncs with necessary entities (e.g., the state department) and is able to produce reports for various stakeholder purposes such as for budget planning, stakeholder input meetings, or board presentations.

This study uncovered considerable learnings around the leadership role in empowering school-based staff to identify and solve safety problems of practice. Although the team uncovered important implications for safety system model design and implementation, there were not a considerable amount of problems solved at the root. In fact, much still needs to be learned about the specific, research-backed safety interventions based on the root causes uncovered.

Conclusion

This study intended to learn the enabling conditions for implementation of a safety system in education based on Paul O'Neill's leadership at Alcoa. The high school pilot team surfaced strengths and weaknesses related to the initial model design that provided enough information to adapt the model component and add additional components that were felt necessary for model effectiveness at a school.

As the district considers spreading the safety system to other schools, they should develop plans to enact problem-solving elements (i.e., reporting safety events, investigating root

causes, identifying solutions, and spreading solutions) in addition to carefully considering the leadership role in enabling the problem-solving efforts. They must also attend to the engagement routines to systematize the essential collaborative work.

Paul O'Neill decided to focus safety as a mechanism to develop keystone habits that would rewire the way Alcoa functioned to solve many kinds of problems (Duhigg, 2014). It worked; staff began to use the problem-solving tenants required for safety to improve the other areas of work, which is what transformed Alcoa to be the best in class. As evidenced by the principal at the pilot site, the pilot team began to employ the safety system components to identify, investigate, and solve problems outside of safety. The principal noted their ownership and efficacy to make a difference rather than to complain or settle for status quo. In this case, a focus on safety had improved the pilot team's ability to lead school improvement more generally. The district should attend to implementing and refining the safety system as they scale to other schools and attend to the broader goal of supporting keystone habits that enable the district to meet their strategic plan to meet all students' social and academic needs.

References

Aeries. (2023). *Aeries software* [Computer software]. https://support.aeries.com/support/solutions/articles/14000070181-student-discipline

Breiter, A., & Light, D. (2006). Data for school improvement: Factors for designing effective information systems to support decision-making in schools. *Educational Technology & Society*, *9*(3), 206–217. https://www.jstor.org/stable/jeductechsoci.9.3.206

Bryk, A. S., Gomez, L. M., Grunow, A., & LeMahieu, P. G. (2015). *Learning to improve: How America's schools can get better at getting better.* Harvard Education Press.

California Department of Education. (n.d.). *DataQuest* [Data set]. https://dq.cde.ca.gov/dataquest/

California Longitudinal Pupil Achievement Data System. (n.d.). *California Department of Education.* https://documentation.calpads.org/OnlineMaintenance/IncidentData/IncidentDataPage/

California School Dashboard. (2022, August). *Suspension rate indicator*. California Department of Education, California School Dashboard and System of Support. https://www.cde.ca.gov/ta/ac/cm/documents/suspensionrate22.pdf

Casteel, C., Peek-Asa, C., & Limbos, M. A. (2007). Predictors of nonfatal assault injury to public school teachers in Los Angeles City. *American Journal of Industrial Medicine*, *50*(12), 932–939. https://doi.org/10.1002/ajim.20520

Deming, W. E. (2018). *Out of the crisis*. MIT Press.

Duhigg, C. (2014). *The power of habit: Why we do what we do in life and business*. Random House Trade Paperbacks.

Fuentes, A. (2018, March 23). A brief history of violence in American schools. *Verso Books*. https://www.versobooks.com/blogs/3705-a-brief-history-of-school-violence-in-the-united-states-2011

Institute for Healthcare Improvement. (2023). *Plan-do-study-act (PDSA) worksheet.* https://www.ihi.org/resources/Pages/Tools/PlanDoStudyActWorksheet.aspx

Lean Institute Brasil. (2023). *Using the help chain to maintain production stability.* https://www.lean.org.br/comunidade/artigos/pdf/artigo_35_ingles.pdf

Lean Production. (2023). *Lean manufacturing terms and definitions.* https://www.leanproduction.com/lean-glossary/

Loder, R. T., Farooq, H., & Gianaris, J. B. (2022). Assaults in schools: Findings using a national data base. *Journal of Forensic & Legal Medicine*, *86*, Article 102306. https://doi.org/10.1016/j.jflm.2022.102306

MindTools. (n.d.). *5 whys: Getting to the root of a problem quickly*. https://www.mindtools.com/a3mi00v/5-whys

National Institute of Justice. (2020, January). *A comprehensive school safety framework report to the Committees on Appropriations*. U.S. Department of Justice. https://nij.ojp.gov/library/publications/comprehensive-school-safety-framework-report-committees-appropriations

Sattler, L. J., Thomas, K. A., & Cadet, T. L. (2019). Reactive protection? Fear, victimization, and fighting among U.S. high school students. *Journal of Interpersonal Violence*, *34*(17), 3666–3690. https://doi.org/10.1177/0886260516672054

Schatz, M., & Bergren, M. D. (2022). The huddle: A daily dose of communication. *NASN School Nurse*, *37*(2), 76–78. https://doi.org/10.1177/1942602X211056371

Spear, S. (2009). *High velocity edge, how market leaders leverage operational excellence*. McGraw Hill.

Spear, S., & Bowen, H. K. (1999). Decoding the DNA of the Toyota production system. *Harvard Business Review*, *77*, 96–108. https://www.leancompetency.org/wp-content/uploads/2015/12/Decoding-DNA-Spear-Bowen.pdf

Swanson, E., Thompson, C., & Fingerhut, H. (2019). Most Americans believe schools have become less safe in the 20 years since Columbine, poll shows. *The Associated Press.* https://coloradosun.com/2019/04/16/america-school-safety-poll-parents-columbine/

Thurmond, T., & Darling-Hammond, L. (2021, August 19). *State guidance for new laws on discipline.* California Department of Education. https://www.cde.ca.gov/nr/el/le/yr21ltr0819.asp

Value Capture. (2023). *Real-time problem solving (RTPS)*. https://www.valuecapturellc.com/real-time-problem-solving

Appendix A: IRB Approval

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GEORGE FOX UNIVERSITY HSRC INITIAL REVIEW QUESTIONNAIRE Page 11

Title: Enabling Conditions for Safety System Implementation

Principal Researcher(s): Shelah Feldstein

Date application completed: 7/31/2022

(The researcher needs to complete the above information on this page)

COMMITTEE FINDING: For Committee Use Only

☑ (1) The proposed research makes adequate provision for safeguarding the health and dignity of the subjects and is therefore approved.

☐ (2) Due to the assessment of risk being questionable or being subject to change, the research must be periodically reviewed by the **HSRC** on a basis throughout the course of the research or until otherwise notified. This requires resubmission of this form, with updated information, for each periodic review.

☐ (3) The proposed research evidences some unnecessary risk to participants and therefore must be revised to remedy the following specific area(s) on non-compliance:

☐ (4) The proposed research contains serious and potentially damaging risks to subjects and is therefore not approved.

Chair or designated member

8/9/22

Date