

Mapping Improvement at the Speed of GPS: One Educator Preparation Program's Experience with Improvement Science during the Pandemic

Sara C. Lawrence

Texas A&M University–Texarkana

Abstract: Current research supports the need for data-driven systems that occur naturally through a culture of continuous growth. Told through an ethnographic case study design and the lens of shared leadership, is the story of one educator preparation program's journey to improve curricula, clinical practice, and performance management through improvement science. Using the metaphor of outdated maps, improvement science has provided us a global positioning system (GPS) that allows us to know where we are in real time and pivot direction as needed as the landscape shifts. Understanding the journey of one EPP supports the work of other programs seeking to do the same in turbulent times.

Introduction

To date, most educator preparation programs (EPPs) continue to operate under processes that mirror our experience with our beloved, yet outdated maps. We rely on enrollment data, certification test scores, and completion rates to celebrate success and tell us where we are, even though the data provide little guidance for what we need to do and where we need to go. Like opening a large map in the car, we awkwardly continue to do *what we've always done* and wonder why we struggle as teams to agree on processes, progress, and next steps. Current research supports the need for authentic data, and data-driven decision-making systems, that occur naturally through a culture of continuous growth (Byrk, 2020; Ward, 2005). Told through an ethnographic case study design, is the story of one EPP's journey improving program curricula, clinical practice, and program performance management outcomes through improvement science. Today, more than ever, EPPs need to prepare teachers for ever changing conditions. Understanding the journey of one EPP will support the work of other programs seeking to do the same.

Shifting from Lagging to Leading Indicators

What is wrong with depending on certification test scores, enrollment, and graduation rates to plan improvement? Inherently, are all data points good? All data is helpful, but some data points are better in guiding improvement than others (Ward, 2005). In the early 2000s, literature on data-driven decision making expanded greatly in response

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to Race to the Top and state assessment initiatives (Supovitz et al., 2012). Even so, schools in the U.S. continue to fall short of goals leading to a call for education leaders to adopt improvement science strategies to guide decisions (Bryk, 2015; Bryk, 2020; Hinnant-Crawford, 2019).

Over the years, the fields of business and economics have distinguished between different types of data through key performance indicators (KPIs) to determine areas of success and identify weak areas for growth (Watts, 2019). In recent years, institutions including healthcare and education have embraced improvement science strategies from the world of business to better conceptualize data (Bryk, 2015; Bryk, 2020; Hinnant-Crawford, 2019; Langly et al., 2009). *Lagging indicators* like accountability testing, enrollment, and graduation rates represent summative data that assess a K-12 or higher education institution's current status on measured objectives. In education, lagging indicators are helpful in understanding the current state of an organization but do little to guide the organization in a direction that improves KPIs. *Leading indicators*, on the other hand, help an organization predict future outcomes on measured objectives (Watts, 2019). Leading indicators are often quick and easy assessments that predict and support identification of root causes that contribute to lagging indicators. For example, benchmark testing at the school level helps to predict how students will score on standardized testing and, more importantly, provide guidance in ways to intervene and improve possible outcomes. Supovitz et al. (2012) defined leading indicators as "systematically collected data on an activity or condition that is related to a subsequent and valued outcome, as well as the processes surrounding those data and associated responses" (p. 2). Supovitz et al. (2012) argued for greater emphasis on leading indicators that provide more meaningful data for improvement. More recently, the call for more meaningful data for continuous improvement has only gotten louder (Bryk, 2020).

Positionality and Context for Study

I have been a faculty member in education for nearly 20 years. In 2013, I read Goodwin and Kosnik's discussion regarding the role of the teacher educator. In the article, the authors ask, "What should teacher educators know, and how should they be prepared to assume their role? (p. 334). Since that time, I have wondered, how we can create a culture that supports education faculty in their development as teacher educators? In this study, I explore how a culture of improvement supports faculty development through a cultural perspective.

The content of the study takes place during the time I was the associate dean for the College of Arts, Sciences, and Education. At the time, my primary responsibility as associate dean was to lead and direct the educator preparation and education leadership programs. Since that time, I have returned to faculty as an advocate for improvement science with doctoral students seeking to solve practical problems in public school and higher education. My enthusiastic support for improvement science comes from my observations and engagement outlined in the current study.

Telling the story of continuous improvement efforts at my EPP not only adds to the conversation about what it means to be a teacher educator, it adds to the conversation of continuous improvement supporting EPPs in turbulent times. While I led the team, it was the team members that contributed tirelessly to improvement work as innovators in change

efforts (Rogers, 1995). As the leader of the team, I was required to be reflexive to ensure improvement efforts were fruitful. State data providing early evidence of growth show: a) content exam pass rates score in the top two in the university system, b) new teacher satisfaction rates reported score 10 percentage points higher than those reported statewide, 89% to 79% respectively, c) an accountability index of 97.22, well above the 85% standard, d) 33.9% of graduates employed in rural schools placing our EPP as a top producer of teachers in rural schools.

Ethnographic Case Study

“You don’t know what you don’t know” has been a saying used for years with our education majors. It’s a way to say to our education students, “give us a chance to share research-based knowledge that may counter instructional practices you’re familiar with”. What we didn’t know in fall 2019 was that we were about to have the same experience. As part of a large university system, we agreed to participate in a comprehensive week-long “data-driven inspection process” that works to improve teacher preparation programs to ultimately benefit student outcomes (see <https://www.tpius.org/>). Our question of inquiry became, what conditions support continuous improvement efforts? The current study examines efforts and activities of the EPP from the cultural perspective examining conditions that support a culture of continuous improvement and development of teacher educators. Since the case study does not meet the criteria for research involving human subjects, approval from the Institutional Review Board was not required. Several faculty members involved in study activities have reviewed the manuscript to assess the validity of my interpretations.

Method and Approach

Using an interpretive approach, the current ethnographic case study examines activities conducted from fall 2019 through spring 2022. Data for the case study is taken from documentation including meeting notes from faculty meetings, advisory meetings, meetings with external partners, training activities, and data from plan-do-study-act (PDSA) cycles. From data, I worked to excavate the truth, at the micro-social level, regarding the culture of continuous improvement from the facts seen, heard or felt. Case study activities are viewed from the lens of shared leadership. In a recent book written in the time of the pandemic, shared leadership relies on the use of the “diverse voices” and new patterns of working together to meet the ever-changing conditions in higher education (Holcombe et al., 2021). I analyze and describe events and patterns that contributed to improvement outcomes. Lastly, I interpret findings based on a timeline of events, as shown in **Table 1**, and present conclusions about what was learned.

Table 1. *Timeline of Continuous Improvement Activities*

Fall 2019	Spring 2020	Sum. 2020	Fall 2020	Spring 2021	Sum. 2021	Fall 2021	Spring 2022
Program Inspection	Established "Revive Meetings"; Identified root causes	MOUs with External Partners; Established plan for improvement	Faculty PD: Inclusive Teaching & Clinical Feedback	Faculty PD: Practice-Based Teaching & Performance Measures	PDSA 1: Curriculum & Clinical Practices; Established Governance Meetings with District	PD with Internal & External Partners; Faculty Data Celebration	PDSA 2: Curriculum & Clinical Practices; Extended Governance Meetings with more Districts

Study Setting

The setting for the current case study is a small university, less than two thousand students, in Northeast Texas. The region is comprised of small towns and rural communities. Serving a region where the average income rate is lower than the U.S. rate, 65% of students are eligible for financial aid. Graduates largely remain within a 75-mile radius of the university in a 4-state region. They establish careers, have children, and grow their families in the region. Their children are educated in schools that hire our teachers and education leaders. During the time of this study, approximately 120 students seeking teacher certification graduated with their bachelor's degree. As a result, we take our responsibility to the region very seriously. While our education faculty are seasoned educators and education leaders, we knew we needed to improve procedures and practices to meet ever changing needs of our students. Therefore, continuous improvement efforts were inspired by the words of Maya Angelou, "Do the best you can until you know better. Then when you know better, do better."

Findings

The following presents findings from the case study that reveal conditions that occurred allowing a shift in culture to happen within the EPP. The presentation based on time is important as outcomes that occurring at one time period could not happen had not the previous outcomes had occurred. For example, had the group not participated in trainings together, there wouldn't have been a syllabus walk in August 2021 that triggered a Plan-Do-Study-Act (PDSA) cycle in the fall of 2021 that supported curricular changes.

Fall 2019: Established Need for Improvement

As mentioned earlier, in the fall of 2019 the EPP participated in a week-long inspection. The chair of the teacher preparation worked with faculty and districts to arrange for the interviews and observations of current clinical placements, classrooms of alumni, meetings with principals and superintendents, meetings with faculty, and observations of classes. The inspection included a review of EPP handbooks and other program documentation. At the end of each day, the inspectors met with faculty to share findings and answer questions. In December 2019, the EPP received the final inspection report and at the end-of-semester meeting reviewed the thorough report as a group. The comprehensiveness

of the inspection report was critical in developing a common understanding of our strengths and weaknesses for discussion and planning.

Spring 2020: Establishing a Structure for Collaborative Work and Root Cause Identification

At the beginning-of-semester meeting in January, the group established a “Revive Committee” that would meet weekly to support improvement efforts. Soon, all EPP faculty requested to be part of the Revive meetings. In an education department at a small university, this included 12 faculty. When everyone was forced home for lockdown due to Covid-19, a regular connection meeting among education and education leadership departments was established via Zoom with the intention to check on each other during an alarming time and to establish shared routines and strategies for working and teaching online. In connection meetings, we advanced our Zoom skills, together, along with knowledge in online instructional techniques (Petriglieri, 2020). The online format of the connection meetings was applied to weekly Revive Meetings. We started working with living agendas in Google Drive that provided transparency and allowed everyone to add to the agenda. The first task of the Revive Committee was to identify root causes and bright spots of our EPP program. Based on the inspection report, faculty identified the following root causes: (1) lack of effective internal and external communication; (2) lack of coherent systems for improvement; and (3) weaknesses in integration of systems across discipline areas, such as “working in silos.”

Summer 2020: Putting Systems in Place

Throughout the summer, the Revive Committee kept working. We knew our first task in improving communication and systems with districts was to establish Memorandum of Understanding (MOUs). Leadership worked with system deans to establish a systemwide MOU that established “collaborative learning-centered education partnership” based upon shared governance. Once approved, we met with area superintendents and district representatives to explain our *Growing Teachers Together* initiative. Through the initiative, we entered into MOU partnerships with 12 districts.

At the same time, a leadership team of five faculty met regularly with our external foundation partner (see <https://www.charlesbuttfdn.org>) to develop an improvement plan. By the end of summer, we established a 3-year aspirational goal that expressed the vision of the work as follows: EPP will prepare graduates to be ready to teach day one maintaining our strengths and eliminating inadequacies in *clinical experiences* and *coursework*. District partners, university faculty, staff will enjoy greater well-being due to clarity of purpose, common language, and understanding of roles and practices.

Fall 2020: A Plan for More Systems and Needs Based Training

The work we did over the summer provided a vision of where we wanted to go but lacked clarity on how we would get there. We continued working on an improvement plan that included aims, drivers, and activities with indicators to assess improvement. One of the activities included working with a center committed to providing technical assistance for

high quality teacher preparation (see <https://www.usprepatioalcenter.com>). With technical assistance, we began working on new processes and procedures for our clinical practices with districts. And with district support, we established processes for identifying and supporting cooperative teachers.

With the pandemic in full force in fall 2020, the start of the semester included university-wide focus on providing more online and Hyflex course delivery options. Public school districts greatly increased virtual options for students as well. With improvement aims clearly articulated, the EPP provided a 7-week training earning 32 faculty and adjunct faculty teaching education majors a micro-credential in *Creating an Inclusive and Supportive Online Learning Environment* (see <https://go.acue.org>). Even though Google Classroom certification for teacher candidates was already offered, the training provided faculty a way to communicate online instructional strategies with greater depth to candidates at a time when virtual teaching was growing exponentially.

Spring 2021: Focused Training for Teacher Educators

With a clear vision, the continuous improvement plan focused on course improvements for a commitment to equity, common vocabulary, practice-based instruction, performance assessment, and high leverage instructional practices (Ball & Forzani, 2010; Forzani, 2014). Faculty participated in Zoom trainings together and debriefed during Revive meetings. Also, during Revive meetings, faculty worked on a common vocabulary and participated in discussions regarding equity and inclusion. Beyond Revive meetings, field supervisor and cooperating teacher training were prioritized. New cooperating teacher training was developed and implemented.

Summer 2021: Leading Indicators Fully Implemented

In summer of 2021, a smaller group worked on the revision of handbooks and forms to reflect new processes. In addition, external partners (see <https://www.teachingworks.org>) and program leadership provided Zoom workshops for faculty to practice teacher education learning cycle, practice-based instruction (e.g., rehearsals), and equity-minded instruction and integrate into syllabi and coursework (Gutiérrez, 2012). At the August retreat, faculty participated in a syllabi walk in which they reviewed and discussed program syllabi. At the retreat, faculty agreed upon core features to be present in education syllabi. The work at the retreat represents a critical shift as this is where we started formally working on Plan-Do-Study-Act (PDSA) Cycles that provided leading indicators to assess improvement.

Fall 2021: Leading Indicators and Teacher Shortages

An instrumental part of the shift was the identification of two data leads, faculty from education and education leadership, for improvement work. One data lead focused on quantitative data and the other focused on qualitative data based on individual strengths. Data Leads and I worked with external partners (see <https://www.wested.org>) and met bi-weekly to discuss practical measures, data collection, and data sharing. In the fall of 2021, the data leads collected and analyzed clinical data presented in shared governance meetings.

In addition, faculty were implementing the teacher education cycle using practice-based strategies (e.g., teaching rehearsals), high-leverage practices, dimensions of equity, and academic writing/reflections into their coursework. This forward momentum provided the optimal conditions for the December 2021 data celebration. During the data celebration, the data leads shared the semester data, analyses, and recommendations. Faculty shared recordings and artifacts from integrating practice-based and other instructional practices. Progress was discussed and everyone could clearly see how all the pieces fit together to show exactly where the EPP was and where we needed to go next.

There was a dark cloud in the fall of 2021 when the extent of the teacher shortage became clear. Districts began hiring students as “instructors” in schools to cover classes. Students only a semester away from graduation were seeing the opportunity as a chance to start their career early with pay without having to do unpaid clinical work. The number of candidates in clinical work dropped by 71%. In August, a shared governance meeting with our largest district made the commitment to identify solutions. As a result, we developed a “Bridge Program” in which candidates could remain an education major, take courses online or via Hyflex, and graduate without certification. Upon graduation, graduates seamlessly entered our alternative certification and received high quality field supervision for their internship year. The pathway allowed candidates to finish authentic and practice-based coursework while teaching and earning a paycheck. In implementing the Bridge Program, we were able to retrieve all students back into our education program for high quality field supervision while still supporting the needs of our districts.

Spring 2022: Alignment and Focus

In the spring, curricular work became more horizontally and vertically aligned, and data work more focused. Data leads implemented and refined easier-to-use practical measures and curricular and data work became intertwined and were shared regularly in Revive meetings. Due to the work of data leads, program gaps were unearthed. For example, data leads found disposition surveys collected regularly from cooperating teachers were not reviewed nor acted upon to benefit teacher candidates. As a result of their analysis, procedures were established for disposition surveys during clinical teaching. Disposition measures were also added earlier in coursework so that student growth could be monitored throughout the program.

Faculty implementation of agreed upon practices were measured through a Plan-Do-Study-Act (PDSA) cycle that included self- and peer-review of syllabi, self- and peer-review of rehearsals, and student pre- and post-surveys. Analysis of self- and peer-review of syllabi showed faculty tended to rate their own syllabi higher than those of their peers making faculty aware of their own biases. Anonymous data from students were collected to support examination of learning outcomes effectiveness. Students completed pre-survey questions (at the beginning of semester) that were later compared to post-survey (at the end of semester) that provided formative feedback for the instructor early in the semester and evaluative feedback at the end of the semester. Small groups continued to meet to determine a program progression of expectations for academic writing, practice-based teaching, culturally responsive teaching, and high-leverage practices. The faculty recorded their teaching practices in online and face-to-face classes and shared in Revive meetings for peer review and feedback. The May data celebration included a thorough review of curricular and

data work completed in the spring semester, from multiple perspectives. Data from field observations revealed the need to narrow the number of dimensions observed to ensure teacher candidates received thorough feedback for fewer but critical dimensions needed for individual candidate growth. Areas for growth for teacher candidates, cooperating teachers, and field supervisors were also identified supporting next steps for training.

Conclusions and Implications

According to Kezar and Holcombe (2017), shared leadership involves the expertise and shifting responsibilities of a diverse group. At times, certain individuals may take leadership roles that are then succeeded by others due to individual strengths needed at specific times for specific purposes. Holcombe et al. (2021) contend that, due to the challenges higher education is experiencing and the complexity of ever-changing conditions in the world now more than ever, shared leadership is needed to move institutions forward to address daunting issues. From the context of the pandemic that led to a shift in virtual teaching and massive teacher shortages, this was certainly the experience for one EPP during the pandemic.

From a shared leadership approach, we were able to tap into the talents and expertise of our faculty to make improvements that not only addressed issues identified before the pandemic but also provide systems that enabled us to identify and address ongoing needs. Shared governance with districts and the structure of Revive meetings allows regular opportunities to communicate, assess where we were, and where we needed to go. No longer did we need our outdated maps as the systems in place provide a global positioning system (GPS) that provided direction in real time. The May 2022 Data Celebration clearly showed that the EPP was effectively using improvement science to pinpoint where we are and where we need to go next to meet program goals based on our own values (Byrk, 2014; Dorel et al., 2016; Hinnant-Crawford, 2019; Lewis, 2014).

Further, with systems in place, we were able to pivot and change direction as the landscape shifted. This was evident when we were able to seamlessly provide virtual training to education faculty so they could, in turn, train students maximizing the virtual environment during the pandemic. Also, when the teacher shortage crisis impacted our schools and our program, through the momentum of a shared governance meeting we were able to pivot direction again and create a solution to support our EPP and the districts we serve.

The lessons learned from this experience were many. Primarily, internal and external communication structures were essential to establishing productive working conditions; then secondly, training and technical assistance through external partners were critical supports in teacher educator development providing skills, knowledge, context to establish systems and processes that enabled us to innovate and pivot as needed. The support expanded our understanding of what it meant to be a teacher educator. It took constant communication through ongoing, open, and honest meetings established early as critical to pushing us through the barriers unavoidable in transformation work (e.g., initiative fatigue, competing priorities, faculty transitions). And admittedly, at times, working and training with external partners, we all felt we were in a 3-ring circus. But as time and improvement efforts progressed, and confusion turned to clarity, the 3-ring circus metaphor shifted to a metaphor of dance partners. The shared leadership approach positively impacted the culture of the department. Holcombe et al. (2021) note that shared leadership “influences how

people think and feel, as well as how they act or behave” (p. 47). They describe benefits that include the ability to think more deeply about complex issues, higher level of satisfaction in their work, more cohesion among the group, and increased confidence and trust.

Lastly, and certainly not least, it was the willingness of faculty to participate in this undertaking during pandemic that led to improvement. Without ego or defensiveness, faculty accepted and appreciated the feedback external partners, data leads, and each other to work creating timelines, routines, and training to improve teacher candidate experiences. Not surprisingly, the willingness was not all the time and by all, but enough to support each other in a culture of improvement that provided momentum allowing improvement to happen. As Maya Angelou grew up only 30 miles north in Southwest Arkansas, we're compelled to end with another quote that epitomizes, succinctly, the improvement work conducted, “When you learn, teach, get, give.”

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About the Author

Sara C. Lawrence, PhD, is Associate Professor of Educational Psychology in the Department of Education Leadership. She works with doctoral students as *scholars of practice* with an inquiry mindset to lead complex organizations.